

**ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE**

February 1, 2012

3:32 p.m.

MEMBERS PRESENT

Senator Joe Paskvan, Co-Chair
Senator Thomas Wagoner, Co-Chair
Senator Bill Wielechowski, Vice Chair
Senator Bert Stedman
Senator Lesil McGuire
Senator Hollis French
Senator Gary Stevens

MEMBERS ABSENT

All members present

OTHER LEGISLATORS PRESENT

Senator Cathy Giessel

COMMITTEE CALENDAR

State Tax Policy and Oil Production: The Role of Severance Tax and Credits for Drilling Expenses by Dr. Shelby Gerking

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

SHELBY GERKING, Ph.D.
University of Central Florida
Professor, Tilburg University (The Netherlands)

POSITION STATEMENT: Gave presentation on State Tax Policy and Oil Production: The Role of Severance Tax and Credits for Drilling Expenses.

ACTION NARRATIVE

[3:32:56 PM](#)

CO-CHAIR JOE PASKVAN called the Senate Resources Standing Committee meeting to order at 3:35 p.m. Present at the call to order were Senators Wielechowski, Stevens, French, Stedman, Co-Chair Wagoner and Co-Chair Paskvan.

State tax policy and oil production:
The role of severance tax and credits for drilling expenses
by Dr. Shelby Gerking

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CO-CHAIR PASKVAN said today Dr. Shelby Gerking would present research he had participated in that appears in Chapter 9 of a book published in 2011 called "U.S. Energy Tax Policy." A number of chapters in the book deal with the oil industry in Alaska and aspects of taxation. Chapter 9 is co-authored by Dr. Gerking and is titled "State Tax Policy and Oil Production, the Role the Severance Tax and Credits for Drilling Expenses." Two other research papers have been authored or coauthored by Dr. Gerking titled "The Effective Tax Rates on Oil and Gas Production, a 10 State Comparison," dated 2005 and "State Taxation Exploration and Production in the U.S. Oil Industry," dated 2001.

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SENATOR MCGUIRE joined the committee.

CO-CHAIR PASKVAN said that Dr. Gerking noted in his research that "Alaska has increased the severance tax on the value of its oil production and attempted to stimulate future production by allowing a credit against this tax for expenditures on capital items including drilling rigs, infrastructure, exploration and facility expansion." And while Alaska has not been the sole focus of Dr. Gerking's research, he had tracked the changes in Alaska's tax policy over the past decade. His research on state tax policy and oil production is obviously relevant to the important issues before the committee and to the State of Alaska. He welcomed Dr. Gerking and asked him to provide his educational background and professional work experience and to briefly get into the types of research and experience regarding state tax policy and oil production.

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At ease from 3:36 to 3:37 p.m.

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SHELBY GERKING, Ph.D., University of Central Florida and Tilburg University (The Netherlands), testifying via teleconference, said that he was born in Indiana and got a PhD in economics from

Indiana University in 1975. He worked at Arizona State University, Indiana University and Wyoming. He had been at the University of Central Florida for the last 11 years and currently has a professorship at Tilburg University in The Netherlands.

MR. GERKING said he worked with aspects of energy tax policy for the past 30 years and his first experience was a study he did with two co-authors for the State of Kansas in 1982/83. Most of the time he spent working in this area was in the State of Wyoming (the 2001 paper). He did a major study for that state in 1999/2000. He did another study in the State of Utah in addition to the one dated 2005. He has also participated in deliberations on severance tax policy on a less formal basis in California, Pennsylvania and Alberta; that culminated in the paper written for the American Tax Policy Institute that was presented in Washington in 2009 and published last year.

CO-CHAIR PASKVAN asked him to explain what the American Tax Policy Institute's function is.

MR. GERKING replied it is mainly to have conferences to vet issues particularly on energy tax policy as it comes from primarily the federal government and to an extent the state government. The institute is funded by private gifts and doesn't have a legislative agenda.

CO-CHAIR PASKVAN asked if it is a neutral group especially as it pertains to tax policy.

MR. GERKING replied yes, as far as he knew.

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CO-CHAIR PASKVAN asked if he had appeared before other state legislatures to provide opinions or thoughts regarding tax policies in America relating to the oil industry.

MR. GERKING answered that he had appeared a number of times in Wyoming, once in Kansas and another time in Utah.

CO-CHAIR PASKVAN invited him to begin his power point presentation that would be operated in the committee room by one of his staff, Kimberly VanWyhe.

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MR. GERKING began and said he got into the tax policy area in Kansas where he was asked to compare severance tax rates between

states. At the time, he wasn't aware of how different the tax bases were to which severance taxes are applied. Each state has different exemptions and credits; some levy a severance against the value of oil production at the well head and others levy the same tax against the well foot. In Alaska, the severance tax rate depends on the price of oil; some states levy local property taxes which work just like severance taxes and Wyoming is an example of that.

He said there is more to the story of comparing taxes between states than just taking the nominal (legislated) severance tax rate that appear in the statutes and comparing the numbers, because that amounts to a real apples and oranges comparison. If you are going to make these comparisons it's good to calculate effective tax rates; in other words put all the tax rates on a common basis by taking severance tax dollars collected and dividing that by the value of production. You can get the value of oil production on a common basis by using the prices by states over time that are available from the Market Petroleum Institute and multiplying that by quantity of oil produced (available from the U.S. Department of Energy (DOE)).

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He said when he talks about tax rates he means effective tax rates such as those in table 9-1 on slide 3.

CO-CHAIR PASKVAN interrupted to announce that Deputy Commissioner Tangeman was present.

MR. GERKING explained that one of the points table 9-1 illustrates is that the effective tax rate percentages are lower than the nominal rates; that is because states sometimes grant credits and exemptions against the severance tax. So, the effective tax rate [indisc.] goes out while the nominal rate would not. He also listed the corporate income tax rates for each state using nominal rates.

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He said slide 3 asks the question of the day: What is the effect of a change in the severance tax rate or a change in incentives to find new reserves? There are two ways to do a study to answer those questions; one is a statistical study using observational data for one state or many states. But data aren't good enough in most states to use so he used a simulation model.

His simulation model (slide 4) was based on Hotelling (1931) followed up by some work by Robert Pindyck in 1978. The model

has stood the test of time; it was not based on any particular ideology or political philosophy. It's just a model to try to represent how profits can be maximized over time. To talk about profit maximization you have to talk about revenues: production from existing reserves and exploration from new reserves. The model treats revenues and also treats relevant costs: drilling and lifting (operating) costs.

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At ease for technical problems from 3:51 to 3:55 p.m.

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MR. GERKING recaptured his previous testimony saying that the simulation model has stood the test of time and didn't represent any philosophy. It describes profit maximization in the oil business in a simple way over time; it is an abstract model expressing oil profits by looking at the difference between revenues and costs, a difference one hoped would be positive.

He explained that the model has two key features that are worth more explanation: one is that it compares both the cost of drilling and the cost of operating a well to the amount of oil produced. It's not simply a matter of comparing the cost of drilling or production between states; those collective costs need to be compared to the amounts produced. For example, one of the highest cost areas to operate in in North America is the Gulf of Mexico, but the payoff is high. On the other hand it is still probably true that Kansas is an example of a state where costs are lower and payoffs from oil production are comparatively smaller than Alaska. It's critical to compare costs and the amount produced and less important to compare straight costs between states.

He said the second feature of the model is that it accounts for the interaction between state and federal tax collections. This refers to the fact that the severance tax is a deductible item against federal corporate income tax liabilities. This is an important point, because if the severance tax is increased on oil in Alaska, that will create a larger deduction for oil companies against their federal corporate income tax. So when you raise taxes it's like you're getting a portion of the proceeds indirectly from the federal government. On the other hand, when you reduce the severance tax, that's going to increase federal corporate income tax payments and that is some of the revenue the state could have had.

MR. GERKING explained that the model uses data on production costs, proven reserves, federal in-state corporate tax rates along with a lot of other data and uses a discount rate of 4 percent (to have a way to get production and the value of production from a future year back to the present for later comparisons).

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MR. GERKING said in the paper written for the American Tax Policy Institute the model is set up not to be a model of a particular state - it is not a model of Alaska - it is of an average state (but, of course, no state would claim to be average either) to show how the taxes work in general. He said he had never made a model of Alaska before, but it could be done.

One question would be if these results actually pertain to Alaska and after having made models like this of a number of other states he thought they did. The differences between them are not very great; so the general conclusion you can draw from this paper would hold largely in Alaska.

MR. GERKING said the model looks at four different scenarios: what would happen in this average state if the severance tax rate equaled zero (model A); a situation where the severance tax rate is equal to 12 percent (model B); a severance tax rate equal to 25 percent (model C); and model D is the same 25 percent severance tax rate with a credit of 22 percent of drilling costs against severance cost liability.

Since the purpose of the model is to show how taxes affect production over time, the next graph showed oil production over 60 years for each of the four scenarios. One would think there should be four different lines, but the point is that you can change the severance tax rate but it doesn't really affect production. You may wonder why that is true and the easiest way to make that point is to go figure 2.

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He said figure 2 graphs the relationship between the real price of oil from 1959 to 2007 against two other variables: U.S. proven oil reserves and the total U.S. production from the proved reserves. He noted the two significant spikes in the price of oil in 1990 and 2007 and that this graph indicates that oil production just didn't respond to those spikes. It just continued to decline slowly as reserves within a unit fell. And

this is the same pattern he has observed for all states as well as the U.S.

MR. GERKING asked why this graph would have any importance for a study of the severance tax and said usually the severance is levied as a percentage of total revenue and that is like taking a little bit away from the price of each barrel of oil that is produced. So if you change the price of oil, it doesn't change the production of oil by very much. There is no sharp response of production to a change in the price; and if there is no sharp response to a change in price there won't be a sharp response to change in the severance tax either. What does respond to a change in the price is drilling he said (graph on page 10).

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At ease for technical problems from 4:07 to 4:11 p.m.

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CO-CHAIR PASKVAN called the meeting back to order and asked Mr. Gerking to review his last comments.

MR. GERKING reviewed a little bit about the four different tax scenarios that range from a no severance tax situation to the situation in model D that has a 25 percent severance tax and a credit for drilling expenses against the severance tax. Even the substantial tax increase from zero to 25 percent doesn't affect production very much. Why that result? Figure 2, a plot of data taken from API and the U.S. DOE, showed that U.S. oil production over the last 50 years had not responded to the spike in oil prices that occurred in the early 1980s and 2007; it had simply followed the declining proven reserves down.

MR. GERKING said to make an educated guess as to what production would be in a particular year, just take 9 or 10 percent of proven reserves and you're going to come pretty close; you don't even need the price to make that prediction.

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CO-CHAIR PASKVAN asked if the chart about pricing indicates that there is an inelasticity of production relative to an increase or a decrease in tax and an increase in production relative to the price of oil.

MR. GERKING replied yes and explained that it's important to know that the severance tax just changes the price that producers see. It doesn't really affect production. It does affect drilling activity (figure 4 on slide 10), however, and

the production from the drilling activity would be seen over the next 10 to 20 year period.

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SENATOR MCGUIRE asked if he had studied Alberta's tax system at all.

MR. GERKING replied that he had looked at it but was not an expert on its system. There are substantial differences between Alberta and any U.S. city.

SENATOR MCGUIRE said the reason she asked is because Alberta is Alaska's closest neighbor when looking at investment behavior in Arctic environments. She wondered if he had researched how his theories on inelasticity and elasticity apply when Alberta changed its tax model to capture "windfall profits" and saw a dramatic decline in investment. In fact, the companies that were investing simply shifted over to the next province of Saskatchewan. The data was there and many politicians lost their seats and another change ensued once a new government took over. She was curious if his theories hold up after analyzing that circumstance and if his theories fluctuate in a high priced oil environment.

She remembered a time about six years ago when other esteemed intellectuals like him told legislators that never in history had there been a time where oil and gas did not deviate from one another by a ratio of 6:1. She didn't have time to research it herself and thought it true and then in the last four years with the discovery of shale gas the deviations have gone up to 29:1 on any given day. Now the State of Alaska is considering decoupling its oil and gas systems. The point is that sometimes people rely on data based on a certain price environment and that can change and that tied into her question about him looking at a high price oil environment.

MR. GERKING replied the short answer is that what he says would be more applicable when the price of oil is very high. With respect to Alberta, he wouldn't try to guess what their tax system is on the oil industry. He offered to find someone in Alaska who might be able to contact her with that information.

SENATOR MCGUIRE said that would be excellent and added that when they moved from the PPT to the ACES model it hadn't been seen before in other jurisdictions. The idea of progressivity came from Alberta's "windfall profits tax." So, the idea was in this high priced oil environment, which people are predicting will

last for a while, should Alaska, as the owner of the subsurface rights, share in more of the profits at the higher end. The idea was yes, and they applied the progressivity rate making the model slightly different. The progressivity appears to have a detrimental impact on production in the state and if she relied on just his three articles she would say that's wholly impossible.

MR. GERKING suggested that production could be declining for reasons other than the tax.

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CO-CHAIR PASKVAN asked Mr. Gerking to explain what he meant by saying a high price would be more support for his theory.

MR. GERKING answered when prices are rising, the oil industry profits are also rising. So, the severance tax represents a lower percent of industry profits than if profits were lower.

CO-CHAIR PASKVAN said one of the questions posited at the beginning of his article is whether state taxes tilt the time path of energy production to the present or the future. He asked him to comment on those policy implications.

MR. GERKING replied that a contrasting policy would be the property tax on reserves that California levies. In California there is no severance tax; they levy a property tax on reserves and if you levy such a tax it will speed up production over time, because the industry will want to get the oil out of the ground more quickly than they would otherwise, simply to reduce the base on which they will have to pay the tax. So, in academic literature a question has developed whether a severance tax slows down production so there is less now and more later. That tends to happen in their model, but the effect is very small, so small you shouldn't worry about it.

CO-CHAIR PASKVAN asked as a policy what he thought about shifting production to the present as compared to the future.

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MR. GERKING replied that it's a question of what the state wants to do with its oil production. It would require a value judgment. As a steward of the state's resources, he would want to make sure they wouldn't end up "eating our seed corn." By that he meant you want to preserve those resources in the ground until it's the right time to remove them. He wouldn't want to see production speeded up at all.

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CO-CHAIR PASKVAN asked him to comment on Alaska's credits on oil taxes in relation to a statement in his article that says, "A drilling expense credit may cost more than the incremental severance tax revenue obtained...although such credits may be worthwhile concessions if a state's objective is to generate greater support for increasing the severance tax rate."

MR. GERKING answered "in plain English" if anybody thinks the credit for drilling expenses against severance tax liability would pay for itself in increased severance tax collections later, they will be disappointed. The drilling tax credit is just going to cut the tax revenues in the long run as illustrated in the model table 9.3 on page 325 of the paper. The discounted severance tax collections would be lower in model D than they are in model C by approximately \$12 billion.

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SENATOR FRENCH explained under the old taxation system (before going to a profits-based model) Alaska had the economic limit factor (ELF) that was a declining production tax rate over time for some fields. Kuparuk, the second largest oil field in North America, in 1996 had a severance tax rate of 12 percent and that declined steadily to below 1 percent in 2006 - a 10-year period of real time reductions in the production tax rate. During that same time the decline rate for that field ran about 7 percent, which is consistent with the decline rate at Prudhoe Bay. Does that data suggest anything to him about the model he has been describing?

MR. GERKING replied without having a chance to review it, it sounds like the production is just following its natural decline down as reserves fall, and the decline in the tax rate doesn't have anything to do with the production.

SENATOR FRENCH said that is an argument he had been making independently of Mr. Gerking's analysis and that he would send him the charts for his review.

MR. GERKING said he would be glad to look at them.

CO-CHAIR PASKVAN asked if that analysis is consistent with the graph in 9.1.

MR. GERKING replied yes.

CO-CHAIR PASKVAN asked his general thoughts on comparing Alaska with other states.

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MR. GERKING asked with respect to what variables.

CO-CHAIR PASKVAN replied tax rates, primarily.

MR. GERKING replied it's hard to make a comparison of tax rates and you have to look at the effective tax rates he mentioned earlier in the presentation rather than looking at nominal tax rates explained that he has always felt the need to put tax collections on common footing with other states when making a comparison. It's a simple calculation; you just take tax collections in a state - that would take into account the innumerable credits and exemptions states have granted to the oil industry to try to stimulate production - and divide it by total value of production.

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CO-CHAIR PASKVAN asked what his concerns would be if the focus was only on comparing one component of a tax structure with other states.

MR. GERKING replied that exercise could be highly misleading. You have to look at the whole tax structure the state imposes on the oil industry or any other industry to get a clear picture of the tax burden.

SENATOR WIELECHOWSKI said a number of states in the Lower 48 assess a property tax based on oil reserves in the ground, Texas for instance, and asked if that causes an increase in production particularly in times of rising oil and gas prices.

MR. GERKING replied yes. The way that works is if you levy a tax on reserves in the ground, like Texas and California, that gives producers an incentive to "buy out" from under the tax, which means getting rid of the tax base, which means more production now rather than later.

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CO-CHAIR PASKVAN asked if he had anything else he wanted to present.

MR. GERKING replied no and said that he would entertain questions.

SENATOR WIELECHOWSKI asked if he had researched the difference between changing royalty rates versus changing severance tax rates.

MR. GERKING replied there wouldn't be any difference; increasing royalties is like an increase in the severance tax.

CO-CHAIR PASKVAN asked if that's a result of combining all the components of the load on industry together and divide that by production to get a true picture.

MR. GERKING answered yes.

SENATOR WIELECHOWSKI said he heard that the increase in North Dakota's production was caused by its tax structure; others have said it's more due to the advent of hydraulic fracturing. What was his opinion?

MR. GERKING answered the weight of evidence would be against those production changes being caused by a change in tax policy. Difference in production can be brought about by changes in technology such as fracing or a large discovery of new reserves such as Prudhoe Bay.

CO-CHAIR PASKVAN asked if he wanted to make a summary statement.

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MR. GERKING said he didn't need to make a summary statement; he had had the opportunity to do his presentation and he would try to find someone in Alberta to contact them about their situation. It would also be good to talk to someone who is knowledgeable about the federal investment tax credits from the 80s or 90s that work very much like the drilling credits Alaska uses now.

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SENATOR WIELECHOWSKI said he was looking at state tax policy and oil production on page 331 and how credits will result in somewhat increased drilling but not in additional production. But it still seemed to him like more drilling would result in more production and revenue.

MR. GERKING replied that you get some more drilling as can be seen in table 9.3 on page 325 that compares model C and D. Both models have a severance tax rate of 25 percent, but model D has a 22 percent credit for drilling expenses. The credit increases drilling, but there is a decline in severance tax collections

because they will less-than-make-up for the loss of revenue from granting the drilling expense credit.

SENATOR STEVENS thanked him for sharing his knowledge and experience with them and asked him to expand on what he said about not eating your seed corn.

MR. GERKING said he used to live in Wyoming that doesn't have a state income tax, but a high property tax on oil production; the property tax on houses and things that regular people own are pretty low; and the sales tax is pretty middling. Basically, Wyoming pays for public services through collections of severance taxes levied on oil and gas and other substantial mining activity. So, Wyoming is just paying for current public services with current revenue from oil production. That oil production can't be put back in the ground; so there's the seed corn. Eventually Wyoming will not be an oil producing state; it'll be tapped out and where will they be then! It would be better to balance the severance tax collected against some other types of taxes that would also be levied on people who actually consume the public services, like fire protection and public schools. A bumper sticker saying "Real Man Pay Taxes" summarized his view he said.

In Alaska's case, you want to make sure you're not pulling your resources out of the ground any faster than you have to to pay for the services people are getting. "You want those resources to last if you want them to benefit the current generation of people who live there, but you also want them to benefit all future generations...."

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CO-CHAIR PASKVAN found no further comments or questions and adjourned the Senate Resources meeting at 4:50 p.m.