

**ALASKA STATE LEGISLATURE  
JOINT MEETING  
SENATE RESOURCES STANDING COMMITTEE  
SENATE FINANCE COMMITTEE**

April 15, 2017

2:01 p.m.

**MEMBERS PRESENT**

SENATE RESOURCES

Senator Cathy Giessel, Chair  
Senator John Coghill, Vice Chair  
Senator Natasha von Imhof  
Senator Bert Stedman  
Senator Shelley Hughes  
Senator Kevin Meyer  
Senator Bill Wielechowski

SENATE FINANCE

Senator Lyman Hoffman, Co-Chair  
Senator Anna MacKinnon, Co-Chair  
Senator Click Bishop, Vice Chair  
Senator Peter Micciche  
Senator Natasha von Imhof  
Senator Donald Olson  
Senator Shelley Hughes

**MEMBERS ABSENT**

SENATE RESOURCES

All members present

SENATE FINANCE

All members present

**OTHER LEGISLATORS PRESENT**

Senator Gary Stevens

**COMMITTEE CALENDAR**

COMMITTEE SUBSTITUTE FOR HOUSE BILL NO. 111(FIN)(EFD FLD)

"An Act relating to the oil and gas production tax, tax payments, and credits; relating to interest applicable to delinquent oil and gas production tax; relating to carried-forward lease expenditures based on losses and limiting those lease expenditures to an amount equal to the gross value at the point of production of oil and gas produced from the lease or property where the lease expenditure was incurred; relating to information concerning tax credits, lease expenditures, and oil and gas taxes; relating to the disclosure of that information to the public; relating to an adjustment in the gross value at the point of production; and relating to a legislative working group."

- HEARD & HELD

**PREVIOUS COMMITTEE ACTION**

BILL: HB 111

SHORT TITLE: OIL & GAS PRODUCTION TAX;PAYMENTS;CREDITS

SPONSOR(S): RESOURCES

02/08/17	(H)	READ THE FIRST TIME - REFERRALS
02/08/17	(H)	RES, FIN
02/08/17	(H)	TALERICO OBJECTED TO INTRODUCTION
02/08/17	(H)	INTRODUCTION RULED IN ORDER
02/08/17	(H)	SUSTAINED RULING OF CHAIR Y23 N15 E2
02/08/17	(H)	RES AT 1:00 PM BARNES 124
02/08/17	(H)	Heard & Held
02/08/17	(H)	MINUTE(RES)
02/13/17	(H)	RES AT 1:00 PM BARNES 124
02/13/17	(H)	Heard & Held
02/13/17	(H)	MINUTE(RES)
02/17/17	(H)	RES AT 1:00 PM BARNES 124
02/17/17	(H)	Heard & Held
02/17/17	(H)	MINUTE(RES)
02/20/17	(H)	RES AT 1:00 PM BARNES 124
02/20/17	(H)	Heard & Held
02/20/17	(H)	MINUTE(RES)
02/22/17	(H)	RES AT 1:00 PM BARNES 124
02/22/17	(H)	Heard & Held
02/22/17	(H)	MINUTE(RES)
02/22/17	(H)	RES AT 6:30 PM BARNES 124
02/22/17	(H)	Heard & Held
02/22/17	(H)	MINUTE(RES)
02/24/17	(H)	RES AT 1:00 PM BARNES 124

02/24/17 (H) Heard & Held  
02/24/17 (H) MINUTE(RES)  
02/27/17 (H) RES AT 1:00 PM BARNES 124  
02/27/17 (H) Heard & Held  
02/27/17 (H) MINUTE(RES)  
02/27/17 (H) RES AT 7:00 PM CAPITOL 106  
02/27/17 (H) Heard & Held  
02/27/17 (H) MINUTE(RES)  
03/01/17 (H) RES AT 1:00 PM BARNES 124  
03/01/17 (H) Heard & Held  
03/01/17 (H) MINUTE(RES)  
03/01/17 (H) RES AT 6:00 PM BARNES 124  
03/01/17 (H) Heard & Held  
03/01/17 (H) MINUTE(RES)  
03/06/17 (H) RES AT 1:00 PM BARNES 124  
03/06/17 (H) Scheduled but Not Heard  
03/06/17 (H) RES AT 6:30 PM BARNES 124  
03/06/17 (H) Heard & Held  
03/06/17 (H) MINUTE(RES)  
03/08/17 (H) RES AT 1:00 PM BARNES 124  
03/08/17 (H) Heard & Held  
03/08/17 (H) MINUTE(RES)  
03/08/17 (H) RES AT 6:00 PM BARNES 124  
03/08/17 (H) Heard & Held  
03/08/17 (H) MINUTE(RES)  
03/09/17 (H) RES AT 5:00 PM BARNES 124  
03/09/17 (H) -- MEETING CANCELED --  
03/10/17 (H) RES AT 1:00 PM BARNES 124  
03/10/17 (H) Heard & Held  
03/10/17 (H) MINUTE(RES)  
03/11/17 (H) RES AT 12:00 AM BARNES 124  
03/11/17 (H) -- MEETING CANCELED --  
03/13/17 (H) RES AT 1:00 PM BARNES 124  
03/13/17 (H) <Bill Held Over from 3/11/17>  
03/14/17 (H) RES AT 3:00 PM BARNES 124  
03/14/17 (H) -- Continued from 3/13/17 Meeting at  
1:00 PM --  
03/15/17 (H) RES RPT CS(RES) NT 4DP 4DNP 1AM  
03/15/17 (H) DP: PARISH, DRUMMOND, JOSEPHSON, TARR  
03/15/17 (H) DNP: TALERICO, BIRCH, RAUSCHER, JOHNSON  
03/15/17 (H) AM: WESTLAKE  
03/20/17 (H) FIN AT 1:30 PM HOUSE FINANCE 519  
03/20/17 (H) Heard & Held  
03/20/17 (H) MINUTE(FIN)  
03/21/17 (H) FIN AT 9:00 AM HOUSE FINANCE 519  
03/21/17 (H) Heard & Held  
03/21/17 (H) MINUTE(FIN)

03/21/17 (H) FIN AT 1:30 PM HOUSE FINANCE 519  
 03/21/17 (H) Heard & Held  
 03/21/17 (H) MINUTE(FIN)  
 03/22/17 (H) FIN AT 9:00 AM HOUSE FINANCE 519  
 03/22/17 (H) -- Continued from 3/21/17 at 1:30 PM --  
 03/22/17 (H) FIN AT 1:30 PM HOUSE FINANCE 519  
 03/22/17 (H) Heard & Held  
 03/22/17 (H) MINUTE(FIN)  
 03/23/17 (H) FIN AT 1:30 PM HOUSE FINANCE 519  
 03/23/17 (H) Heard & Held  
 03/23/17 (H) MINUTE(FIN)  
 03/24/17 (H) FIN AT 1:30 PM HOUSE FINANCE 519  
 03/24/17 (H) Heard & Held  
 03/24/17 (H) MINUTE(FIN)  
 03/25/17 (H) FIN AT 10:00 AM HOUSE FINANCE 519  
 03/25/17 (H) Heard & Held  
 03/25/17 (H) MINUTE(FIN)  
 03/27/17 (H) FIN AT 1:30 PM HOUSE FINANCE 519  
 03/27/17 (H) Heard & Held  
 03/27/17 (H) MINUTE(FIN)  
 04/07/17 (H) FIN AT 1:30 PM HOUSE FINANCE 519  
 04/07/17 (H) Heard & Held  
 04/07/17 (H) MINUTE(FIN)  
 04/08/17 (H) FIN AT 1:00 PM HOUSE FINANCE 519  
 04/08/17 (H) Moved CSHB 111(FIN) Out of Committee  
 04/08/17 (H) MINUTE(FIN)  
 04/09/17 (H) FIN RPT CS(FIN) NT 4DP 4DNP 2NR 1AM  
 04/09/17 (H) DP: GARA, GUTTENBERG, SEATON, FOSTER  
 04/09/17 (H) DNP: WILSON, THOMPSON, PRUITT, TILTON  
 04/09/17 (H) NR: ORTIZ, GRENN  
 04/09/17 (H) AM: KAWASAKI  
 04/10/17 (H) MOVED TO BOTTOM OF CALENDAR  
 04/11/17 (H) TRANSMITTED TO (S)  
 04/11/17 (H) VERSION: CSHB 111(FIN)(EFD FLD)  
 04/12/17 (S) READ THE FIRST TIME - REFERRALS  
 04/12/17 (S) RES, FIN  
 04/13/17 (S) RES WAIVED PUBLIC HEARING NOTICE,RULE  
 23  
 04/13/17 (S) FIN WAIVED PUBLIC HEARING NOTICE,RULE  
 23  
 04/14/17 (S) RES AT 3:00 PM BUTROVICH 205  
 04/14/17 (S) Heard & Held  
 04/14/17 (S) MINUTE(RES)  
 04/15/17 (S) RES AT 9:00 AM SENATE FINANCE 532  
 04/15/17 (S) FIN AT 9:01 AM SENATE FINANCE 532  
 04/15/17 (S) FIN AT 2:00 PM SENATE FINANCE 532  
 04/15/17 (S) RES AT 2:00 PM SENATE FINANCE 532

**WITNESS REGISTER**

RICH RUGGIERO

Castle Gap Advisors, LLC.

Legislative Consultants

Juneau, Alaska

**POSITION STATEMENT:** Provided comments on HB 111.

CHRISTINA RUGGIERO

Castle Gap Advisors, LLC.

Legislative Consultants

Juneau, Alaska

**POSITION STATEMENT:** Provided comments on HB 111.

**ACTION NARRATIVE**

[2:01:11 PM](#)

**CHAIR CATHY GIESSEL** called the joint meeting of the Senate Resources Standing Committee and the Senate Finance Standing Committee to order at 2:01 p.m. All members of both committees were present at the call to order. Senator Gary Stevens was also present.

**HB 111-OIL & GAS PRODUCTION TAX;PAYMENTS;CREDITS**

[2:03:00 PM](#)

**CHAIR GIESSEL** announced consideration of HB 111. [CSHB 111(FIN)(EFD FLD)was before the committee.]

[2:03:04 PM](#)

**RICH RUGGIERO**, Castle Gap Advisors, LLC, introduced himself.

**CHRISTINA RUGGIERO**, Castle Gap Advisors, LLC, introduced herself.

**MR. RUGGIERO** thanked the committee for the opportunity to talk about oil and gas taxation. He said they were here to give as much advice and background as they can, so legislators have the best understanding possible, given that they are citizen legislators, to help them make informed decisions.

He provided his experience and perspective and said he would provide a review of what has been happening since the Alaska Clear and Equitable Share (ACES) period.

MR. RUGGIERO said he has over 40 years of energy industry experience: two decades with big oil involved in projects: presenting them to the board and deciding which ones to do and development of everything from upstream to midstream projects including pipelines and LNG. He spent over a decade helping run the sovereign advisory practice for Gaffney, Cline & Associates and had assignments with over two dozen governments in that period directly working on everything from prime ministers and presidents to oil ministers and presidents down to the "C Suite" of the national oil companies within those countries. After Gaffney, Cline & Associates was purchased, he had the opportunity to sit as an executive for Baker Hughes and saw the service industry's perspective and became involved in Alaska issues.

His fiscal background includes designing from scratch or redesigning petroleum fiscal systems for multiple countries. In 2002 as East Timor became the world's newest country and had petroleum resources offsetting the prolific Northwest Shelf of Australia, he was involved with everything from running a data round to writing the legislation, the regulation, the contracts, and then running the first full bidding round and getting that started, as well as negotiating all their LNG contracts with ConocoPhillips on the Bayu-Undan project. His firm has done this with countries with less knowledgeable people in their position; a lot of them were freedom fighters in the jungle for years all the way to working with the "highly involved, highly comprehensive and intelligent folks of the Middle East countries whose whole economy is run off of the oil and gas that they take in."

They have been able to see everything in this business from the new to the old, the sophisticated to the unsophisticated, gas-rich areas and oil-rich areas; so there is quite a bit of background. In addition, Christina and others, as part of Gaffney, Cline & Associates, was one of the top three or was four reserve certification specialists, depending on which list you look at in the world. As part of doing reserves, you have to be able to model every system that your client is involved with and all the nuances that go with those systems, because in order to claim something as a reserve instead of a resource, according to whatever the rules were at the stock exchange that they are located on, you had to be able to look at their contract, build the model, and then make an assessment for the reserves that they ultimately would report to their stock exchange or their regulatory body.

MR. RUGGIERO said he wanted to emphasize that they don't bring experience of just having read about something and done a few analyses; they have actually been on the ground; he has lived through three attempted coups. They have built everything from the simple high level to the very detailed and complex models. He noted when the Alaska Gas Inducement Act (AGIA) was ongoing, Gaffney, Cline & Associates built a fully integrated model that took gas all the way from the North Slope to markets in the Midwest U.S. It predicted the ultimate tariff estimates that came out for both the Canadian and the U.S. portion pipelines within 5 percent of what they were.

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They have also negotiated multi-billion dollar contracts, and to do that you have to understand the breadth and comprehensive nature of what you are doing. Fiscal systems are like that. He and Christina have a lot of midstream background on putting in pipelines and LNG. So, understanding things that impact Alaska such as the TAPS, or gathering pipelines, and the cost of the logistics for LNG are something they are very familiar with.

[2:09:45 PM](#)

His approach to fiscal design:

First, understand from a high level or macro perspective the general landscape of oil and gas developments within country-based fiscal systems. He said a lot of people sit in the chair he is in and offer up comments about things being difficult, complex, changing, and whatnot, and he wanted to put all those into context of what really happens in the bigger picture and then bring it down to the specific issues Alaska is dealing with. He wanted to make sure everyone was on common footing and has common drivers, because without that they can't all end up in the same place. He would put forth what he understands from the meetings he has been in in the other body, things that have been done, and what he believes the drivers are.

Third, he would review how the multiple options the legislature has had before actually played out, because things happened that weren't contemplated or the prices and costs weren't modeled that low or that high. He said he had seen the price go up and the price come down five times and now is the middle of his fifth time. It should be no surprise. He explained that companies that are excellent at business planning in the oil patch plan for multiple different scenarios and if one would pull the annual business reports from the large major companies each talk about the different multiple scenarios from things

like solar and batteries taking over to a continuation of rapid growth in the Indian and Chinese markets where hydrocarbons are still going to be in great demand. Then legislators need to draw conclusions on how in a multi-faceted highly interdependent system to make choices on what to change.

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MR. RUGGIERO said change in fiscal parameters doesn't necessarily mean instability in his world, but a change in the wrong direction does. The U.K. is always ranked in the top three of stable places to do business. He spent six years working there and during that time, they changed the tax code three times, and that is because they tended to always act in what the industry would consider the right direction. When prices went down, they lessened their take, but they were also very quick to increase their take when prices went up.

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So, Mr. Ruggiero disagreed wholeheartedly that change leads to instability, because change always happens - but it should be change in the right direction and at the right time, so as to be responsive to the market and the needs of the industries that they are trying to help support.

He said that he often helps fix the following problem: fiscal systems built on predicted future outcomes that "fail" sooner or later. If the price moves greatly up or down, it will fail very soon. If the price is steady then it doesn't fail that much. When he says "fail" and "predicted futures," that means tying something to the price of oil. Costs change with time and technology changes the overall cost structure for different types of plays, but if a system is built around a particular cost and at \$10 or \$30, or \$60 they make this much profit, so at \$60 we're going to tax them this much, they will get it wrong in a very short period of time. He is a very big advocate of the combination of systems that ties the net to the unit profitability (not to the price). That is what CSHB 111 (FIN) does.

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Why do a lot of sovereigns change? Mr. Ruggiero answered that sovereigns highly dependent on oil and gas revenue always have the challenge of solving the immediate need to keep the economy and the government going and wait for the next price spike. A lot of countries don't say why they are driven to do certain things. It's hard to say I should have saved for a rainy day

four years ago when faced with the fact that you don't have it and you need to.

MR. RUGGIERO said the only constant in the oil patch is change. He has never seen a "steady state period" in his 40 years in the oil patch. Something is always changing: he's talking drastic changes. The type of challenge changes depending on the circumstances: what is going on in the world as a whole and whether it's a high price or a low price? The challenge for a body like this is how to design durability in an industrial environment (oil and gas) that is anything but stable.

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MR. RUGGIERO said he helped put in an LNG project when Gaffney & Cline was acquired in 2008. The first thing he was asked to do was go to the Baker Hughes Board, because they had been told the U.S. was going to be bombarded with all this imported LNG, and that was going to kill U.S. based oil and gas drilling. And Baker Hughes should be thinking about moving their equipment and people overseas, because there would be no need for them in the U.S. But back in 2005 they were looking to import 8 bcf/day. At one time there were over 50 LNG import terminals in the permit process at FERC. In fact, the terminals that got permits approved totaled over 25 bcf/day of import capacity.

Fast forward to 2015 and go through a price dip and the technological change of producing hydrocarbons out of shale formations, he said, and in just a decade, shale gas is one of the most prolific things in the Lower 48 and other basins around the world. In just one decade the U.S. went from 50-plus re-gas terminals and importing 8 bcf/day to 40-plus liquefaction permits and exporting 8 bcf/day. The 16 bcf/day is a huge turnaround. A quarter of the U.S. market just flipped from one direction to the other and all the capital that was committed to bring it in is now trying to be redirected to exporting it at the same time.

It's tough for companies like Baker Hughes to know what to do with their people and fleets. They ask themselves is the shale stuff real? Should I move them to Marcellus or Eagle Ford? The legislature has to look at the same thing: will prices come back? When will they come back? If they do, will there be another technology change that will either make Alaska more desirable or a tougher place to do business as other places become easier to do business.

MR. RUGGIERO presented a graph of a field he worked with that discovered a water spike. Internally, the major company decided to sell it to a midsize company since production was bad and the cost per barrel was too much. The midsize company was able to arrest the decline with a totally different business approach. The message here is that it was given up for dead, but from when the major company let this field go, the expected cumulative production is now 10 times what that major oil company thought was the maximum it could get out of it.

He is bringing this up because whereas the super majors and the very large oil companies bring great talent and great capital into a process, they can't get stagnant in their belief of what is going on out there and need to bring in new ideas and new people. And since one of Alaska's goals is to bring more oil into the pipeline, Mr. Ruggiero said, the state also wants to bring more new and different players into the mix as it has been doing, because they will bring a different look at what they might believe is a producing horizon that in the past others thought was not a producing horizon. In fact this just happened on the North Slope.

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The take-away is that generally it takes the large capital and weight of some of the big companies to get some things started. The North Slope has been under way for quite a while, so now the state wants to attract other players because they have different risk profiles and different ideas about how to go about things. The smaller players have a great track record of always increasing production beyond what the first company thought was absolutely the limit of economic recovery.

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The take-away summary for this is that change is continuous in the oil patch. Designing something for a specific set of circumstances is a very shallow and micro-focused view of the world. That has to be expanded and an understanding of how the different mechanisms in the tax system work across the broader range of both price and cost scenarios and circumstances is needed going forward.

MR. RUGGIERO also exhorted the committee to not get discouraged, because there is no ideal system. Some systems are better for a regime or a government than others because of the uniqueness of the drivers, and those drivers have to do with everything from the type of resource they have, the location of that resource,

their markets, and in-country needs for other industry, and other capabilities that they have or not and want to develop.

MR. RUGGIERO emphasized that any proposed increase in tax will not have any industry support, because they are for profit. However, there can be support for a tax increase if there is a simplification of the system that allows their cost structure to go down. Alaska needs new players, new blood, new thinking.

[2:25:11 PM](#)

How does Alaska compare to other regimes? Mr. Ruggiero showed a classic curve done by fiscal expert, Daniel Johnson that plotted the marginal tax rate after the passage of ACES for a number of regimes including Alaska.

MR. RUGGIERO said before drawing a conclusion as to Alaska's competitiveness, one needs to ask, "What exactly is being compared?" Is it a licensing with tax and royalty? Is it a production sharing contract (PSA) or is it something that is emerging more and more: technical service agreements (TSA)? These are all forms of a government giving rights to oil companies to come in to explore and develop hydrocarbons, and sets the fiscal systems they have to pay.

A typical comparison of data puts Alaska in the middle, but what is not included is extremely important. Most analysts roll petroleum tax and royalty together. In a lot places, if there are commitments to the local infrastructure like a hospital, roadways, and schools that aren't captured, because the authors of these documents usually get their hands on only a bootlegged copy of the production sharing contract (PSC) or they read the legislation and only pull out the petroleum tax components. So, they don't have all the pieces. This curve didn't include private royalties for other states' locations, because most people don't put it in. So, when someone shows a slide illustrating that Alaska is 20 points worse than North Dakota or Texas, they usually leave out the private royalty. Signature bonuses are another item that is frequently left out. Signature bonuses were also left out of this chart. One of the most recent on record is the first \$1 billion bonus bid for acreage in Angola.

SENATOR BISHOP asked if private royalty would be applicable to North Dakota, because individual landowners own the subsurface rights.

MR. RUGGIERO answered absolutely.

SENATOR BISHOP asked if the landowner is a free agent who could negotiate a different royalty than his neighbor.

MR. RUGGIERO answered absolutely.

SENATOR MEYER noted that this information is almost 10 years old and asked if Mr. Ruggiero had something more recent to show where Alaska compares with the rest of the world.

MR. RUGGIERO said he could put that together, but it would show essentially the same thing. In fact, the reason he picked this curve is because the arrows show where the countries were in 1997 and where they ended up in 2007. The same number of arrows indicate terms got worse and terms got better for the regimes in that 10-year period. So, an average number of countries moved in both directions.

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MR. RUGGIERO said other payments are not included in the charts, like huge bonuses. Bonuses for some of the offshore Gulf of Mexico sales, for example, have to be recovered by the operator. Even though they were paid to the government, it is not shown as government take or non-producer take on these charts. One company paid a little over \$900 million and \$1 billion for the right to go in and start exploring and possibly develop two blocks.

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MR. RUGGIERO said the conclusion he has drawn from doing this for over a decade is that this chart is in no way indicative of where people invest or don't invest. It shows marginal dollars and the arrows show the movement, so one would think a rational argument would be - for Alaska in the middle - that all the investment dollars would go to all the countries in the top half where the tax rate is less than Alaska and that little to no investment would go to the countries in the bottom half where the stated government take is far in excess of Alaska. But data from annual reports and analyst presentations of the very large oil companies indicate that hundreds of billions of dollars collectively have been invested in regimes with far greater takes than Alaska by the major oil companies. Iraq at 98 percent government take has significantly greater take than Alaska, and yet tens of billions of dollars have been committed by just about every major oil company to be a player there. He

SENATOR MICCICHE said Mr. Ruggiero talked about his experiences related to net present value (NPV) of project economics (go or no go based on net expected return), and just now he said that the government take has little to do with where people choose to invest, that it's all on a case by case basis, and the cost of exploration, development, production, and transportation are higher in Alaska, so wouldn't he agree that government take is an important part of NPV?

MR. RUGGIERO replied, "The government tax rate is but one component of the decision to invest or not." But he was going to talk about why hundreds of billions get spent in countries that have marginal tax rates in the 80 and 90 percent range. Senator Micciche is exactly correct: the economics will have to have the right risk reward balance. So, these companies have looked at the risks and the reward, and even though there is an 80/90 percent tax rate, they have gotten themselves comfortable with the idea of investing billions of dollars in those countries because they believe they are going to make a good return for themselves and their shareholders. They wouldn't invest if they didn't think the proper net present value or the proper rate of return weren't there for that investment.

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SENATOR BISHOP said they hadn't seen the details on the personal services contract (PSC), and that has to be a big driver to deciding to invest on top of the marginal rate.

MR. RUGGIERO answered that the PSCs are a contractual form between oil companies and the government, and whereas some countries are pretty religious that they will publically write a PSC and tie it to their bidding round (by bidding, one agrees to sign it as is). So, there is some transparency to the contract. In other cases, the PSCs are specially negotiated, and he added that in the last five years he had negotiated three PSCs on behalf of his employer. He explained that he negotiated terms that mitigated the biggest risks his employer was worried about, and when he took care of those risks, the other issues just fell out of the economics.

SENATOR MEYER noted that there is very little risk with service agreements in Iran and Iraq, because the discoveries have been made and they just want the companies to produce the oil for them.

MR. RUGGIERO responded that he spoke at many workshops with the companies that were thinking about investing there and they

didn't see it as a low risk environment. They did see low geologic risk, but some of those operators would have to take production up four or five fold before they start getting paid back. Then they had to deal with other sorts of risks: one he dealt with was land mine clearing, for instance, and risks around procuring equipment.

SENATOR MEYER said he didn't want to belabor this, but asked if countries like Iran and Iraq with known oil fields put it out to competitive bid or choose a company to do that production for them.

MR. RUGGIERO replied more often than not they tend to put it out to competitive bid, because that gets the government the best terms. He, as part of Gaffney Cline, participated in all the service contracts for Malaysia, Indonesia, Ecuador, Argentina, Peru, and Mexico, and all were competitive bids.

He said the Internet also transformed the international oil and gas business. It used to be if you did a deal in Mozambique, Indonesia didn't find out about it for five or six years. Now you do a deal in Mozambique and Indonesia knows about and is knocking on your office door in Jakarta wanting to know why they didn't get that deal that you just gave that other country. So, transparency and movement of information is much greater and faster now, and a conformity of terms is starting to show itself.

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MR. RUGGIERO said he chose Texas to illustrate what the charts don't tell you. For this example, where legacy leases had a standard one-eighth royalty, but that went up to a minimum of 20 percent. The state gets royalty on quite a bit of land and some of it gets set aside for the education system. Colleges and others benefit from the royalty monies off of those lands.

From his experience with vendor financing deals that new leases are going anywhere from 15 to 30 percent. So, Alaska is competing with someone at 30 percent, but also with the person who has a 12.5 percent royalty rate. If a person has legacy acreage and legacy royalty, but he either doesn't have the will or the capital to develop it at the pace some of the West Texas oil is being developed, he sells the acreage. So, a lot of the difference between the one-eighth and the 25 or 30 percent royalty is gone in the sale of the acreage. This is where land that five or six years ago was going for \$500 an acre and now is going for \$2,500 to \$30,000 an acre.

MR. RUGGIERO said those figures are hundreds of times what the average acre costs in Alaska. How does that come into play? For a typical shale well in Eagleford, one is generally looking at a well (generally on 160-acre spacing) with an economic ultimate recovery (EUR) somewhere between 300,000 and 500,000 barrels of oil. So, the acreage purchases average from \$5 to \$15/barrel. The drilling capex is \$4 to \$7 million depending on how deep or how shallow the well is and how many stages are in the frack job which is reflected somewhere between \$8 and \$18/bbl. The operating expenses run plus or minus around \$8 to \$10/bbl. So, depending on when you got your acreage and how much you paid for it and whether or not you waited for your neighbors to drill the expensive wells so you can benefit from the learning curve that the drill rigs and the service companies have done, you're paying somewhere between \$20 and \$40/barrel just to get your well. Now that \$40/barrel all-in should sound pretty familiar to the Alaska's numbers where transportation is around \$10 and the opex and capex is around \$30. So, Texas can actually have total all-in costs that are the same as in Alaska.

[2:45:55 PM](#)

He said for North Dakota to take its production over a five or six year period from 150,000/bbl/day up to 1 million/bbl/day took over 10,000 wells at an average cost of about \$8 million per well. Over \$80 billion was invested. With taxes and opex of \$20-\$30/bbl, they have only recovered about 40 percent of the capital spent, and yet the production is rapidly declining. The reason he brings this up is to illustrate how a fiscal system matches the type of project both in the spending curve and the production curve that you are looking to bring on. If Alaska were to be a next big shale play it would bring on five, six, or seven mega projects over the next decade: much different than drilling 10,000 wells. They are two totally different systems that are responsive to two very different oil developments, although they are competing in the same world market and get the same ultimate market prices, somewhere.

CHAIR GIESSEL asked him to compare the time it takes to get from discovery in Texas to production versus in Alaska.

MS. RUGGIERO replied it takes about a month or two in Texas depending on the availability of rigs and service companies. But many horizontal wells that are being fracked in Texas take between 12 and 30 days before the well is finished being drilled and is producing. In Alaska the permitting process can be 5-10 years.

MS. RUGGIERO added that she also wanted to expand on a question Senator Bishop asked earlier about royalty owners having different royalties. That is true, and those Texas mineral rights owners are choosing to share information between each other to strengthen their position in negotiating royalty rates, to understand their geology holds, and what operators are finding within their leases.

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MR. RUGGIERO said one aspect of the new leases - to Alaska's competitive detriment - is that they are now designed as drill or drop leases. The royalty owners have gotten smart enough so that they now have activity commitments. If that activity is not taken, they will drastically ratchet up the annual lease payment or do an expiration and termination of the lease arrangement. Those usually have 5-7 year terms. A lot of those leases were signed after the 2008 financial crisis and when the private equity (PE) money came flowing in in 2010/11. So, companies are coming up on the expiration of a number of discoveries, but there is no room for these companies to borrow more capital to drill. They still have obligations to drill or they will lose their lease, and if they lose it, it will be renewed at an even tougher rate.

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SENATOR MICCICHE noted that acreage is changing hands at a range of \$2,500 to \$30,000/acre, but there is also a range of \$5-15/acre. He was trying to understand how much acreage is in the \$30,000 range and how much is in the \$2,500 range.

MR. RUGGIERO answered a majority of the acreage is in the \$2,500 to \$5,000 range. Even after the price fell last year, a sale in the Delaware Basin, New Mexico, went for \$85,000/acre. It was purchased by a foreign entity that wanted a position there. He explained that he tried to be generous on the ranges and took what he thought was the more prevalent range and applied both 300,000/bbl and 500,000/bbl and came up with the \$5-15/bbl equivalent.

SENATOR MICCICHE said the \$20-40/bbl estimate for opex seemed a bit rich to him.

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MR. RUGGIERO responded that in creating those ranges, he took a best and a worst case scenario and used figures from vendor-financed deals in the Eagle Ford that he closed on behalf of his

employer that were in the \$20-\$40 range with a flat \$60 oil price. He roughly estimated 30/70 for expenses/royalty and taxes.

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MR. RUGGIERO said there is a lot of talk about Norway, so he investigated it a little bit more. Topically, he knows that Norway is a little bit different, but he had to ask in the last 10 years when Norway has had a relatively unchanged 78 percent net tax rate and Alaska always had a lot less than that, why billions more were invested in Norway than in Alaska. His first conclusion is that the tax rate was not the compelling factor that caused people to choose to either invest or not in one or the other.

A lot of other things come into play. He explained that having worked over there, he knows the government has pretty tight control over the pipeline infrastructure offshore, especially for gas. In their own sweet way, (without running afoul of monopoly laws) they make sure things get developed on the schedule they want and at a point that maximizes the use of their infrastructure. This is important because the flip side is that for every extra dollar spent on infrastructure that they allow to be deducted, they also have an uplift, meaning they don't want a lot of excess infrastructure or a lot of goldplating. In fact a government entity is and equity partner is most of their fields. So, they are very much aware of all the data and all the information and everything that is happening.

This is where one starts asking if it's a higher tax, why there? It has to do with things like the uplift and how quickly a company can recover the deductible versus a non-deductible expense, and the list goes on. Mr. Ruggiero said after running a few hundred thousand cases of this system versus that system and this item versus that item, one starts to finally get a sense for what parameters really do influence economics in a positive sense from the producer standpoint and which ones are negative, versus which ones that don't do much.

2:58:01 PM

His takeaway is that the marginal tax curves are not an indicator of competitiveness or where likely capital investment will take place, because all the countries he highlighted that are much worse than Alaska on the curve had significant investment by multiple companies.

He explained that all other parameters being equal, an increase in the non-producer take will negatively impact producer economics, but because all things are rarely ever equal, an increase in the tax rate does not automatically mean a regime is less competitive. It depends on what everyone else is doing. Alaska is talking about doing multiple things, some of which could have positive effects and others that will have negative effects, in isolation.

MR. RUGGIERO said someone asked him how many regimes have negatively changed their tax terms in this downturn and surprisingly one of them is North Dakota. It used to have special credits for the first X barrels of the first bunch of production for all new horizontal wells into the two shale formations. That was taken away in their 2015 session right when prices were at their worst and had fallen over \$90 a barrel. They also took away several other credits; the only positive they did was lower the combination of the severance and ad valorem taxes from 11-plus percent down to 10 percent.

Because Baker Hughes in doing vendor financing, was well aware that a number of countries, as the price fell, were unable to pay their share of whatever the bills were, asked whoever their partners are to take on the burden of carrying those costs and doing so with some interest to be paid at some unknown future date. That increased the government's take in a very indirect way and won't be seen written up anywhere. It won't be seen on a chart. But those governments are actually increasing their take because there is actually less left to the producers to repatriate back to the parent to use in other future investments, because they are having to keep that money in the country and to keep the NOC or the other partner as a going concern there. So, a lot of hidden things greatly impact the attractiveness or the non-attractiveness of a country and its overall fiscal package.

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SENATOR MACKINNON said she wondered since the sovereigns who are below Alaska on the chart that tax more and have a great investment in infrastructure if there was something significant they should know about countries above Alaska on the chart with less infrastructure, because number of them are developing significant hydrocarbon reserves that they might be wanting to draw capital into their countries.

MR. RUGGIERO replied that in fact, one of those countries, Papua New Guinea, had moved significantly, and is where one of the

North Slope producers has significant investment in LNG. So, the countries in the top half do have investment in places like the UK and the Netherlands, but others when you get into Morocco and Ireland that have extremely low tax rates, but they don't have any investment because they don't have any good hydrocarbon sources. So, you do tend to see there is more capital going to the bottom left hand than is going to the upper right hand on that curve.

SENATOR MACKINNON asked if that is because they are developing fields or new fields, besides the rock that is impacting where the investment is going.

MR. RUGGIERO answered that he could make a list of about 30 different parameters when he was making these decisions and recommendations to his board and all countries have some unique aspects, but a lot of times the investment has to do with the perceived ability to get things to market. For example, a number of entities in the upper half have huge stranded gas reserves. So, that means development of petrochemical gas conversion to liquids technology or LNG to get it to market, and then a 10-year lead time from discovery to actually getting something to market. In that timeframe, there will a lot of effort by the government to find the right terms that work to make that happen. But there really won't be that much spending until the whole thing comes together.

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SENATOR MACKINNON said it appears there are 19 countries above Alaska and 26 below, and she was trying to understand the average investment to understand the impact of what is being asserted today.

MR. RUGGIERO said he will provide that, because it already exists in the record.

CHAIR GIESSEL said slide 19 talks about the acreage purchase as a factor in the total operator cost and asked if acreage cost is included in Alaska's cumulative costs for an operator.

MR. RUGGIERO answered no; they aren't.

CHAIR GIESSEL asked him to elaborate on what uplift means referring to slide 20.

MR. RUGGIERO replied it has become a term of art in fiscal system design: it is a secret code name for interest. The reason

he didn't call it interest is because a lot countries have a lot of rules about what you can and can't do with interest. Most production sharing contracts don't allow the recovery of financing charges, and interest is a kind of financing charge. So the term "uplift" is used; it is a form of interest that can be used one time, periodically, quarterly, or annually, and it can be simple or compounded.

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One thing all sovereigns have to deal with is the balance between short term and long term goals. He believes Alaska is trying to deal with the growing obligation that comes with cashable credits for the short term and how to fill TAPS for the long term and asking if it is possible to design something(s) that will allow both to be addressed at the same time.

MR. RUGGIERO said if it was up to him (but he know it's up to the legislature) he would have a predominantly net-based system that would be self-correcting, meaning it would have low take at low margins and high take at high margins and people wouldn't have to worry about at what price that happens, because low margins can happen for legacy fields at \$40/barrel and for heavy oil at \$90/barrel. He reasoned that if you tie anything to the price of oil, you're going to get one wrong. It would also have durability and wouldn't need fixing as often. For example, right now, AS 55.160 has seven different ring fences for doing taxes all because they are trying to do something special for one part of the constituency of the producer community.

He believed that with a little time a progressive system could be designed that accomplished everything with maybe just one or two tweaks. You can get it down to where you don't have to worry about six year audits, whether it is an oil expense or a gas expense, or was designed to site a common facility or not, and all the rest.

MR. RUGGIERO recommended eliminating the cashable credits. He knows of only one country that will pay some cash for NOLs. Nine or ten years ago it was discussed as moving Alaska to the top as far as attracting investment. Coupled with credits for exploration or spending coupled with the qualifying capital credits, the marginal tax rate got above 100 percent, and that is why an increased amount of investment has taken place in Alaska. Converting the tax credits to carry forward (CF) NOLs and the proper use of uplift (not being wasted within the overall system of the interdependencies of the different parameters) the state could get to the point where the producers

should be indifferent as to whether they take NOLs as cash up front or recover it once they get their production going. He could keep the NPV indifferent through a different treatment of NOLs.

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MR. RUGGIERO said slide 25 translates economic theory into what Alaska has in practice in terms of the producers and the non-producers. The producer section is broken down into cost recovery and return on capital employed (profit). The non-producer's share is all profit or rent to whoever is holding the rights.

Every project has costs and profit and the legislature is trying to come up with what is fair for the state as a steward of the resource that is owned by the state and what is fair to the companies for the risks and capital they employ to develop that resource and to turn it from something in the ground to dollars in the bank.

MR. RUGGIERO said he has actually testified on this from the company perspective many times. He explained that not everything that gets drilled is a commercial discovery and ends up being production, so he is trying to cover a number of different things. The fact that he was able to lower cost by 30 percent from X through deployment of new technology took research and development dollars. So, from a company perspective what is fair is what they actually spent, and the return needs to cover not only what they believe to be the risk premium for the project but a bit more to cover their dry holes and any other expenses they had that didn't result in an economic discovery. Some corporate overheads are not allowed usually in different fiscal systems. And then they have to cover non-allowed expenses.

A number of regimes don't allow abandonment costs to be recovered, for instance. They just have to be paid. Those costs can be pretty hefty, especially for offshore sites, so they have to make enough ahead of time to be able to pay those charges and do a prudent and environmentally sound job of abandoning the site when they are done with it.

MR. RUGGIERO said governments have two approaches: companies new to energy or highly dependent on energy income will always want some form of guaranteed revenue on day one (royalty). They will be very interested in local content and the jobs that can be created through local communities and not expats or imported labor. When they become 'experienced' and not really dependent

on oil income, they are looking for constant activity and jobs and become less interested in the quick and fast and more interested in the slow and steady - where he would put Norway. Norway has so much in its petroleum fund and so few people that they are now looking to see how they can maximize hydrocarbons as opposed to maximizing net present value or internal rates of return. Those countries will generally, because they are diversified in their industries, have more requirements for local company participation and can demand it because of the diversification. So, in trying to figure out what is fair rent for the government to take, it really depends on the situation the government is in with respect to how important those energy revenues are as to then how they decide to take their share and determine the size of that share.

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SENATOR MACKINNON said she read somewhere that Norway was struggling with the low price of oil and that their citizens have a high tax rate: 50-70 percent of their wages. And because of the services they provide they were actually having to think about using their sovereign wealth fund differently.

MR. RUGGIERO responded that he had not researched that specifically, but on a per capita basis their Permanent Fund is in the millions of dollars per capita (close to a trillion dollars for 20 million people). They have a lot of money and could run the government for decades without taxing the people. They have always had high taxes on alcohol and tobacco and things they believe that their citizens really shouldn't be doing. There has also been a very European approach to income where those at the top are paying 50-70 percent marginal rates on personal income.

SENATOR MACKINNON said she believes Norway is one of the highest taxed countries in the world and maybe that is the European model he is referencing. She thought they had been reluctant to use the wealth in their fund, but had to think about it because the individual income couldn't be taxed further.

MR. RUGGIERO responded that if there were 200 countries in the world, 199 of them would wish they had Norway's problem right now.

CHAIR GIESSEL said she had also heard the same about Saudi Arabia beginning to cut back significantly on government services that used to be paid for by the government because of the price of oil.

SENATOR MEYER said he always hates comparing Alaska to Norway, because Norway is a country, but Alaska is a state. If Alaska had access to federal land like ANWR and some offshore potential, its Permanent Fund would probably be much larger and the state government, too.

MR. RUGGIERO said the only reason he brings up Norway is because it's a similar environment, has similar cost structure and distance from market, and all similar players. Alaska is competing with Norway for energy investment regardless of the fact that it is a state and Norway is a country.

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Slide 28 exemplifies how quickly things can change from when particular legislation is passed. Any further changes to fiscal policy needs to anticipate change in parameters and all possible scenarios.

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MR. RUGGIERO went back to circa 2007 timeframe when PPT and ACES were being discussed; transportation for oil was at \$15-17/barrel. As the price started to peak in 2014 and that was when the service companies get back for the hard cuts they have to take when the price of oil is at \$20. The oil companies know they have to give some value back to the service companies because they can't exist without them, so the price structures naturally go up. Therefore, if you happen to design something thinking you were going to have only \$25-20/barrel of costs and the cost structure doubled in under 10 years, did you have a system in place that was able to contemplate and change itself in order to react to that increase in cost structure?

MR. RUGGIERO said he wasn't in Alaska for PPT, but the gross tax was basically saying: no tax when you're losing money, but a tax would progress up from 0 - 4 percent once a production tax value of \$10/bbl was reached (cost of \$15 and a \$25 price at the wellhead). If that was the intent at the time, one can see why they hear a lot of talk about being hit with minimum taxes at a time when companies are losing money. Was that the intent at the time this was put together or is that just now a convenient unintended consequence that raises revenue at a time when the state really needs revenue? So, there is a reluctance to deal with it.

This is another example of where the mechanism gets tied to something that is fixed; it was designed based on a situation at

a point in time, and now events have moved on from that point in time. He emphasized that there is no ideal structure out there, but they do know that over time certain tools have survived and continue to be used because they are useful and others have disappeared because they have been shown not to be helpful and are constantly being changed.

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Each regime generally tries to level the playing field or provide as much balance as possible between big players and small players, new players and incumbents, and conventional and unconventional resources, because they all know they need a mix of companies and ideas. That usually means nothing but upside for the country involved.

Because a lot of people think this doesn't exist, Mr. Ruggiero said every petroleum taxation structure, even ones he has helped design, in use today have biases. He knows where the bias is in his structures and how to maximize his position within it. There is no ideal fool-proof system. It just doesn't happen. He wouldn't fuss over trying to get everything down to the fifth decimal point or having long sections on how to carry everything out. He would make sure the right intent is in there, and then with a few regulations the thing happens. When you try to do too much and tie it down too tight is when you get into unintended consequences.

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Mr. Ruggiero said everything that gets presented is done in averages, but he could guarantee them that not a single field or a single taxpayer matches that average. The average sits in the middle of a couple mountains and they're going to be a much lower cost structure or a much higher cost structure. He brought this up so that as they look at modeling or ask for sensitivities to be run, they can understand that averages is not where anybody is really at. So, when you get reaction from industry or others, some will react differently, and it's because one may be on the left side of the average and the other will be on the right side. You can hear conflicting things from the same people who have units right next to each other, because their cost structure, their legacy issues, and their future potential are all going to be a bit different.

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He urged them to think realistically in terms of one or two new prospects coming on line each year; over the next 5-10 years they may have four or five. A lot is known about their legacy

and only a few major things can come on, so, field models should be run with parameters that are close enough and modeled independently and collectively to understand the impact of the fiscal system on their economics. Mr. Ruggiero said what he thought a field was going to be a good prospect when his team first got it and didn't resemble itself when he went for Final investment decision (FID); the two hardly ever resemble each other. It just happens as one learns more and technology and the world market changes.

MR. RUGGIERO urged legislators to ask the producers what is really next in line to be brought on and when, because if you're making a change you want it to be responsive to what is actually there, not some average. Companies can bring data forward regarding where they are now.

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Another point he urged legislators to think about is the shut-in point on TAPS. He used an illustration to show oil that would have not been produced if the North Slope wells had been shut in at 250,000/bbl/day. What if one of the new projects is worth plus or minus \$20-50 billion? So, when you think about what you are giving to get one of these new projects on, think about what you are getting, he advised. Two new projects on the North Slope could produce in excess of 100,000 bbls/day at peak. It's not only the revenue the state takes from those projects, but the revenue that will be generated through the tax and royalty in the future. There is actually more at stake for the industry and the state to ensure that new production gets into the pipe sooner, so the state can deal with how to handle the extra volumes instead of handling when the flow is so low that it won't move down the pipeline anymore.

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If it's not about the rate, what is it about? Why are these hundreds of billions being invested in places that have a higher rate than Alaska? Mr. Ruggiero said it usually has to do with the net present value (NPV) or the internal rate of return (IRR) that is mostly impacted by how quickly the producer can get his money back. Getting it back quicker means his risks are much lower. Therefore, his ability to go in and make the investment is better.

So, Mr. Ruggiero said, he ran a hypothetical field that doesn't resemble anything only for the purpose of showing the effect of timing on producer economics. He had a year-one investment of \$100. In years 2-10 \$400 comes back: \$100 of it becomes the cost

recovery and the \$300 left over is profit to split between producer and the government. He wanted to show how much the economics can change with just handling how who gets their share when. One of the more traditional items across production sharing contracts is some form accelerated or delayed cost recovery and depending on that is handled results in a range from very a doable and profitable project to a project that would not get developed.

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His example showed IRRs from 6 percent - 27 percent on the same amount of money. This is what they have to understand because this is driving the decisions. The rhetoric will be all about tax rate, and while some increases can be damaging, there are all these other levers that have as much if not more importance than the tax rate on determining the economics, and then on determining whether or not they choose to invest or not.

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MR. RUGGIERO said he built a price model that ranges from \$20 - \$200\ bbl and used some assumptions starting with 500,000\ bbl\ day. He was just rounding numbers to show magnitude and direction, and cautioned them that these are not absolute numbers. His assumptions were:

- Non-GVR is about 450,000 bpd
- GVR is about 50,000 bpd
- \$10/bbl transportation and shipping
- \$30/bbl operating and capital costs
- 12.5 percent royalty

The model had two effective net tax rate curves for oil: one was the status quo (SB21/HB247) and the other changed structure parameters. Making changes to the model - the increase or decrease on petroleum tax relative to what is in place today - will make some green bars pop up called delta dollars. He advised that the current structure is based off the price, but a lot of the proposed structure is based off of PTV, and depending what the cost assumptions are, the PTV moves even though the price doesn't move.

MR. RUGGIERO spent about 10 minutes explaining how the model worked in detail and answering questions.

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SENATOR MACKINNON asked Mr. Ruggiero to model at oil prices of \$40-\$70 with \$5 increments.

SENATOR WIELECHOWSKI asked if he has a similar model that shows NPV and IRR for the state and the companies.

MR. RUGGIERO answered since this is just a "price step model" there is no concept of NPV or IRR for either the producers or the state and he eventually wanted to get into a life cycle model using a profile similar to one of the proposed North Slope projects. Then they could plug in a whole new field over the life of 30 years and be able to say what that does to the IRR or the NPV of all the players: state, federal, and producers.

SENATOR WIELECHOWSKI said that would be very helpful and asked if he has the information he needs from the producers in order to build a model of those hypothetical fields.

MR. RUGGIERO answered that he has the same profiles DOR is using, because he wants to make sure their models get the same results with the same profiles. He didn't want to waste time and money on model errors. They actually compared their results for different things on that model and they are very close.

SENATOR MICCICHE observed the House Resources version of HB 111 seemed to take into consideration the fact that we don't have a crystal ball. The House Finance version seems to have the approach legislators are warned against, that is assuming prices in a particular range.

MR. RUGGIERO said he is right. The House Resources bill just changed the credits, but kept them tied to prices not margin. The House Finance bill based the tax on margin. A 110 percent multiplier can be used on the costs and one will immediately see how the curves change and move relative to each other. The point where the minimum gross takes over from the net changes and the direction of the curves change as well. Those are the nuances and interdependencies that when looking a static pictures doesn't provide. Those inform about one dot on a 4,000 pixel picture and you need the other 3,999 pixels so you can see the picture. He tries to build the tools so that legislators can very quickly run any of the "what-ifs" to start to get the 4,000 pixel picture instead of the 1 pixel picture.

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He said he heard the term "unintended consequences" used earlier and how they are finding out a lot of things about the current structure that they didn't think worked that way. He was just as surprised. But, because he was getting results he didn't understand after running tens of thousands of runs, these

strange interactions came to light in converting from cashing NOL credits to doing what 99 percent of the rest of the world does, which is carry any losses forward as NOLs and then deduct them ultimately from future revenue.

NOL recovery are time is affected the amount of uplift and total recovery time of costs. The standard is that producers get to recover their costs and beyond that there is no standard. Dozens of different mechanisms do this. In fact, some countries have multiple mechanisms in place in different contracts as they keep trying to modify things to find their sweet spot.

MR. RUGGIERO said, however, he can tell them if they wish to handle the short term issue - the cashable credits - in their current structure and decide to touch nothing else, there are some significant unintended consequences and the producers can be kept whole. He will show why in the next presentation.

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SENATOR MICCICHE asked Mr. Ruggiero if he knows of another sovereign that has provided cashable credits that are payable to the entity without them having a tax liability.

MR. RUGGIERO said he was aware of only one other country that has paid for failed exploration. Other than that everything he is familiar with if there has been an expense, the company has to recover it ultimately from production.

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At ease

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CHAIR GIESSEL called the meeting back to order and said they would take up the second part of Mr. Ruggiero's presentation called "Understanding the Impact of NOLs."

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MR. RUGGIERO said in moving from the unit price model in his previous testimony to a full life cycle model, he noticed some things he couldn't explain. He uses a "flat and round" technique in building models that uses the same price (a nice round number) and a nice round number for production. So, that way he can look at the columns by year and make sure that everything calculates out. So, having done that, all of the columns and rows seem to add up. It looked fine. Then he started putting in indicative profiles with changing prices, production, and costs, and he got results that didn't make sense. He wondered if his

models were missing something. On the plane ride home he started figure it out and decided it was really important. He went through his thought process of getting rid of cashable NOL credits and offering them as carry forward losses to be deducted against their taxable value, because then the loss needs to be useful to the producers.

MR. RUGGIERO said he would cover how NOLs are handled generally and how they are handled in Alaska under the existing structure as well as issues if NOLs are the only thing that gets changed. Then he'll look at it on a GVR and a non-GVR field. Basically, NOLs in any year of operation are the amount of expenses in carrying out activities that exceed the amount of revenue available for recovery of those expenses.

In a pure gross-based system companies very rarely worry about costs, but some governments he has worked with do worry that costs between the market and back to the lease are not arms-length transactions, because they are with affiliates of the operator.

In a net based system, cost recovery is one of the key elements, and their timing is very important to the return that the producer gets. In the world of cost recovery, PSCs talk about "cost oil", meaning in any given year the number of barrels and the revenue associated with them are made available to the producer to recover their costs. Generally, different regimes allow 50-100 percent of the available revenue to be used for cost recovery. Governments that are highly dependent on petroleum revenue will tend to limit NOLs to be used in a single year because they always want to have some royalty and some corporate income tax. Whereas those regimes that are not that dependent on oil and have multi-faceted industries tend to allow some more accelerated recovery because they aren't that dependent on the oil revenues coming in. "Straight line" or "double declining" are different forms of depreciating capital assets within a company that many businesses use.

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SENATOR WIELECHOWSKI asked if gross systems tend to be a more efficient use of expenses by the producers.

MR. RUGGIERO answered that years ago some contracts were known as goldplate contracts because they basically allowed the producer to recovery anything including "the kitchen sink." Companies tended to put as many people as they could into those projects because they could get full recovery of everything they

paid. But for the most part, the managers are incentivized to do the least cost for what they need to accomplish and for the most part they are diligent in trying to make sure that what they accomplish is accomplished in the least amount of time for the least amount of dollars. He hadn't seen that much difference between a gross and a net system.

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What is the value of cost recovery? Different regimes have different economics: in country A you would definitely wouldn't think twice about investing and in country B you would never invest. The variations in these systems relate not only to the timing but other things like uplift and interest allowed. Uplifts are in the form of additional expenses, so they are deducted at the top of the ledger. When they come in as credits they are deducted at the bottom of the ledger after a tax has been calculated. Much like Alaska, whether or not a regime has a single rate system or a tiered system and whether it comes in as an expense or a credit has a big impact on how it's looked at by industry. All of that together probably has more influence on whether a project is marginally doable than the tax rate.

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MR. RUGGIERO said he made up some scenarios about Alaska NOLs and their unintended consequences. NOLs are created in a calendar year when deducting allowable expenses the production tax value (PTV) is less than zero. The amount of deductible expenses below a zero PTV then become an NOL (\$500 in this example). Cashable credits in a 35 percent tax rate structure would generate \$175. This \$175 represents the maximum value of that \$500 NOL to the producer, which he called the "100 percent used and useful NOL value." He found that with the interactions of the various pieces of the current tax code, producers very rarely, if ever, receive \$175 in value of tax savings for that \$500, which is what you want to try to get away from.

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His first model used a GVR field. He said wherever you are in a low price environment, medium or high, his examples show how the value of the NOLs change and the modeling shows that the value to the taxpayer of the CF NOLs can be negatively impacted by credits or other mechanisms within the fiscal system.

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SENATOR WIELECHOWSKI said his model was assuming the tax is 35 percent, but that doesn't happen until oil is \$160\bbl and he was wondering how that impacts things. He also asked how he

arrived at a per barrel credit (PBC) of \$40 when the highest is \$8.

MR. RUGGIERO answered don't read anything into how he went from \$5/bbl to \$40/bbl. He is just using round numbers for a simpler example.

SENATOR WIELECHOWSKI said numbers were kind of important.

MR. RUGGIERO said he could make that number bigger or smaller, but the impact he was trying to show is still there regardless. He would illustrate that with additional runs.

To the first question: even today when you have a GVR field they do this same calculation. They will come down to their taxable barrels; they will come down to the taxable value of the taxable barrels. And then they will apply the 35 percent and then they will subtract the \$5/bbl credit. So, in the calculation he applied a 35 percent rate to figure out what the tax is before applying the PBCs.

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MS. RUGGIERO added that the \$40/bbl credit is difficult to understand, and from her perspective the purpose of choosing the \$40 is for the example's sake. It doesn't get used in the first two years, but it gets used in the following years. So, the \$40 number was chosen really for example's sake to compare years where the credit is not used and years where the credit applies to taxes that are owed.

SENATOR BISHOP said the key takeaway is that the producer only received a 54 percent credit in the first instance.

MR. RUGGIERO said yes. It would be as though he had cashable credits worth \$175 but you only paid him 54 percent of that or \$85.

SENATOR MICCICHE said it's important for the public to know this example is a project that has constant gross value at the point of production of \$400/year and is not based on a barrel of oil.

MR. RUGGIERO responded that actually the way it went through his head he had eight barrels at \$50/bbl, which results in a gross value of \$400 and the \$40 credit, and he was trying to illustrate was their interaction and the resulting loss of value to the producer. It is important to run actual numbers to know

that what is being changed will have the right impact moving forward.

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SENATOR COGHILL remarked that Mr. Ruggiero's example was probably not close to reality.

MR. RUGGIERO responded that it's not; and he used it to show the impact of the interaction of the various pieces with the current policy, not to depict reality.

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His next example (slide 14) used a higher price and increases the gross value to 25 percent with NOLs of \$500, but all else unchanged. Without use of any CF NOLs, the total tax paid would be \$325. So, if the NOLs are used and useful, he should realize \$175 in savings and after applying the \$500 NOL his tax over that five years would be no more the \$150.

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Slide 15 added the NOLs to the model and because of the higher revenues coming in and costs being the same, they are totally consumed in two years. The tax comes down to \$195. At this higher price the NOLs provide more value; they are now 74 percent used and useful (compared to 54 percent in his previous example). He is getting more of the expected benefit at a higher price.

He added unless there is a big price spike, because of cost structure, relatively speaking, new fields are probably going to be in a low PTV per barrel state for some time as they try to gear up to peak production and pay off their costs. In all of his examples the producers are not being kept whole, as he is today. "So, not being able to recover your NOLs puts your economics at a great disadvantage."

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SENATOR BISHOP said nobody likes to operate in an NOL situation.

MR. RUGGIERO responded that no one likes to, but in the oil patch they always do. You can't just invest a dollar and all of a sudden have positive revenue come out the other end.

SENATOR BISHOP said that was fair enough, but theoretically in time as the price increases you should come out of an NOL situation at some point.

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MR. RUGGIERO said because of the interaction of the various mechanisms within a fiscal structure, they need to make sure the intended effect actually can occur. No one item should be viewed stand-alone and care should be taken to make sure the level and degree of inter-dependency is understood. So long as they keep some form of GVR, per barrel credits, and hard floors related to gross minimum taxes, the impact of CF NOLs will range from slightly used and useful to almost used and useful, but that almost only occurs at extremely high prices and an extremely high PTV per barrel.

What is really needed is a full life cycle model of one of the expected developments on the North Slope so legislators can run whatever changes they are thinking against it, because changing other mechanisms, such as increasing the minimum tax or reducing per barrel credits, will alter the value of the CF NOLs to the producer and the state. Because there may be three to seven years of costs before the first dollar of revenue comes in to be able to apply to NOLs to and recover them, a company really needs to know in coming out of that development period that it is going to get value for the actual costs that it put into the project.

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CHAIR GIESSEL said the present bill limits use of the NOLs to a 10-year period before they begin to evaporate by 10 percent a year, and that wouldn't cover a new player coming in who will have at least seven to ten years of development costs before they begin to produce any kind of oil.

MR. RUGGIERO answered that is exactly what he sees, but they also need to discuss staging of the deductions. For example, if he has \$500 worth of carry forward NOLs, \$500 in opex, and \$500 in revenue and if he has to apply his current losses first, now he has just carried that \$500 another year and lost a year off of whatever limit there is. If he applies the \$500 first, he still has another \$500 to carry forward, but now it's only one year old, not two. So, staging of the NOLs can make or break the economics depending on how the statute is written.

CHAIR GIESSEL said she thought he was pointing out that this is a very complex tax system and the slightest change can have a profound effect.

MR. RUGGIERO said that was correct.

SENATOR WIELECHOWSKI asked how complex it is compared to other countries or jurisdictions and if Alaska is fairly balancing the interplay of how quickly companies get their NOLs back versus the tax rate.

MR. RUGGIERO answered if there is a spectrum with the average in the center, the ability for a company to take any capital spending and in essence treat it like an opex, puts it on the very positive side of that spectrum. A lot of jurisdictions distinguish between opex and capex, and the capex goes through some sort of deferred recovery (his previous presentation illustrated how costly or beneficial accelerated or deferred recovery can be). But in all the systems that would be on the favorable side the producers are actually able to recover those costs in full. A system where they can't recover their costs for one reason or another and start getting taxed as if they had (because you're taxing profit, which is usually determined after costs), that will push the needle to the negative side. How far depends on how the mechanism ultimately comes out and the interplay between the other pieces within the tax code.

SENATOR WIELECHOWSKI asked about the complexity of Alaska's tax system.

MR. RUGGIERO replied that from a practitioner perspective of someone who has helped governments write or modify code, Alaska ranks in the top 10 of the most complex.

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He continued running through the exact same example on a non-GVR field and wasn't able to fully realize the 100 percent used and useful value of those NOLs. So, if they are going to get rid of the cashable credits, a company needs to get some comparable value for what they are doing. So mechanisms have to be found around the interdependency that impacts per barrel credits, GVR reductions, and gross minimum floors.

SENATOR WIELECHOWSKI asked what most regimes typically allow in terms of NOL recovery.

MR. RUGGIERO responded that other regimes just don't give out cash, but every jurisdiction he has worked on and every contract he has written allow full recovery of an operator's NOLs before they pay profit-based taxes. All jurisdictions have time and uplift that affect how fast a company gets that 100 percent back; many get 120 or 180 percent back. Usually the uplift is

inserted so that a company becomes indifferent to the net present value basis (NPV).

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SENATOR WIELECHOWSKI said this where the tax rate comes in, because he has always looked at it as a sliding scale. States like Texas and North Dakota have very low tax rates, but they don't fund any of the costs. The countries like Iran and Iraq have a 98 percent government take, but they allow 100 percent of the costs. Alaska is sort of a hybrid: if we're going to allow 100 percent operating recovery like Norway that has a 78 percent tax rate - which is worth discussing - do we need to start adjusting the tax structure upwards if we start allowing more NOL recovery?

MR. RUGGIERO replied that Norway, at 78 percent, controls all the pieces that are government take. HB 111 is talking about only one small portion of government take, the production tax, and that one piece doesn't have to be raised. Alaska is 65 percent compared to Norway's 78 percent. The piece that is not the petroleum tax are the two corporate income taxes and they get to recover 100 percent of those costs in a used and useful manner. He is recommending that they duplicate that on the petroleum tax so that companies are also able to get used and useful recovery of their capital spending and any other net operating losses.

SENATOR BISHOP noted that the state is still banking the royalty while they are recovering their capex and opex.

MR. RUGGIERO said that is exactly right; the state is still banking royalty, property tax, and state corporate income tax.

SENATOR STEDMAN said clearly industry needs to be able to recoup their costs, but in doing so, he hopes Mr. Ruggiero can bring forward a way to get away from cashable credits, a way to make the system less complex, and reveal suggestions on how to deal with any other unintended consequences the system has.

CHAIR GIESSEL asked Mr. Ruggiero if he had placed the NOLs in a location in this calculation that makes them no longer fall into the credit category, because they are coming before the calculation of the tax.

MR. RUGGIERO replied that was accurate, because instead of converting the NOL to credits he is carrying them forward as a loss. NOL is a fancy name for operating costs that are not yet

recovered. So, he was putting it in the same place in the calculation as their other operating loss.

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SENATOR MICCICHE asked if every net-based tax system returns 100 percent of losses.

MR. RUGGIERO responded everyone he is aware of and worked with is able to get that expected tax benefit through his definition: "100 percent used and useful."

SENATOR MICCICHE asked if he also said that time and method of the 100 percent recovery determines the NPV.

MR. RUGGIERO answered those do heavily impact the return and the NPV of a project.

SENATOR MICCICHE asked if he said in some cases uplift recovers more than 100 percent of a company's losses.

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MR. RUGGIERO answered yes; for example the project that has five years of spending before it ever goes into production and the spend is of such a significant value that it takes them another five or six years to fully recover those NOLs, it could be seven or eight years from the date they first create an NOL to the last date they recover them. Using a 15 percent discount rate on a project that is 10 years out has a NPV today of less than half. So, in order for it to have the same value today in 10 years, it has to be uplifted to a much higher amount so that when he discounts it back it has the same net present value. The state can choose to go with a 15 percent discount rate or pick a number - like 10 or 12 percent.

SENATOR MICCICHE said he is with Senator Stedman; he has always viewed cashable credits as playing poker with someone else's money. His question is: Is HB 111 the only potential regime that does not allow 100 percent used and useful NOLs?

MR. RUGGIERO answered that is correct.

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His non-GVR example on slide 20 at a higher price, again, the NOLs were 11 percent used and useful. Slide 21 added in the other pieces of the system and he noted the numbers were all over the board. He was running just a simple rounded number example and he had come up with the used and useful NOL values

of 0, 9, 11, 34, 36, 50, 54, and 74. He calls that highly complex. And for an operator to come to Alaska, especially if they are not previously familiar with it and try to build a model, they would probably do what he did when he first built a model: build it the way that he logically thought it should work, but then get hit with the reality of how it actually works. So, they have to bridge the gap between how people think it works with how it actually does work.

SENATOR BISHOP commented that the tax auditors are trying to apply the same complex system.

MR. RUGGIERO responded that he has been accused of eliminating work for consultants and auditors by urging simplification. He remembered in working through the SB 21 process, that nothing like this was brought up, mainly because they weren't forced to because everything was a cashable credit. It's come up now, because the state is moving towards treating it like it is treated everywhere else. It is a solvable situation he hastened to assure them.

SENATOR WIELECHOWSKI asked what sort of general impact to the treasury in next few years would happen in going to a system that allows 100 percent recovery of NOLs.

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MR. RUGGIERO answered if you came up with a mechanism that ensured those 200,000 bbl/day fields coming onboard on the North Slope they would be adding another \$50 billion along with the existing fields to the treasury.

SENATOR WIELECHOWSKI asked for any short-term impacts.

MR. RUGGIERO answered the beauty of this is there is no short-term impact, because (in this CS) those costs stay with the entity in that field and that unit. It doesn't cost the state anything until there is actual production that would have owed taxes but for the NOLs. That concluded his presentation.

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CHAIR GIESSEL found no further business and adjourned the Joint Senate Resources and Senate Finance Committee meeting at 4:58 p.m.