ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE
February 15, 2013
3:06 p.m.

MEMBERS PRESENT

Senator Cathy Giessel, Chair
Senator Fred Dyson, Vice Chair
Senator Peter Micciche
Senator Click Bishop
Senator Hollis French

MEMBERS ABSENT

Senator Lesil McGuire
Senator Anna Fairclough

COMMITTEE CALENDAR

SENATE BILL NO. 21
"An Act relating to appropriations from taxes paid under the Alaska Net Income Tax Act; relating to the oil and gas production tax rate; relating to gas used in the state; relating to monthly installment payments of the oil and gas production tax; relating to oil and gas production tax credits for certain losses and expenditures; relating to oil and gas production tax credit certificates; relating to nontransferable tax credits based on production; relating to the oil and gas tax credit fund; relating to annual statements by producers and explorers; relating to the determination of annual oil and gas production tax values including adjustments based on a percentage of gross value at the point of production from certain leases or properties; making conforming amendments; and providing for an effective date."

- HEARD & HELD

PRESENTATION: PFC Energy

- HEARD

PREVIOUS COMMITTEE ACTION

BILL: SB 21
SHORT TITLE: OIL AND GAS PRODUCTION TAX
SPONSOR(s): RULES BY REQUEST OF THE GOVERNOR

01/16/13	(S)	READ THE FIRST TIME - REFERRALS
01/16/13	(S)	TTP, RES, FIN
01/22/13	(S)	TTP AT 3:30 PM BELTZ 105 (TSBldg)
01/22/13	(S)	Heard & Held
01/22/13	(S)	MINUTE(TTP)
01/24/13	(S)	TTP AT 3:30 PM BUTROVICH 205
01/24/13	(S)	Heard & Held
01/24/13	(S)	MINUTE(TTP)
01/29/13	(S)	TTP AT 3:30 PM BELTZ 105 (TSBldg)
01/29/13	(S)	Heard & Held
01/29/13	(S)	MINUTE(TTP)
01/31/13	(S)	TTP AT 1:00 PM BUTROVICH 205
01/31/13	(S)	Heard & Held
01/31/13	(S)	MINUTE(TTP)
02/05/13	(S)	TTP AT 3:30 PM BUTROVICH 205
02/05/13	(S)	Heard & Held
02/05/13	(S)	MINUTE(TTP)
02/07/13	(S)	TTP AT 3:30 PM BUTROVICH 205
02/07/13	(S)	Moved SB 21 Out of Committee
02/07/13	(S)	MINUTE(TTP)
02/08/13	(S)	TTP RPT 1NR 4AM
02/08/13	(S)	NR: DUNLEAVY
02/08/13	(S)	AM: MICCICHE, GARDNER, FAIRCLOUGH, MCGUIRE
02/08/13	(S)	LETTER OF INTENT WITH TTP REPORT
02/09/13	(S)	TTP AT 10:00 AM BUTROVICH 205
02/09/13	(S)	-- MEETING CANCELED --
02/11/13	(S)	RES AT 3:30 PM BUTROVICH 205
02/11/13	(S)	Heard & Held
02/11/13	(S)	MINUTE(RES)
02/13/13	(S)	RES AT 3:30 PM BUTROVICH 205
02/13/13	(S)	Heard & Held
02/13/13	(S)	MINUTE(RES)
02/15/13	(S)	RES AT 3:30 PM BUTROVICH 205

WITNESS REGISTER

MICHAEL PAWLOWSKI, Petroleum Systems Advisor
Office of the Commissioner
Department of Revenue (DOR)
Juneau, AK
POSITION STATEMENT: Gave presentation a general walk through of the actual mathematics of how progressivity works and then identified issues of concern.

DAN STICKEL, Assistant Chief Economist

Department of Revenue (DOR)
Juneau, AK
POSITION STATEMENT: Explained the basic calculation of tax liability in ACES and the concept of "decoupling."

JOE BALASH, Deputy Commissioner
Department of Natural Resources (DNR)
Juneau, AK
POSITION STATEMENT: Provided historical information on unit agreements on the North Slope.

JANAK MAYER, Upstream Manager
PFC Energy
POSITION STATEMENT: Consultant to the Legislature on oil and gas taxation and fiscal reform for the State of Alaska.

ACTION NARRATIVE

3:30:39 PM
CHAIR CATHY GIESSEL called the Senate Resources Standing Committee meeting to order at 3:30 p.m. Present at the call to order were Senators French, Micciche, Bishop and Chair Giessel.

SB 21-OIL AND GAS PRODUCTION TAX

CHAIR GIESSEL announced SB 21 to be up for consideration and to start the Department of Revenue would walk through the complexities of progressivity.

3:32:08 PM
MICHAEL PAWLOWSKI, Petroleum Systems Advisor, Office of the Commissioner, Department of Revenue (DOR), Juneau, AK, said the intent of the presentation was to give members a general walk through of the actual mathematics of how progressivity works and then to talk about some of the issues that the department has identified in progressivity that have caused concern. He noted that a lot of these issues are about the aggressivity of the progressivity, specifically about the math of the equation in the current system.

He said he would first walk through the calculation of the production tax liability and then second how the basic progressivity calculation works; and finally go through what the administration has identified as some of the problems with it. He invited Mr. Stickel to walk through calculating the production tax liability.

3:34:06 PM
DAN STICKEL, Assistant Chief Economist, Department of Revenue (DOR), Juneau, AK, said the basic calculation of the ACES tax liability is: production tax value times your tax rate minus your credits. Production tax value is: the value at plant production (volume of oil and gas produced times the wellhead value). In calculating the wellhead value you subtract: transportation costs to get it to market, operating (Opex) and capital (Capex) expenditures in the year earned in calculating production tax value (the tax base). The base rate is 25 percent plus an additional .4 percent for every $1 per barrel that the production tax value exceeds $30/barrel up to $92.50/barrel, and then at $92.50 that turns into a .1 percent slope. The credits are subtracted from that (primarily the 20 percent credit on capital expenditures as well as small producer credits and transitional credits).

MR. PAWLOWSKI said the progressivity function itself is found in AS 43.55.011(g). He reiterated that the progressivity doesn't begin to get calculated until production tax value exceeds $30/barrel of oil (deducting transportation costs). As soon as it goes past $30 a barrel, the tax rate increases .4 percent per $1 until the production tax value exceeds $92.50/barrel when it flattens out. The maximum tax rate of the progressivity portion is a 50 percent tax, which when combined with the base tax is 75 percent. Progressivity itself is calculated monthly and it is a single statewide calculation on all oil and gas revenues.

3:36:03 PM
SENATOR MICCICHE asked if there are any eligible transition expenditures that are still in use.

MR. PAWLOWSKI replied that he would get back to him on that, but he understood that those are repealed in SB 21.

3:36:54 PM
SENATOR DYSON joined the committee.

MR. PAWLOWSKI said the basic calculation as it appears in the 2012 Fall Revenue Sources Book begins with the base assumption of 170,262,000 barrels of taxable production (royalty oil not included). The equation begins with an ANS West Coast price of $109.61/barrel as forecast by the department. Transportation costs of $8.81/barrel are subtracted from that, which results in $100.80/barrel gross value at the point of production (wellhead) of. The deductible lease expenditures are subtracted from that to arrive at the production tax value. So, the Fall Revenue

Sources Book shows an operating expenditure of $16.32/barrel and a capital expenditure of $19.61/barrel, for a production tax value of $64.87. The base tax of 25 percent is applied against that production tax value. So the base production tax in the example would be around $16.22/barrel. Those are the basic numbers to begin to calculate the progressivity function.

Calculating the progressivity function begins with the production tax value of $64.87/barrel minus the $30/trigger, which results in a value of $34.87. Because that production tax is less than $92.50, the amount of the percentage increase applied to this number is .4 percent. So, $34.87 times .4 percent is roughly the equivalent of 13.95 percent (therefore the progressivity in this example is 13.95 percent). This 13.95 progressive tax is then applied to the production tax value per barrel of $64.87 (not the $34.87). So, $64.87 times 13.95 percent equals $9.05/barrel; therefore the $9.05/barrel progressive tax plus the 25 percent base tax of $16.22 results in a $25.27/barrel production tax (before the credits are added) multiplied by the taxable production results in $4,302,000,000 in production tax revenue.

3:40:04 PM
SENATOR FRENCH said it struck him that for all the wailing and gnashing of teeth about progressivity it accounts for just $9 out of $109/barrel of oil, and it doesn't appear to be a dominant aspect of the taxation system. He asked where the gross value at point of production is on the North Slope.

MR. STICKEL answered that includes all of the netback costs, everything that it takes to get from the unit boundary to the destinations: the feeder pipelines, TAPS tariff and tinker tariff.

SENATOR FRENCH asked if it is just upstream of the pipeline tie-in or downstream of the production facility. Do the feeder pipes count between the production facility and the pipeline or no?

MR. STICKEL replied that it depends on whether it's a regulated pipeline or if it's within a unit boundary and he offered to get a technical definition.

SENATOR FRENCH said he understood that it is basically downstream of the production facility (after everything has been taken out) but before the feeder pipe; yet it's called a wellhead price.

MR. PAWLOWSKI commented that the wellhead is generally for calculating royalty. There is a general synergy between the point of production and the wellhead, but they are not the exact same number because of getting different treatment under the tax - particularly when it comes to the allowable deductible costs for a shipper that has an affiliated ownership in the TAPS (that gets a regulated treatment by the Department of Revenue).

3:42:23 PM
Some of his preliminary observations about the progressivity mechanism were:

-It increases the overall tax rate as the overall profitability rises. The progressivity in the production tax itself is one component of the overall fiscal system. After that is calculated, then state and federal income taxes are also levied on the remaining net profit of a barrel.
-Progressivity is company specific and each company will have a different exposure because progressivity is sensitive to:
    -the oil price
    -spending
    -production
-Progressivity is only one part of what makes the overall system progressive; it is not a factor at all at low oil prices ($30 net). He explained that the combination of credits and progressivity creates the linear slope that is different than the slope in SB 21. They don't want people to forget about the credits while talking about progressivity in the overall picture, and this presentation will only talk about the progressivity.

SENATOR DYSON commented that progressivity isn't triggered until you get $30 over the combination of Capex, Opex and transportation costs, but once it is triggered, it goes back all the way to the Capex and Opex.

MR. PAWLOWSKI agreed and added that it's important to note that in the beginning of calculating the progressivity, $64.87 minus $30 gives one a number that is used to determine the tax rate, not the number that the tax rate is applied against. The production tax value is the number against which both the 25 percent base tax and the progressive tax rate are applied against.

3:45:28 PM
Next Mr. Pawlowski walked them through the sensitivity of the progressivity function example based on the same numbers but

changing one number in the equation, increasing the capital spending by $500 million. In this example, the exact same transportation costs results in the same gross value at point of production; the deductible lease expenditures and the operating cost are the same at $16.32, which raises the Capex/barrel to $22.55 dropping the production value from $64.87 to $61.93. The base tax is reduced from the previous example by 25 percent against the $61.93 which results in $15.48. Calculating progressivity starts with $61.93/barrel (instead of $64.87). So, doing the same walkthrough: $61.93 minus $30 equals $31.93. Since that $31.93 is less than $92.50, that is multiplied by .4 percent, which results in a progressive tax rate of 12.77 percent, which is applied to the $61.93, which results in the progressive tax of $7.91/barrel. So, one sees as capital spending goes up, the production tax value has dropped, as has the corresponding calculation of the progressivity.

The combination of the progressive tax and the base tax results in $23.39/barrel (before credits) multiplied by the taxable production. That shows state revenues declining to $3,983,000,000. Therefore, in looking at the impact just from the progressivity, of spending $500 million in capital, state revenues went down $319 million before considering the cost of credits (similar to what Econ One presented earlier).

3:48:24 PM
He said the department's preliminary observations were:

-Progressivity based on the net production tax incentivizes spending.
-The level of the incentive depends on the price of oil and the cost structure of the investor not the relative economics of the project. The $319 million is a function of the operating and capital costs per barrel, the price of oil in the market and, therefore, not linked directly to a specific project or improving the overall economics.
-The value of this deduction often exceeds the credits. In other words, when we think of 20 percent of $500 million, what we see is really $100 million. So, $500 million in capital spending would accrue $100 million in credits; and in this example, $319 million worth of buy down value in the progressivity equation. So, because of the price of the oil in the cost structure, the value of the progressivity buying down is actually much higher than the value of the credit.
-This benefit is only available to an incumbent producer that has a tax liability and doesn't create a level playing field

with new entrants accounting for the difference in government take levels for a new entrant versus an incumbent producer.

3:49:12 PM
SENATOR FRENCH said he would add "in Alaska" to the first bullet point, "progressivity based on the net production tax incentivizes spending - in Alaska." If that extra $500 million is spent overseas, then Alaska gets nothing.

MR. PAWLOWSKI responded that Alaska would get the additional tax revenue of that spending going elsewhere.

SENATOR FRENCH said his only other point was that Mr. Pawlowski had selected the number of $500 million, but in reality which of the oil companies doing business in Alaska would increase their capital spending by that much.

MR. PAWLOWSKI replied that it would be easy to foresee a combination of companies currently doing business in Alaska doing it or some of the newer entrants. He thought it was a fairly reasonable number and it was a round number to use as an example.

SENATOR FRENCH asked if he agreed that a $500 million increased in capital spending in one year would be a significant increase.

MR. PAWLOWSKI answered absolutely.

3:51:41 PM
SENATOR MICCICHE asked if the small producer credit would offset the benefit.

MR. PAWLOWSKI answered that it offers a definite benefit to the small producers at $12 million/year, but one that is not commensurate to the scale of the upfront buy down.

SENATOR MICCICHE said he thought that would be almost a direct offset for the small quantities the small producers are producing, but he could be wrong.

MR. PAWLOWSKI offered to work with him on the economics of that premise. His next example took the same $500 million but decreased the oil price by $10 (using $99.61 instead of $109.61), the same transportation costs, but the gross value at the point of production is lower ($90.80), because of starting from lower oil prices; the same operating expenditures of $16.32/barrel and same capital expenditures of $22.55/barrel and

that resulted in a production tax value of $51.93/barrel. The base tax 25 percent would be $12.98. Calculating the progressivity from that $51.93, minus $30, results in $21.93/barrel. Again, since it's below $92.50, $21.93 times .4 percent results in a progressive tax rate of 8.77 percent; $51.93 times 8.77 percent equals approximately $4.56/barrel. Therefore, the $4.56, plus $12.98 base tax results in a $17.54/barrel production tax before credits, multiplied by the taxable production. Running the same equation without the additional spending derives revenues of $3,265,000,000.

He explained that one sees the benefit of the deduction of that additional $500 million in spending at a higher oil price was worth $319 million, but the oil price falling $10 reduced the value of that deduction to $279 million. This illustrates that the value of the deduction is largely dependent on the price of oil when the deduction occurs.

He observed:
-Since the value of a deduction is dependent on the price of oil, it's very difficult for a company to predict its value, especially with long lead time projects. So, if the value of one's benefit depends entirely on the price of oil in the year you happen to be spending the capital, looking out 3-5 years for an investment is a different thing than looking at the near term, next year. And given the degree to which that benefit can fluctuate, that is a fundamental problem within the progressivity structure.
-The reduction in taxes is temporary, since as soon as the spending is done the tax rate rises back to the higher rate.
-This effect can potentially create misalignments amongst working interest owners in the same field. For instance, if one working interest owner is spending and another isn't, then the value of the incremental spending to that company that is already spending will be less than to the one that isn't (because of where they are in their progressivity equations). Again, the value is based on an equation and not the project economics that they are all working on together.

3:56:25 PM
SENATOR FRENCH said he knew the point he was getting at, but he must be really careful in expressing it. Working interest owners in the same field have to be aligned when they make investment decisions or they don't happen; Prudhoe Bay requires unanimity.

MR. PAWLOWSKI said he appreciated the clarification. Because unanimity is needed to move forward in some of these fields, one

of the participants may be in a different tax place than the others, so there may be an actual material benefit to one of the working interest owners to wait to harvest that progressivity benefit as opposed to another. He thought that was offset to a large degree by how they actually can look at the value of that deduction in planning out into the future. However, for short term there could be a difference in the working interest owners for the maintenance spending and capital infrastructure and those types of things. This is not a major problem with progressivity but just a potential concern that he saw in running through the scenario.

3:58:24 PM
SENATOR DYSON asked why one of those companies couldn't have an opportunity to increase production significantly with expenses on their portion of the lease.

MR. PAWLOWSKI answered that it goes back to what Senator French talked about; at the margin things can be done by an individual company within a lease depending on the actual structure of that working interest in the relationship of the unit agreement, but for bigger decisions having different tax rates with multiple companies that are all working together can potentially create problems.

SENATOR DYSON asked if it's not dependent on what part of the field they own.

MR. PAWLOWSKI answered no; their individual tax rates depend basically on their overall activity in Alaska not at the field level. So, in that a company may have different activities than their other partners, they will be in different tax places, and that creates an interesting question of how that actually works in practice and if the progressivity creates potential misalignments. He said the administration was consistently concerned about where the potential misalignments are in the current tax system.

SENATOR DYSON said he was talking about the different leases they own and whether or not they can produce more oil.

MR. PAWLOWSKI said he would invite Mr. Balash to talk about actions within the units.

4:00:46 PM
JOE BALASH, Deputy Commissioner, Department of Natural Resources (DNR), said that type of scenario is one they may have seen 15

years ago with multiple operators in the same unit at Prudhoe Bay. But after the merger between BP and Arco the operatorship was consolidated into the hands of a single company. His understanding of how the unit operating agreement functions between the owners is that a single operator carries the responsibility of the day-to-day business and then brings forward projects to the other working interest owners for approval through the AFE process.

4:01:45 PM
MR. PAWLOWSKI made a final observation that the state gives a greater incentive to a company spending money at high prices than at lower prices for the same expenditure - the opposite of what is needed to make projects economic - if you are purely looking at it from the progressivity perspective in terms of what the state is giving as a benefit.

He turned to another example of what happens in the progressivity equation when a company cuts its costs. In this example he went back to the $109.61/barrel (WC) and instead of increasing spending he cut spending by $5/barrel. So, $109.61 minus the same transportation costs for a gross value at the point of production (GVPP) of $100.80. The same Opex of $16.32/barrel but this time a Capex of $14.61 gives a higher production tax value of $69.87 than the initial example ($64.87), but all that has changed is the $5 less in capital spending. The base tax goes up to $17.47 (25 percent against $69.87 is more than 25 percent against $60.47).

4:03:41 PM
In calculating the progressivity, he said one starts with the production tax value (PTV) of $69.87 minus $30 times .4 percent resulting in a progressive tax rate of 15.95 percent. Multiplied against the $69.87 results in $11.14/barrel and adding that to the base tax results in $28.61/barrel production tax (before credits).

Going back to the first example before the $5 less in capital was spent; taxes were $25.27/barrel; now they are $28.61/barrel. Therefore, a reduction in capital cost per barrel of $5 actually leads to a tax increase of $3.34/barrel. With progressivity the producer keeps $1.66 of the $5 in cost savings; without progressivity the producer would keep $3.75 of the $5 in cost savings. The purpose of this illustration was to show that cutting costs and increasing taxes can lead to distortions in decision-making and behavior.

MR. PAWLOWSKI said technology allows one to do the same thing cheaper, but with progressivity that could actually lead to tax increases; it's just the nature of the mathematics of the progressivity itself. It creates the same effect as cutting costs because it increases the production tax value and therefore, the progressive tax rate.

He said according to the administration's consultant, similar things that reduce the production tax value reduce the tax rate and there is a much stronger incentive to keep costs under control without progressivity.

Next he said Mr. Stickel would walk through what happens when there is a major gas sale, which has been talked about over the years as "de-coupling."

4:05:51 PM
MR. STICKEL said he picked a nice round number for this example of 1 bcf/gas/day at a price of $8 and a transportation cost of $4.50/mmbtu. On a barrel of oil equivalent basis he used the ratio of 6:1 oil to gas and this would just illustrate one potential set of numbers for a gas sale to show what the impact of the gas sale is.

He explained that the average price per barrel of oil equivalent actually drops by including the gas. A $48/barrel of oil equivalent is the gas destination value, and on a barrel of oil equivalent basis, the transportation costs increase and the total gross value at point of production per barrel of oil equivalent becomes $79.79. With the same per barrel of oil equivalent lease expenditures, one's production tax value per barrel of oil equivalent under ACES drops to $43.86 from $64.87 from before the gas sale; the base tax (25 percent) will increase a little to $10.97.

4:08:10 PM
MR. PAWLOWSKI explained that the de-coupling dilemma was a problem that was thoroughly discussed in the 26th Legislature; it is exacerbated by the aggressive net-based progressive function, and it's when a high value product (light oil) is blended with a low value product (gas), because you are moving is the blended price of the two commodities together, which walks through the equation in the relationship to progressivity in the same way as a reduction in price would naturally.

Adding the 1 bcf/gas/day (lower value product) to the higher value light oil leads to a lower oil value per barrel of oil

equivalent and functionally reduces the state revenues before credits from $4,302,000,000 to $3,096,000,000. So, bringing the low value gas on line when you have a net based progressivity reduces revenue to the state. The values are drug down because they are linked together.

4:09:42 PM
SENATOR MICCICHE referred to slide 17 with $109 ANS price.

MR. STICKEL said they assumed the $109 for the oil being sold and averaging in the $8 per 1/btu gas; and on a barrel of oil equivalent basis the weighted average price is $93.39. The way the ACES tax works, if you have a major gas sale, that gas is converted to barrel of oil equivalent on the ratio of 6 mmbtu/gas equal to 1 barrel of oil.

MR. PAWLOWSKI said what they see happening is 170,262,000 barrels produced at $109.61/barrel; then they're seeing 60,833,333 barrels of oil equivalent produced at $48/barrel. So, that lower value gas blended with the higher value oil is all rolled together into the net calculation which leads to a lower overall price for the total product stream.

4:11:24 PM
SENATOR MICCICHE asked why transportation costs go up if they are averaged together; it's a pretty substantial jump.

MR. PAWLOWSKI replied because the cost of moving the gas is in relationship to the value of the gas much higher than it is for moving a barrel of oil. The tariffs on any gas pipeline would generally be much higher as a portion of the value of the product than it is for moving the liquid oil. In this example, they see transportation costs of $4.50 on an $8/gas price versus transportation costs of $8.81 for oil on $109 price. It's just a function of it being much more expensive to move a much lower value product. And when all of that rolls in together, one sees a substantial reduction in state revenue when the gas is produced alongside the oil. That's because the overall value of all of it has been brought down and that .4 percent progressivity moves the total value down. So rather than a progressive tax of 13.95 percent, you move to a regressive tax of 5.55 percent. And the tax rate drops dramatically as opposed to just producing the oil.

4:12:39 PM
His general summary was that progressivity is fundamentally not simple, and that is because:

-It reduces the cash margin per barrel in ways that leaves Alaska uncompetitive. That is where the administration started to look at the impacts of progressivity. Once you are in the low spending, cash generation phase of these long life time projects, progressivity goes up.
-It is highly sensitive to price, making it difficult to predict for the state of Alaska and taxpayers. So if a taxpayer is looking forward to a long term investment, any benefit from progressivity is basically dependent on what the price of oil happens to be when that investment is made. It may work for short term decisions, but not well for long ones.

SENATOR BISHOP commented that it seems that it could take a common sense approach out of when a producer would actually would want to do their front end work to get more oil out of the field, because at high prices the math doesn't work as well as at lower prices, making it less advantageous to develop a field from the investor's perspective.

MR. PAWLOWSKI agreed and added that the higher prices make it worse than the lower prices from the investor's perspective. It creates misalignment potentially in that it incentivizes spending, because that short term decision is easy to make under the progressive system. The tax rate is changing monthly not annually and if an investor is looking at a long term - 3-5 year
-Big spending investment, looking through the lens of a tax rate that is changing monthly over that entire time period based on oil prices which no one has any control over is not easy.
-It creates misalignments between working interest owners based on individual spending programs.
-It incentivizes spending but not necessarily investments that lead to production
-It mutes the incentive to save costs or utilize technology.
-It creates and exacerbates the de-coupling dilemma.

4:16:29 PM
SENATOR MICCICHE said progressivity exacerbates it, but it doesn't eliminate the high cost of transportation off the North Slope.

MR. PAWLOWSKI said that was correct.

SENATOR GIESSEL thanked Mr. Pawlowski, Mr. Stickel and Mr. Balash.

4:17:06 PM

CHAIR GIESSEL announced the committee would next hear from consultant Janak Mayer with PFC Energy. He would discuss competitiveness and answer questions that were submitted through the letter of intent that was written by the TAPS Throughput Committee. She also mentioned a quote from Jean Colbert an economist and minister of finance under King Louis XIV of France in 1619, that amused her: "The art of taxation consists in so plucking the goose as to get the most feathers with the least hissing."

4:18:00 PM
JANAK MAYER, Upstream Manager, PFC Energy, consultant to the Legislature on oil and gas taxation and fiscal reform for the State of Alaska, said that PFC Energy consults specifically in the field of oil and gas. They look at questions of above-ground risk in oil and gas operations that covers a wide range of things from geopolitics to understanding the dynamics of oil and gas markets, supply and demand in different countries, commercial strategies of major national and international companies, and questions of project economics and fiscal structures.

4:19:50 PM
Putting things in context, Mr. Mayer said he would look at a couple of very simple sensitivities of future cash flows from petroleum to the State of Alaska that are outside of government take under the fiscal system. The biggest one is the price of oil. For example in a hypothetical world of a steady $140 price and looking at the current declining forecast, revenue to the state from oil and gas taxation could be as high as $12 billion a year or as low as $2 billion. But a $60 price could create "a massive variation that dwarfs everything else that we might talk about in terms of either new production or fiscal systems change or any of the rest."

SENATOR FRENCH asked if his state take of at $140/barrel in 2022 figures were strictly ACES or royalty and everything else.

MR. MAYER answered they were the entire state take.

SENATOR FRENCH asked him to explain his comment that "the potential variation is even greater since production also responds to price."

MR. MAYER explained that this analysis holds production steady, but in reality, production is deeply respondent to price. In a low price environment very few new projects are economic, don't

get sanctioned and don't go ahead. Lots of things that are included in the current DOR forecast wouldn't go ahead in a $60/barrel sustained world: wells become non-economic earlier, production gets shut in earlier than it would otherwise. The inverse is true in a very high price environment: wells keep producing longer, it's worth investing in new liquids handling capacity and other things that currently constrain production in a way that is not at the moment. So, this already enormous range of future revenues is much greater if one considers that production also responds to price.

4:24:31 PM
He said the other major determinant is the level of future production and in the context of declining North Slope production, the rate of that decline. For instance, rather than the 6 percent decline forecast we had only a 3 percent decline or worse, a 9 percent decline, there is a good $4 billion in difference between those two possible 2022 worlds.

SENATOR FRENCH asked why he started calculating the production at 2017, because DOR forecasts a 2.6 percent production decline between 2013 and 2014, 3.7 percent between 2014 and 2015 and 3.6 percent decline between 2015 and 2016, much lower numbers than he used. Aren't the near numbers usually more accurate than the out numbers for production forecasts?

MR. MAYER answered that was a reasonable statement but the furthest out numbers don't include results of exploration or other things, which in the right price and fiscal environment might come on line. The reason he started at 2017 onward is by thinking of this in the purely hypothetical context if through a fiscal change it were possible to stimulate new production and what would be a reasonable timeframe for that to happen. It won't happen tomorrow, but it might happen by 2017.

4:27:06 PM
SENATOR FRENCH commented that as we get out that far he just wanted to make sure we keep our feathers in our down comforter and not in theirs.

MR. MAYER said he was thinking about what sort of new production would need to come on line as a result of a change to make back lost revenue in the future.

4:28:48 PM

SENATOR FRENCH said he would be asking for these numbers constantly, because he was very concerned about net loss to the state in reducing oil taxes and he didn't know that it could be made up given the time value of money. You can reduce taxes to zero and North Slope investment can go crazy at the same - and the State of Alaska starves.

MR. MAYER said it's the most the important question to be asking, but unsatisfactorily there is an enormous limit to the science, but one can take the science further than it has been taken so far.

SENATOR MICCICHE said fiscal terms can artificially create a high or low cost environment and asked if he considered fiscal terms in creating his analysis.

MR. MAYER responded that fiscal terms either improve or detract from project economics and that is why they were having this discussion; and this is a hypothetical about if the proposed change was sufficient enough in terms of improving project economics to create substantial future production and what that might look like in terms current revenues.

4:31:24 PM
Inherent to this discussion is oil price. It's not only the key determinant of Alaska's future revenues, it was in many ways the substance of the last presentation about progressivity, because Alaska currently has a highly progressive system that responds very dramatically to changes in oil price. It seemed worth presenting a few slides about the question of the global oil price environment in the future and if it will be $200 or $60. There is no such thing as an accurate oil price forecast, because ultimately no one knows, but they can talk about trends and the major structural factors shifting things in one way or another that might lead to an over or under-supplied global trade market.

It's also of relevance, Mr. Mayer said, because it ties into something else that is a key factor in talking about fiscal systems, which is the biggest shock of the last five or ten years: the dramatic change in production in North America. It's relevant both because the fixed royalty is relatively low particularly at high price jurisdictions in the Lower 48 that are key competitors at the moment for investment dollars, and the production coming from that has the potential to have significant impact on prices in the future. In 2003 through 2005 dollars harvested in North America were reinvested elsewhere in

the world (major international companies in Sub-Sahara Africa) and paying back shareholders.

In the last recent couple decades, suddenly, North America is an overall investment destination among international oil and gas companies, because of the extraordinary revolution in unconventional production like the shale play and oil sands in Canada, but not in Alaska.

4:35:51 PM
MR. MAYER explained in the context of the overall profile of US oil production US over the last more than half century (referred to by PFC as the Great American Energy Reset) was in steady decline since the late 1960s. The extraordinary reverse in that trend came from the technological revolution in shale production combined with high oil prices. The sorts of growth coming out of the Lower 48 combined with what PFC sees coming on line between now and 2020 is really comparable and greater than the growth in production that occurred in the post war years.

4:37:07 PM
SENATOR MICCICHE asked if he knew the decline rate generally in US energy from 1984 until 2007/8.

MR. MAYER answered that he didn't have that information. In the context of what this means for future oil prices in the world market for crude, demand comes from final products, whether that is in the form of transportation fuels or from being in almost every economic good that anyone uses, and from the refineries ultimately. How that demand is met could be described as two buckets of supply: all of the supply that comes from non-OPEC countries without a say in the price versus the large producing countries that coordinate output through the auspices of OPEC, but as a result have some degree of say in setting what the future price of oil will be.

4:39:21 PM
In looking at the structural factors in the world oil market, Mr. Mayer explained that first one looks at what is coming on line in non-OPEC sources over the foreseeable future and what that means for the OPEC crude and the sorts of decisions that OPEC is going to be making, and one sees quite extraordinary growth based on projects that have been sanctioned and coming on line over the next decade and more. That comes from a range of sources: a substantial wedge is in oil shale, a lot of which is in North America, and some oil sands in Canada along with less obvious sources of growth in natural gas liquids and condensates

that actually come from OPEC producing countries but aren't part of OPEC (places like the enormous fields that will soon be coming on line in the deep water Pre-salt off of Brazil) and a range of sources of new production coming on line between now and 2020 and 2025, that will create substantial challenges for OPEC as they look to coordinate and balance supply and demand.

SENATOR FRENCH asked him to explain the subheading on slide that says, "In the past production not affected by price swings," and why that isn't a contradiction with slide 2 saying how production also responds "deeply" to price.

4:40:58 PM
MR. MAYER answered that that particular subheading was put together by an oil markets colleague and he would like to defer that answer to him. But in part it's the balancing function in world oil market that the past has not been a factor of non-OPEC supply; it's been much more a question of delivery policy by OPEC-producing countries. Those delivery decisions are not made on project economics; they're made on the interests of OPEC producing countries and are not a function of whether they can economically produce but rather what level of revenue they need to balance their budget's external deficit.

SENATOR DYSON asked what makes the makers of the chart so optimistic about biofuel growth.

MR. MAYER answered the substantial growth one sees so far and the fact that biofuels is reaching a turning point technologically speaking, and moving from corn and soy based products that have relatively limited net energy value after accounting for the fossil fuels that went into creating them to crops that don't compete with food crops from grass to algae.

4:44:27 PM
He said that shale was a relatively small wedge of the total in rising non-OPEC supply, but to view it in the context of the traditional role of Saudi Arabia in balancing the world by either increasing or decreasing production to meet certain price level goals, shale oil is now forecast to reach 4 million barrels by the end of the decade, which is almost double the last Saudi supply swing. It's interesting to think about in the context of shale as a form of production that is particularly respondent to oil price, because it consists of drilling so many relatively small low producing wells that have high initial production and decline very dramatically - so that the way one maintains shale production is by drilling and drilling. That

means that shale more than any other resource is respondent in a very short timeframe to oil pricing - because you either drill or you don't depending on whether it's economic to do so or not. In that sense, shale oil production joins the ranks of potential short term global oil supply/demand balances that were traditionally either made up of Saudi Arabia producing or not producing or things like the International LNG Association or the US Strategic Petroleum Reserves stocks. PFC thinks that OPEC has yet to grasp the scale of its impact on its role, as it is only now beginning to address the consequences of rising production in Iraq.

4:46:25 PM
MR. MAYER said that Iran has recently decreased its production as a result of sanctions. If that is held flat for the next several years and looking at what will come on line out of Iraq over that period and the coming shock of all the new non-OPEC supply coming onto the market between now and 2020, means if Saudi Arabia were to take its traditional approach and be the country (because it has the lowest cost of production) to be able to swing with demand and absorb it all they would have to go from producing 9 million barrels/day to producing 5 million barrels/day, which is hard to see how they will be able to economically do so. And if they aren't, that has substantial implications for the direction of crude prices between now and 2025.

4:47:52 PM
He related that as US production has more impacts on oil price, particularly shale, that also in many ways increases the volatility of where things could head - both about the immediate responsiveness of shale production to changes in the price signal but also because of how easy it is to be disrupted in some ways, because the very steep decline from an individual shale well can be 50-60 percent in the first year. This means one has to keep drilling and as you keep drilling the overall decline in terms of annual production gets steadily steeper and compounds. He showed a slide of the Bakken Shale by vintage of wells drilled that illustrated how more wells have to be drilled every year in order to keep the production growing along with changes in things like the price that can lead very dramatically to an immediate change in production in a way that hasn't necessarily been the case in the past.

Someone asked what a breakeven price for shale production in Lower 48 is and the short answer is there is on one breakeven price for shale production in the Lower 48, and Mr. Mayer said

there is an extraordinary variation. The reason for that is that while it generally costs about $8 million to drill a shale well, what you get for that varies "massively" depending on where in the play you are drilling it and the initial productivity of the well that you get as a result.

MR. MAYER said if one separates wells drilled - for instance, in the Bakken - into quintiles of the most productive down to the least productive, the most productive well it makes sense to drill even at $41 or $44 in the Bakken if you include the cost of the acreage that goes with the well. It doesn't make sense for the least productive until prices are north of $126. That is simply a function of the enormous variation and initial productivity that comes with these wells.

SENATOR FRENCH said they were given several presentations on Capex and Opex costs in the Bakken and asked how this jibes with the Opex and Capex cost estimates of $21/barrel all in in North Dakota and the Bakken.

MR. MAYER replied that these are phrased in different and more granular terms, the more granular terms being used to create his estimate of $8 million - more or less - to drill a well at certain fixed and variable costs to operate it. He also noted that this more granular analysis considered that both acreage and royalty rates vary dramatically across the plane of well productivity and a highly productive, highly economic well can support a royalty rate of up to 18 percent in the Bakken and up to 25 percent in the Eagleford and premium costs for acreage.

A lower productivity well can support acreage costs and royalty rates that are much lower than that, because no one would be willing to pay them. That is also the case at Eagleford in the context of fiscal systems benchmarking, because a lot of people look at reports of 25 percent or higher royalty in some of the shale plays and think that is actually quite a serious government take. The comparison is only partly fair because only a very limited number of leases get signed with royalty rates, because only a very limited number of leases have the sorts of economics that can support them.

SENATOR FRENCH said he wasn't sure he understood that answer and it sounds like this is an overly simplistic view - to give him one fixed Capex and Opex when he sees a much broader range given the productivity of the wells.

MR. MAYER responded that there is almost no range on the cost front. It's going to cost on the order $7.5 million to drill a well in the Eagleford whether or not it's productive and operating costs will be similar. But Senator French was right on a per barrel basis, those costs being greater for a low productivity well than for a high productivity well, because the barrels over which those costs are amortized are substantially different. His analysis took a particular average, probably a second quintile well, and generalized it.

4:54:37 PM
A third example for a more marginal play where you need to have a first quintile well at current prices to be worth drilling is the Granite Wash in the Panhandle of Texas. What this means for future crude prices, Mr. Mayer said they could think about this in terms of sources of potential upside and sources of potential downside. On the upside, strong globally economic growth will obviously lead to strong demand and a tightening supply/demand balance and upward pressure on prices; similarly whether the various geopolitical events could remove substantial barrels from the market (another Libya-type event or a confrontation); lots of things could lead to enormous spikes in the oil prices and sustain prices that are higher.

He said there are also an enormous number of downside risks to the oil price outlook. The "American energy reset" was an enormous boom in US production that is now supporting production from most of the world's incredible demand growth and leaving relatively little room for additional growth from other countries. And there is probably greater likelihood at this point of economic slowdown whether because of ongoing weakness in the Eurozone, here in the US and China than there is of enormously robust global growth (the challenges he laid out in terms of the difficulties ahead for OPEC's traditional role and what they do in the wake of all the new non-OPEC supply).

With specific relevance to Alaska, Mr. Mayer said, there is the question of if it will continue to receive the premium of WTI, for instance, that it has received for the last couple of years as WTI has traded at a discount to Brent or could various things combine to mean that actually that US WTI discount extends more broadly across the country. There are a number of things, at least in a world and in the US where production growth was robust enough that it could increasingly meet its own demand that can cause that to be the case.

SENATOR BISHOP asked what inflation in Europe does to oil production.

MR. MAYER replied that ultimately economics of oil production are economics in real terms rather than nominal terms. Inflation may impact the price in which barrels are equated, although US inflation has a much bigger impact on that than anything, but it doesn't change the fundamental economics of whether production is economic or not. Demand affects price, but that is several steps removed from inflation unless one gets into "very difficult territory."

4:58:24 PM
Finally, in response to a particular question he was asked in the other chamber, but is relevant in thinking about this, was: What is the potential floor for ANS West Coast crude? In the short term, you could see prices in the $30/barrel range. It's not absurd to think about where prices have been between May 2008 and now. A chart of prices ordered highest to lowest showed the relative lengths of time in no particular chronological order that have been spent at different price levels. Obviously, on the furthest right, dips occurred around late 2008/09 where price levels got down to the $40s. Prices that low would require substantial global oversupply like a combination of OPEC getting things completely wrong in terms of managing supply and demand and booming US production. And the oil price wouldn't stay there for long, because to begin with, as seen from the breakeven prices on shale, there is no shale production that is going to be economic at those prices and production would rapidly fall in a short period of time.

In the medium to long term, assuming the US remains an integrated part of a global crude oil market, it's hard to see crude oil prices go much lower than $70/barrel as the lower possible limit to where crude oil prices could go.

5:01:33 PM
He said there five key problems with ACES:
- One is that overall high levels of government take reduces competitiveness for capital especially at high prices.
- The high marginal tax rates reduces incentives for spending control.
- The complexity of the system makes meaningful economic analysis and comparison relatively difficult.
- There is significant state exposure in low price environments at high-cost developments.

- The impact of large-scale gas sales have a substantial potential impact on tax rates in a way that seems like something that one would design out of intention.

5:03:21 PM
Benchmarks:
At $80/bbl, ACES is at the highest end of government take compared to other jurisdictions in the OECD or anywhere else in the U.S. in terms of conventional production, although it's quite possible unconventionals might see high government take solely because of the relatively higher cost structure compared to conventional production - combined with a fixed royalty (which, because it's a regressive regime, means that at low prices and high costs you can get high government take).

At $80/bbl for a new development on a standalone basis (not part of the overall cash flow of an existing producing company) ACES is already the second highest level of government in the OECD and above the average for production sharing contracts around the world. Testimony on the question of progressivity from the department prior to this presentation indicated that government take is substantially lower for an existing producer. This has been modeled with two reasons for that in mind: the biggest is the question of the impact of being able to claim capital expenditures (in this case just capital expenditures from base production not from new development because that is not being included) but against your tax liability. Another source of the difference is that consistent with the approach that Econ One takes, which is sensible, they have included for new development a 16.67 percent royalty rather than the 12.5 percent, which is more common on the base, and which accurately reflects what one sees in the actual data under ACES.

SENATOR FRENCH asked if any of his models take into account the effects of royalty modifications that are available if a development is shown to be stressed financially.

MR. MAYER replied no; and at $80/bbl most developments would not have royalty relief.

SENATOR FRENCH said the reason they don't see much royalty relief is because they couldn't demonstrate any economic difficulty to the DNR - basically.

MR. MAYER replied that might be the case. This is only one metric among many that are important as a way of comparing regimes for competitiveness where Alaska stands.

SENATOR FRENCH said he would probably ask him to run some graphs with royalty relief, because it might be instructive for folks to be able to see how much you can move down in take if royalty relief is granted.

CHAIR GIESSEL said Alaska doesn't offer much royalty relief in reality.

MR. MAYER replied to the extent that Alaska does offer royalty relief, it's not unique among any jurisdictions in doing so, but it's not something that would be very easy to model since it's more about specific circumstances than something one can easily run through a model.

5:08:22 PM
MR. MAYER said ACES at $100/bbl for a new development and 16.67 percent royalty is substantially above Norway and is the highest in the OECD and getting into the company of countries like Angola, Turkmenistan, and Azerbaijan. ACES for the existing producers moves up to the second highest in the OECD after Norway, and is approaching the average for production sharing contracts regimes around the world. ACES for a new development is now close to Norway, but only because Norway has moved up not the other way around; for an existing producer second in the OECD behind Norway and above the overall average at that price level.

5:09:03 PM
At $120/bbl, ACES for a new development is close to Norway, again, but only because Norway has moved up and not the other way around, and for an existing producer - again second in the OECD behind Norway and above the overall overage at that price level for production sharing contract regimes.

5:09:40 PM
MR. MAYER moved to Senator French's question about net income per barrel for ConocoPhillips because they are the only company that splits out Alaska as a separate reporting region and said that these are not all of ConocoPhillips reported categories (he selected the major ones and particular ones for which there is more time series for a backward look). The biggest comparison is how much higher the net income per barrel in Alaska is than it is in the Lower 48 and why ConocoPhillips is investing there and not here. In answer to that he said the net income per barrel in Alaska is comparable to what net income per barrel for ConocoPhillips is in many other parts of the world. But the

first thing to notice is that the stacked bars add up to total revenue supporting the categories of income, production taxes, operating costs, depletion, depreciation, amortization, exploration expenses and finally - once all those things are taken out - what's left is income per barrel for the producer.

So, the first thing you notice is that the biggest reason for a difference in net income per barrel of oil equivalent (BOE) between Alaska and the Lower 48 for ConocoPhillips is that they get half of the revenue from a BOE in the Lower 48 that they do in Alaska and the reason is that ConocoPhillips/Lower 48 production is overwhelmingly gas as opposed to almost entirely oil in Alaska. That in turn is a function of various decisions including the particularly ill-fated one to have acquired Burlington Resources in the middle of the last decade and having paid a premium price at the top of the gas price in the U.S. - seeing an ongoing heavy demand for gas and not seeing what was about to come. As a result they have a very heavy gas-based portfolio that doesn't produce a lot of revenue for each barrel of oil equivalent.

5:12:25 PM
This comparison tells you little to nothing about new investment. If the question is, given how much greater net income per barrel is in Alaska than in the Lower 48 and why ConocoPhillips isn't therefore doing more of that, the question is doing more of what. To begin with ConocoPhillips isn't invested in the Lower 48 because the senior management is deranged and wants to destroy its value; it's because they see enormous opportunities in liquid rich plays that have economics that are very different than the base portfolio of gas production.

Similarly, if one looks at their relatively high net income per BOE in Alaska and asks why they wouldn't want more mature largely depreciated assets that were all paid for 20 years ago and are now harvesting a nice cash flow, there isn't any more of that. And by definition, mature regions produce income because the costs were paid 30 years ago and most of the depreciation is gone and you get relatively a lot of income from them. But that is not indicative of what the opportunities are for new investment in new projects. Yes, ConocoPhillips net income per BOE is relatively high in Alaska versus the Lower 48, not particularly remarkable compared to other regions, and not at all indicative of the question of economics in new investment, which is why they are currently investing enormous amounts in liquids or shale plays in the Lower 48 and less so here.

5:14:31 PM
SENATOR MICCICHE asked if he hadn't been able to determine a way to give them a comparison based on barrel of oil (BO) as opposed to BOE.

MR. MAYER responded if one is to limit one's analysis to publically available data, the way companies report is by revenue overall; however, they report production by oil versus gas. So, there isn't a good way for publically reported data to split where the revenue comes from.

SENATOR MICCICHE said the legislature uses these numbers and they are displayed on the paper as though they mean something that they should consider, and it would be nice to have apples to apples for a comparison.

MR. MAYER replied that this data comes from a subscription set, a service that PFC Energy offers, which is precisely by comparing international oil companies to each other and it would be very nice to be able to compare apples to apples, but unfortunately the nature of comparing companies' publically reported data is that it's very rarely possible and you have to make the best of what you can do.

SENATOR DYSON asked when the equipment in a mature field has been depreciated if the owner can write that depreciation off against their income taxes along with non-depreciated equipment that got a huge deduction against their business taxes.

5:17:06 PM
MR. MAYER said that was correct, but on the other hand depreciation also reduces your taxable income, which is ultimately effectively the same as what is reported here in terms of net income per barrel. In that sense, one of the reasons why the Lower 48 looks bad other than the much lower revenue that is being received is because there is substantially more depreciation.

He moved on to the question of high marginal tax rates and incentives for spending control. To look simply at the production tax component of the regime, ACES has two different steps of progressivity: the .4 percent rate that extends from $30/barrel of production tax value to the shallower rate that starts at $92.50/barrel of production tax value. Because it's an unbracketed system, every dollar increase in the price increases the rate that is applied to all of the previous dollars of

production and you get an slightly counterintuitive spike in a very high marginal rate of tax so that every dollar of oil price increase very dramatically increases your tax rate to the point that the marginal dollar between $91/barrel of production tax value and $92/barrel of production tax value essentially is taxed at a marginal rate that is close to 90 percent. So, movements along the price curve in either direction from there have a dramatic impact on the level of tax that is paid. That means because production tax value is not on the oil price, that there are various ways of moving along that curve. One is a change in the oil price; another is a change in costs that can be deducted to reduce production tax value per barrel, which lets one shift down that steep curve and into a lower marginal and average rate of tax. This point was particularly well made by Econ One in their presentation two days ago on slide 23 modeling additional spending given an initial background level of spending and what that does to a producer's tax liability in different oil price environments and how enormously different that impact is at higher oil price environments, such that when you reach $120/barrel that 95 percent, effectively on an after tax basis, has been essentially recouped as a function of reduction in tax. So that, in particular for relatively small limited term spending (that can be financed from the cash flows of the business unit) it doesn't need to be evaluated in terms of performance in a wide range of economic environments and the fundamental economics of a project, it's easy to see why this can provide a significant incentive for undertaking projects that one might not otherwise undertake if one had to finance their cost.

5:20:21 PM
SENATOR FRENCH asked if he was aware of any projects on planet earth as an example of how industry is taking "perverse incentives" and wasting money on the North Slope.

MR. MAYER replied no; it's much easier to look at incentives. In terms of gold plating, a good example of a regime designed to encourage gold plating spending was a particular production sharing contract in India that is a subject of challenges by the Indian government. It gets very difficult even at that level when there is a particular accusation to get down to say this was accurate spending or not. It's almost never possible for governments to identify what was reasonable spending and what wasn't, because they don't have the resources or capacity to do so. What can be done is try to design a regime that doesn't incentivize it in the first place.

5:22:19 PM
SENATOR FRENCH commented that he was afraid that regime would leave him without many feathers.

MR. MAYER said on the question of complexity and why the economics of new developments don't that look fantastic for an existing producer and as a result why they're not all madly investing in every opportunity that they get, one interesting comparison is looking at a new development on a standalone basis versus an incremental capacity (50 million barrel/day, $16/barrel Capex) development - taking the costs and revenues of an existing base producing company, layer on the cost of revenues of the new development, and run that through the model and get the cash flow results, then compare that to the cash flow results from just base production and subtract the base production from the combined and look at the difference. His charts looked very similar to Econ One charts in terms of what different metrics look like on an incremental basis. One sees a small significant difference in government take, but a more substantial difference in present value, but then there is enormous difference in internal rate of return: the basic reason being that viewed on the incremental basis when you're looking at the impact of spending after tax what you're looking is "buy down" or the ability of spending to lower the tax rate on the base production. Because of the cash flows, a lot of the spending is being returned in the form of lower tax, despite the fact that there may be high government take and therefore, relatively little cash flows from the investment. Overall you can get a high internal rate of return, because actually engineering one isn't very difficult. You just need to reduce the initial capital to a point. That doesn't mean you're creating a project with large amounts of economic value; it just means that you're on an after tax basis investing relatively little enough that the limited cash flows you get provide you with a high internal rate of return.

5:25:57 PM
SENATOR FRENCH asked if this was the difference between an incumbent producer and a new producer.

MR. MAYER replied yes. The most important thing about this is that incremental economics are important for a range of reasons: they are important to companies but they are vital to the state, because from the state's perspective it really is foregoing revenue compared to what it would otherwise get of the high level of government take under ACES in return for investment. The question is what it gets for that. And the reason he says

incremental analysis is important but not the only thing is because it's absolutely one thing that companies look at in making investment decisions.

He stressed that oil companies look for two things and that ultimately they are in the business of putting large amounts of capital to work in order to get large amounts of future cash flow from those large and efficient investments. The fact that one can engineer a situation where they get a great internal rate of return purely on an architect's basis doesn't by itself make an investment compelling - in particular when it must compete with a whole range of other projects internationally in a portfolio. Simply on a standalone basis, a project needs to make sense economically and if it passes that threshold and has the benefit of buying down your tax rate, that is great and probably pushes it forward in the queue, but the fundamental purpose of investing in a major oil and gas project, of spending more than $1 billion, is not to purchase tax equity; it's to get substantial rewards in return. It's also an investment that needs to work over decades and over a broad range of price environments. Whereas a system like ACES will get one absurd rates of return (90 percent) on an incremental basis, but it will do that as long as the oil price is exactly $120 for the rest of the project life. But that isn't the real world and not, therefore, the way projects are evaluated.

On the one hand ACES is a system that on an architect's basis gives back a lot of cash compared to the high level of take the system is designed for in return for spending, but it's not clear that in doing so it substantially incentivizes new production investment. It's much easier to see how in any given year one could spend on a particular bit of maintenance; one isn't looking at the 30 year economics. It's much easier to see how the effective rate is an incentive for spending, and by and large what they have seen over the last several years has been a growth in spending but not a growth in spending about new development. And he thought the question of the difference between standalone versus incremental analysis goes a long way to understanding that.

5:30:51 PM
Another metric one can consider, a really important one, is return on capital employed. There is almost no more important way at the highest possible level in terms of how large international oil companies are viewed by the market in terms of their capability than return on capital employed as an overall measurement of efficiency of how well management is used. It is

a metric that is completely unaffected by any of the architect's benefits that come from buy down. A $50-plus billion large scale investment in a North Slope gas development is a good example.

5:33:25 PM
SENATOR MICCICHE asked if he was saying there is very little value given to credits in overall evaluation of projects in the board room.

MR. MAYER answered that much more impact comes from progressivity and buy down, but they are only one part of the picture. If the fundamental standalone economics of the project don't make sense, having the state provide credits to make it economic won't make any difference. The most pessimistic interpretation one could put on that is the idea of Alaska returning a lot of money that would otherwise be taken in in the form of revenue under the system in the hope of improving economics of making investment in new production more viable and actually getting very little for doing so.

5:35:56 PM
So, drawing from the same key things that have driven the previous two issues: high marginal rates that reduce incentives for spending control and potentially can mean talking cross purposes in what is incentivizing production also create significant exposure for the state both in low price environments and for high cost developments. There is no better way of explaining this than the Econ One slide he had already presented: the basic point being that particularly with the highest cost possible developments, on an incremental basis they actually reduce the tax burden for the company undertaking it by more than the value that they create for the state and in that sense the state is improving that value, at least on an incremental basis, to its own detriment.

SENATOR DYSON asked where it says dollars per BOE what the dollars were.

MR. MAYER answered the four charts are all measuring returns, but to the producer and the state in terms of net present value at a 12 percent discount rate per barrel of oil equivalent.

5:38:02 PM
SENATOR DYSON asked if the dollars running up the vertical axis was money in the companies' pocket or the states'.

MR. MAYER said the top two were from the perspective of the company (left is an incumbent and on the right a new producer). The bottom axis is the crude price and lateral axis is a question of value.

SENATOR FRENCH mentioned that in the upper left corner ACES significantly improves the MPV to an incumbent producer versus no production tax.

MR. MAYER said that was correct, but it does so on an incremental basis and it doesn’t change the underlying economics of the project, and it does so at enormous cost to the state.

SENATOR FRENCH asked if ExxonMobil, ConocoPhillips, BP would be subject to incremental economics.

MR. MAYER replied that was only one way of viewing the problem and only one lens through which to screen economic opportunity.

SENATOR FRENCH said that investment in Alaska is up substantially in the last few years and it's expected to go up again next year according to the DOR's Revenue Sources Book by about $500 million. That's a 37 percent increase!

MR. MAYER referred him back to his comments about the type of spending that is occurring that is going to maintaining existing facilities. That kind of spending can be financed out of the cash flows of existing operations versus spending that has to compete with an international portfolio for capital and face the numerous screens and hurdles one has to in order to do that.

SENATOR FRENCH said next year capital spending would increase in Alaska by 37 percent and asked if that was good.

MR. MAYER answered unless it's spending to create new production that is not necessarily the case.

CHAIR GIESSEL remarked that Mr. Mayer had made that point several times.

SENATOR FRENCH said he wasn’t quite sure, because he already said he is unaware of spending on the North Slope that is being misdirected. So, he has to believe that the oil company investors are spending money on the North Slope towards making more production, but Mr. Mayer seems to be resisting that and he didn't know on what basis.

MR. MAYER responded there are a couple of reasons: this is a mature basin in decline and one where the major capital investments were made to last 20 years and have substantially outlived that. A lot of spending needs to go on just to maintain existing production, and one would expect at this point in a basin's life to see rising expenses; spending like in field drilling programs and things that don't have challenged economics that are profitable to do and are going on today. The question is if one wants to go beyond that to actually try to turn around production decline, what economics of substantial new investments that have to compete in a company's portfolio for capital look like, and the answer to that is they are not occurring now and when you compare even incremental economics on many counts except for IRR they are not necessarily competitive with other regimes, particularly when you look at pure standalone economics of the projects. In many cases they don't make a lot of sense.

SENATOR FRENCH said that was an excellent answer, but he was still curious about the quality of spending on the North Slope and how Mr. Mayer was able to tell him it's not being spent on things that will turn around the production decline.

5:44:02 PM
SENATOR MICCICHE said they had asked staff to calculate the value of the production that had been returned to the state for the checks to new entrants that had returned 5 percent of the North Slope overall production. The state has expended a significant amount of effort and hundreds of millions of dollars in trying to create a secondary producer base that may or may not result in investment ever that results in additional production.

He wanted to make sure they didn't continue focusing on spending that is not related to production and seemed very unlikely to be related to significant production in the future. They were trying to collect some data on what the state has spent on very tiny increments of new production and said, "I think we're upside down and I don't think it's a good way to do business."

MR. MAYER said finally the whole idea because production tax is levied on a btu equivalent basis (treats oil and gas as the same thing based on their heat content) and pulls them together in terms of a company's gross revenue and production value after allowances, that on a per barrel basis large scale sale of gas has the ability to substantially reduce production tax value and

is a feature that would not have come about through intended design.

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To address these five key problems he listed the available solutions.
-Addressing the overall high levels of government take that is about the base rate can be tackled by reducing, bracketing, capping or eliminating progressivity.
-In terms of incentives for spending control under marginal tax rates, one can reduce, bracket, or eliminate progressivity or reduce or eliminate credits.
-In terms of complexity, other than the question of overall simplifying the system design, it seems that what one wants to do is to get rid of a lot of the interaction of progressivity with credits to create a system that doesn't hand back a lot of cash for things that don't actually fundamentally improve project economics and when it comes to the question of the very different economics for a new development, particularly when there is no possibility of incremental analysis to try to even out the disparity.
-The question of state exposure in low price environments for high-cost developments reveals the same sorts of questions, in particular the question of reducing, eliminating some or all credits. One can eliminate the ability to claim the credits from the state treasury and require them to be taken from future production, and there are various ways if they are going to be carried forward to production that one can do that by either keeping their value constant or trying to maintain their time value of money.
-In terms of the question of large scale gas sales on tax rates, some of the other solutions, such as simply reducing, bracketing or capping the rate of progressivity, don't do a lot to change this feature. The things that would get rid of the de-coupling problem are either eliminating progressivity altogether, keeping it in place but on a gross rather than a net basis, or finding some other way like a gross revenue exclusion similar to one in SB 21, but a progressive one rather than a flat one.

5:50:41 PM
He said the solution SB 21 chooses is eliminating progressivity, getting rid of the capital credit and making the net operating loss credit one that is carried forward to production in a way that tries to maintain its value, and improving economics for new developments through the gross revenue exclusion.

Coming back to the benchmarking slides, Mr. Mayer said that at $80/barrel (assuming costs in the new development for an existing producer that are essentially the cost structure seen in a mature producing field at Prudhoe Bay), SB 21 is basically about the same at $80/barrel as ACES. It would be slightly worse a little bit lower because of the effect of taking the credits away.

Under SB 21, the new development is the lowest because despite the impact of taking the credits away it has the gross revenue exclusion. So for an entirely new development in an entirely new producing area even at $80/barrel from a government take perspective it's substantially lower. That disparity only grows as one moves up through the price deck until at $120/barrel, for the existing producer and the new development is just over the 63 percent government take mark under SB 21 - a much more even range between the two of them.

5:51:43 PM
What it doesn't show is that the impact of taking the credit away is the point at which SB 21 goes from being a tax increase to a tax decrease and that it can happen at very different price levels depending on the level of capital spending that is going on by the company involved. So, for base production with only $10/barrel in Capex at anything above $75/barrel it's a tax cut; below $75/barrel it's a tax increase. This ties back to the question of a possible floor price for ANS West Coast that he started with.

If one is involved in a capital intensive new project - whether that's at Point Thomson or taking sanction on a number of new projects - if one is a smaller new producer, still very much in the development phase of an asset - the price at which this is a tax increase is substantially higher. If he is spending $25/barrel in Capex, then it's only when prices reach $110/barrel that this actually reduces government take.

SENATOR FRENCH asked if an established producer at Prudhoe Bay with all costs amortized is on the red line, is it a tax increase? But it's a tax decrease at anything above $80/barrel? If you're trying to produce heavy oil or shale you're further out because of higher prices and it doesn't get to be a tax break until it gets to $110/barrel?

MR. MAYER said that was correct. If one has substantial satellite developments in Kuparuk that are currently going on,

those are also things that take one's capital spend above that to somewhere in the $15-20 range.

SENATOR FRENCH asked if you are Great Bear looking at this, you go "oh oh."

MR. MAYER answered yes at current prices and said that concluded his presentation.

CHAIR GIESSEL thanked Mr. Mayer.

[SB 21 was held in committee.]

5:55:27 PM
There being no further business to come before the committee, Chair Giessel adjourned the Senate Resources Standing Committee meeting at 5:55 p.m.