

ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE

February 29, 2012

3:33 p.m.

MEMBERS PRESENT

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

MEMBERS ABSENT

All members present

OTHER LEGISLATORS PRESENT

Senator Cathy Giessel

COMMITTEE CALENDAR

SENATE BILL NO. 192

"An Act relating to the oil and gas production tax; and providing for an effective date."

- HEARD AND HELD

Presentation: Oil production tax modeling by PFC Energy

- HEARD

PREVIOUS COMMITTEE ACTION

BILL: SB 192

SHORT TITLE: OIL AND GAS PRODUCTION TAX RATES

SPONSOR(s): RESOURCES

02/08/12	(S)	READ THE FIRST TIME - REFERRALS
02/08/12	(S)	RES, FIN
02/10/12	(S)	RES AT 3:30 PM BUTROVICH 205
02/10/12	(S)	Heard & Held
02/10/12	(S)	MINUTE(RES)
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WITNESS REGISTER

GERALD KEPES, Partner and Head of Upstream and Gas
PFC Energy
Washington, D.C.

POSITION STATEMENT: Answered questions related to PFC oil production tax modeling.

JANAK MAYER, Manager
Upstream and Gas
PFC Energy
Washington, D.C.

POSITION STATEMENT: Answered questions on related to SB 192 and ACES.

ACTION NARRATIVE

[3:33:38 PM](#)

CO-CHAIR JOE PASKVAN called the Senate Resources Standing Committee meeting to order at 3:33 p.m. All members were present at the call to order.

SB 192-OIL AND GAS PRODUCTION TAX RATES

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CO-CHAIR PASKVAN welcomed PFC Energy saying, according to its website, it is a global consulting firm specializing in the oil and gas industry. [CSSB 192(RES) 27-LS1305\B was before the committee].

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CO-CHAIR PASKVAN recapped that PFC had presented testimony to the committee on February 16 and 17 focusing mainly on progressivity. Subsequently, the committee requested additional information and modeling.

GERALD KEPES, Partner, Head of Upstream and Gas, PFC Energy, Washington, D.C. introduced himself.

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JANAK MAYER, Manager, Upstream and Gas, PFC Energy, Washington, D.C., introduced himself. He said he would continue his analysis of proposed amendments to CSSB 192 and how progressivity changes government take over the course of a price deck. In response to questions about the cost assumptions PFC used for the generic low cost field development - \$10 for OPEX, \$5 for development CAPEX and \$5 for maintenance and \$7 in transportation costs - he said they used their own research, particularly on what costs had been at Prudhoe Bay in the most recent financial year they

had data for (but somewhat higher if one includes both the initial capital development and the ongoing capital spend).

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He said it's important to understand that in some ways the idea behind this generic low cost field was a hybrid reference case. On the one hand, an actual Prudhoe Bay obviously depreciated its capital a long time ago, but has a relatively high maintenance cost of \$5 per barrel to replace old facilities to do new well work. The idea was that it would enable them to present life cycle economics including some initial relatively low upfront development costs, but also show the impact through capital credits of the ongoing maintenance capital that is a key characteristic of an aging field.

In addition, Mr. Mayer said he would present a look at what this fiscal regime looks like in a high cost field development of about three times the lower case -about \$15 per barrel of reserves in the initial capital spending and very high operating costs of \$17 per flowing barrel. Recent high cost developments that have actually occurred have had figures quite close to this. Further, he explained that precisely because ongoing capital is treated somewhat preferentially under the current system because of the capital credits, they included a small amount of ongoing maintenance CAPEX, but the idea was to look at a high cost new development that doesn't have a lot of maintenance yet.

MR. MAYER explained that the reason they wanted to look at the higher cost case is because it is what marginal additional production on the North Slope increasingly looks like. It's important to understand what the ACES regime looks like for a Prudhoe Bay type development over a life cycle, because that is what the majority of production is. But it's just as important, and possibly more so, to understand what it looks like for a high cost development, because the economics of replacing the decline with new barrels are even harder. It's important to start showing that picture.

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He said he was using the same slides as last time for transparency purposes, and noted a 1 percent to 2 percentage change upward in government take as a result of a revision to the model improving the accuracy, but he said it had a relatively minor impact overall on the figures. It showed 75 percent government take at the \$100 level and 84 percent at the \$230 level. Mr. Mayer said if they compare that with the next

slide of a high cost development, one sees that while ACES is highly progressive on price (economic rent and cost being other categories), it is actually not progressive at all at high costs. In some ways it is slightly the opposite, and that seems counterintuitive, because one thinks this is a profit-based system and surely a profit-based system must inherently be neutral with regards to cost. But looking at the details, one sees that production tax by itself is slightly progressive with regard to cost. Capital credits make the production tax component slightly progressive with regard to costs, but it's not sufficiently progressive to overcome the inherent "regressivity" of the other components of the system, particularly the fixed royalty. He said it is important to understand that means that government take numbers for a high cost developments are not lower than they are for the low cost developments, but in fact they are slightly higher. It's important when one starts to look at how high costs impact the economics of a project and what it can do to breakeven prices in the \$70s and \$80s versus in the \$90s and above. He used a generic example project to explain to illustrate how high marginal take can move the cost of a project up so much that it becomes uneconomic.

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MR. MAYER said PFC was also asked to do an analysis using DOR FY13 estimated costs. In doing that, the mode of analysis changed from looking across time to looking at just one specific year. A number of things don't get captured with using a snapshot in time - things like the bracket creep effects that occur because of inflation over time, which reduces the government take. One is also not looking at the life cycle of an asset type.

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SENATOR STEDMAN asked him to explain that in more detail.

MR. MAYER explained that the appendices to the Revenue Sources Handbook, page 104, (d)(1)(c) showed \$13.75 for operating and lease expenditures and \$15.36 for capital expenditures. Those are per barrel prices, but not per barrel produced. They are per taxable barrel, meaning that they are taking the entire costs for North Slope production, but taking out royalty barrels and barrels that for other reasons don't come under the system, and spreading the costs over the taxable barrels. To use those figures as an input to the model, they need to understand what they actually are on a per barrel produced basis (that calculation will equalize the costs of processing it through the

model and taking out the things that get deducted as the model works).

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Instead Mr. Mayer note that he provided a table of actual revenue figures (slide 7) of different components of a regime, not from a percentage of government take perspective. For instance, \$110 oil has a production tax number of \$4.78 billion, slightly higher than the \$4.717 in DOR FY13 estimates. That difference is entirely due to their using a \$109.47 barrel price for ANS crude versus \$110. The next important thing to say about this analysis is that it shows what the system looks like at different price takes holding everything else including costs constant. But the reality is that as prices have risen historically, so have costs - very dramatically. He reminded the committee how to remember that this was just an analysis and not a forecast.

CO-CHAIR PASKVAN asked if he was saying if prices go up, costs could go up, too. But for his analysis he kept the costs constant using FY13 levels adjusted for the flowing barrels.

MR. MAYER answered yes.

MR. KEPES said they know that costs will go up if that does happen on a sustained basis.

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MR. MAYER went to slide 8, an overview of two unbracketed amendments and two bracketed amendments in CSSB 192. He summarized the salient points of each saying first that under ACES the production tax is level until \$30 barrel when .4 percent progressivity kicks in and that is reduced to .1 percent level once production tax value reaches \$92.50.

Under CSSB 192, two key changes are made: one is putting in a 60 percent maximum for production tax value (rather than the 75 percent), and the other is the initial progressivity coefficient is reduced from .4 percent to .35 percent.

Amendment B.3 uses that 60 percent maximum, but it doesn't change the .4 percent progressivity coefficient. Amendment B.18 uses the 60 percent maximum and keeps the .4 percent progressivity coefficient up until a production tax value level of \$67.50 per barrel; then it reduces that to the .35 percent level for prices between \$67.50 and \$92.50.

Two bracketed amendments take the 25 percent base level that applies in all of these cases to production tax value, and takes the \$30 price at which progressivity kicks in, but instead uses a bracketed approach for progressivity going up in \$12.50 increments. Under Amendment B.4, that bracketed system tops out at a maximum level of 60 percent, common with the unbracketed amendments. Under Amendment B.5, that bracketed approach tops out at maximum of 50 percent.

MR. MAYER said he started by looking at what it does to breakeven prices in the high cost development example. In this example, it pushes a 10 percent level breakeven way up into the \$100 barrel range. He explained that is a function of high marginal takes under the ACES system. Using this mode of analysis, he said he had noticed a couple of things: that the base CS along with Amendment B.8 and B.18 look relatively similar. The significant difference between those and ACES occurs at higher dollar per barrel oil prices and it increases as the prices get greater. That is simply a function of the 60 percent cap. At oil prices in the \$80 to \$100 range, there will be some differences between them (because of the slightly lower progressivity coefficient, for instance, under CSSB 192), but they are relatively minor. The shift in breakeven economics for the example indicates a shift, but a small one compared to that in the two bracketed amendments where the result of the bracketing is to significantly reduce the marginal government take, and that, in turn, straightens the line and significantly reduces breakeven prices in the high cost develop example.

MR. MAYER said he had results for each using the low cost development example, the high cost development example and using the FY13 numbers. He offered to step through all of them.

CO-CHAIR PASKVAN said they had one hour left and he would defer to Mr. Mayer's estimation on how long it would take to get through another two dozen slides.

[4:00:35 PM](#)

MR. MAYER started going through the results using the low cost development example, the high cost example and the FY13 numbers saying since this was ultimately an exercise in comparison of regimes the number are comparable across the range. So, the differences in distinction seen between the amendments in any given case were largely similar, even if the actual percentage numbers were different (depending on the cost estimates the analyses used).

SENATOR FRENCH reminded folks that the low cost field development assumptions were \$10 plus \$5, plus \$5 plus \$7.

MR. MAYER answered yes, and added that the \$5 plus \$5 are not strictly additive in any given year, because the initial \$5 occurred during developing on a per reserves basis. The maintenance \$5 is every year after production starts.

SENATOR FRENCH asked how he plugged in the reserves CAPEX.

SENATOR MEYER answered that the idea is to say if over the economic lifespan of this asset, this is the total amount that will produced, where if he looks at operating costs in a given year (on a per flowing barrel basis), he could say what it will cost to produce per barrel in that timeframe. But he couldn't look at a given year's production to say what the initial development capital was going to be. The best way to estimate that is to say the size of the development is indicated by the total reserves that are going to be recovered. Instead of taking each year's production, he would take the sum of the production, and saying in total they are comparable, but one is about the initial act of development, which occurs before any production has occurred and one is about an amount based on a given year's production.

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SENATOR FRENCH thanked him and recapped that it's taking into account everything spent to get the first barrel out of the ground.

MR. KEPES replied yes; it's the initial development capital. It depends on different types of development, but you could foresee a type of development where eight years after production startup, you may need to re-drill some wells or drill additional ones to increase the recovery factor, which wasn't quite what you thought it was going to be. In this case, because the low cost development is effectively older fields, the additional development costs have been "smeared out" annually in a uniform pattern, which wouldn't necessarily be the case with a brand new field development. That has been called renewal or maintenance capital and could include replacing pipelines, re-drilling wells - essentially, what is happening on the North Slope now.

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MR. MAYER directed attention to the initial big yellow dip on cash flow graph on page 10 that occurs before any production has occurred, the development CAPEX, calculated on a per barrel

reserves basis and noted the ongoing yellow line was the maintenance capital. While their shape over time is different, because each is \$5 per barrel, they will add up to the same amount in total. He also noted that the dip in yellow bars (development capital) and the black line (after tax cash flow), is not as significantly negative in the early years as the CAPEX would suggest it might be, and that is the impact of the credits under ACES.

CO-CHAIR PASKVAN pointed out that Alaska, because of its CAPEX credits at the early stage of the project, is front-end loading those costs by a certain percentage, and the initial development phase is Alaska's contribution to the project. Once production starts, the black line goes positive to the state.

MR. MAYER agreed except that it would be positive to the partner that had undertaken the project. The 60 percent progressivity cap makes a difference in government take occurring upward of the \$140 to \$150 barrel range.

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MR. MAYER said there is a slight difference early on at lower prices when you might see 1 percent lower government take compared to the previous example that comes from the lower progressivity (.35 percent) coefficient being applied.

SENATOR WIELECHOWSKI asked for the difference between ACES and the CS in the range from \$100 to \$130, which is where oil is expected to be in the next few years.

MR. MAYER turned to slides 22/23 saying that 22 represented what ACES looks like using the FY2013 inputs and 23 represented what CSSB 192 looks like on that basis.

He said using the \$110 example, since it is closest to the DOR figures, in the ACES case that equates to \$4.78 billion and under CSSB 192 it equates to \$4.512 billion.

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SENATOR WIELECHOWSKI commented that last week oil had been between \$120 and \$130. And the state take went from \$9.952 billion to \$9.6 billion at \$120 (roughly \$300 million), and at \$130 it's almost a \$450 million spread.

MR. MAYER said that sounded right to him. He explained that looking at the first amendment, B.8 (simple progressivity) slide 12 indicated the effect of going from \$140 to \$150 onward on

overall levels of government take is largely similar to that in the previous example, because the cause of that change is exactly the same as the cause of the change in CSSB 192, which is simply the cap being set at 60 percent progressivity. Below the level at which that cap binds, levels of government take are essentially identical to the ACES system, because unlike CSSB 192, Amendment B.8 doesn't have the change in progressivity coefficient from .4 percent to .35 percent.

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Instead, Amendment B.18 (slide 13) in many ways lies between the impact of CSSB 192 and Amendment B.8, meaning that the 60 percent maximum starts to bind above the \$140/\$150 level, and therefore levels of government take flatten out. A slighter effect happens earlier in the price deck; that is because in a more limited range of prices, there is also a reduction in the progressivity coefficient from .4 percent to .35 percent, but it only occurs above the \$67.50 production tax value level.

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Amendment B.4 (slide 14) showed progressivity bracketed with the 35 percent top bracket and a significantly greater reduction in overall levels of government take. In this case, at the top end these come down from the 84 percent under ACES to 79 percent under CSSB 192 down to about 75 percent in this case. This is the result of the fact that while the maximum is still being set at the 60 percent level, the effect of bracketing is to bring down levels of government take across the entire price deck.

Amendment B.5 (slide 15) showed something similar, but a little lower, because the lower maximum is set at 50 percent. In this case the highest levels of overall government take are around 71 percent.

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MR. MAYER said the impacts at a high cost development [under ACES] (slide 16) will be similar in each case just with slightly different absolute numbers because of the different cost assumptions, particularly with the FY13 revenue estimate numbers.

SENATOR WIELECHOWSKI asked if he was assuming payment of the full 9.4 percent for corporate income tax or something lower.

MR. MAYER answered that he assumed 8.4 percent, which previous research led them to believe was a reasonable average for the state of Alaska.

SENATOR WIELECHOWSKI asked if it were a couple percentage points less than that would it have an impact.

MR. MAYER answered it would have a very small impact. If you look at the contribution of state corporate income tax to overall government take, there are questions of deductibility from other forms of tax and the fact that 8.5 percent or 9.5 percent income tax is on taxable income not on divisible income, which government take is calculated on. They see something that ranges from 0 percent to 2 percent of the total for government take and if that was sliced in half, it might go down 1 percent, but nothing dramatic.

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SENATOR WIELECHOWSKI quipped that cutting production taxes just gives a more to the federal government and asked if there is another lever to pull that wouldn't give it to the producers instead.

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CO-CHAIR PASKVAN asked what percentage of government take he used for federal income tax as his base assumption. They have heard the actual rate paid is substantially less than the 35 percent. He asked him to walk them through an analogy similar to the one he did for state income tax.

MR. MAYER responded that this model uses the nominal 35 percent effective rate. The contribution of federal corporate income tax to total government take varies between 8 percent and 13 percent. So a substantial reduction could take 1 percent to 3 percent off the total government take figures.

MR. KEPES asked if his question was about going from 35 percent to 28 percent, which is the latest proposal.

CO-CHAIR PASKVAN said he wanted to give the committee a general understanding. Also on page 16 and in other charts there is a federal CIT corporate income tax; that rate is set forth in various cost structures for the price of a barrel of crude.

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SENATOR STEDMAN said some communities have first call on the 20 mil state property tax. PFC figures indicate a total of \$400 plus million in property tax with \$93 million coming back to the state. He asked why he wouldn't count all of the property tax

paid by the industry regardless of whom it goes to in that process.

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MR. MAYER answered that may be something he may need to understand in greater detail than he had at this point.

He went to slides 22-24 modeling high cost developments under ACES with DOR FY13 estimate inputs. At the \$110 level under ACES government take is an estimated \$4.78 billion and that goes to \$4.512 billion under CSSB 192. Mr. Mayer said they get something almost indistributable from ACES at that price level for Amendment B.8, the reason being that it doesn't have the impact of the low progressivity coefficient and the reduced cap doesn't bind at that price level.

SENATOR STEDMAN asked him to explain why the yellow bar goes below the Y axis on slide 22 (the current system).

MR. MAYER explained in this \$40 case, you see negative production tax value, and that will occur in low oil price environments for almost any project. Where in the price deck it occurs will depend on project economics. The reason it occurs is because at that price level the project as a whole is probably no longer profitable. It certainly doesn't generate production tax value. So, before capital credits and other credits, its production tax liability is zero. Over and above that, however, if the project is spending capital and accrues a 20 percent capital credit, that is reimbursable regardless of the fact that there is no production tax liability against it. In that case, the effective production tax after capital credits have been included is negative, and that is why the yellow bar goes below the Y axis.

He emphasized that in this case, while it's negative at \$40 a barrel, the overall level of government take and state government take is still very high, because of the regressive nature of things like royalty, which is still coming in significantly from the project. In this instance it is greater than that negative payment and probably consumes almost the entirety of the cash flow from that project.

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SENATOR STEDMAN said at \$40 a barrel, government take is 112 percent, and asked if he could infer that under the current system.

MR. MAYER replied that the divisible income from the project isn't enough to cover all the taxes that are paid on it in that case. The best way to visualize this is to use the example from his last testimony in looking at the impact of a flat royalty over different cost structures, some with marginal economics, because they had very high costs relative to the oil price. The impact of the royalty may be to take up all the divisible income or in some cases more. That is possible for any project that faces a flat royalty; it is a question of what oil price that occurs at and what the cost structure is.

SENATOR STEDMAN asked if that is because royalty gets first call on the income stream.

MR. MAYER answered exactly. It's because royalty is measured on a gross basis before costs and other things are considered.

He continued that Amendment B.8 at the \$110 level (slide 24) is largely the same as the current system. There is a slight reduction in the modeled revenue at the \$110 level under Amendment B.18, but it is less than under CSSB 192. The reason for that is because the reduced .35 percent progressivity coefficient in this case applies only at prices above the \$67.50 mark not to the entire price deck.

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He said Amendment B.4 (slide 26) forecasts revenues of \$3.27 billion at the \$110 mark and a similar rate under Amendment B.5 (page 27), the difference being that the greater differences occur at points higher in the price deck.

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MR. MAYER went next to graphs of average marginal take occurring to these systems (slide 28); the one on bottom right looks just at the production tax component of the ACES regime; the axis on the bottom looks at that against production tax value - to see what that means, both in terms of the system as a whole and in terms of the oil price - instead of the technical question of production tax value. The graph in the upper left looks not just at ACES and the particular tax rate that is paid, but on the left axis has a total level of government take, either a marginal rate or an average rate and what that looks like over the course of the price deck. For instance, under ACES they see relatively high marginal rates going up to high \$80s and low \$90s under ACES, picking up at the \$92.50 production tax value, which is where the coefficient goes from being .4 percent to .1 percent. In the context of the system as a whole, that means at

oil prices of \$110 to \$130 range they see very high marginal rates and the peak that one sees at that point in the price deck in the overall system is the same peak as the one from production tax value in the bottom right graph.

MR. MAYER said on the next slide (29) CSSB 192 does two different things; the peak of marginal take under CSSB 192 is a little lower and the slope going up to it is a little more gradual and that is simply a function of 3.35 percent progressivity coefficient. It still has the same sort of saw tooth profile. But the production tax value graph drops down and is equal to the average rate at production tax values around \$200 to \$210 mark, which is where the 60 percent cap on progressivity starts to bind.

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CO-CHAIR PASKVAN asked him to explain the difference between production tax value (PTV) and the price of oil.

MR. MAYER explained that PTV per barrel of oil is a tangible concept that underpins ACES and all systems envisioned by the various amendments. It's a number that is arrived at by taking the revenues from selling oil, subtracting the costs and dividing by the total taxable production.

CO-CHAIR PASKVAN asked him how the effective tax rate layers on top of everything.

MR. MAYER answered for their purposes here "effective" and "average" mean the same thing. The important thing to understand in that context is that the average rate is the rate at any given price level that is actually paid; the marginal rate is the rate that comes when he looks at if the price of oil increases by a dollar a barrel how much he gets to keep and how much goes to tax.

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MR. MAYER went to Amendment B.8 (slide 30) and noted that earlier in the price deck they have exactly the same profile as under ACES with the sole difference being the second saw tooth where the marginal rate comes down (in the bottom right graph) to the 60 percent level, which is where the 60 percent cap binds.

Further, looking at Amendment B.18 (slide 31), Mr. Mayer pointed out a slightly more complex profile of the marginal rate, which is the impact of the initial .4 percent progressivity

coefficient with a reduction to .35 percent somewhere in the \$60 range, and marginal tax rates under PTV still getting up to the \$80s but not quite as high as they were otherwise. And then after that the same profile as under CSSB 192.

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MR. MAYER said the bracketed systems are very different. In particular, there are no dramatic peaks in either very high marginal tax rates for the PTV or high marginal rates of government take, and that is simply the impact of the bracketed approach to calculating these things. As a result, the average rises more slowly. That means a number of things in this context. Slide 34 shows the sensitivity of project value over crude prices and it's the lower levels of marginal take under the bracketed systems that increase the slope of the line for both, and that makes a significant difference, in this case, to project breakeven pricing.

Second is the question of the impact of high marginal rates on what companies spend in their capital budget, the gold plating issue, when one faces a very high marginal tax rate, there may be incentives to spend more on a given project than one might otherwise simply because the high marginal tax rate means that effectively the share of additional spending one has to bear one's self is relatively low.

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MR. MAYER went back to slide 33 and pointed out that Amendment B.5 looks a lot like Amendment B.4, but the peak of the marginal rate and the average production tax rate that follows it is at 50 percent instead of 60 percent, and correspondingly one sees a big marginal rate well under 80 percent in the case of Amendment B.5.

[4:38:12 PM](#)

SENATOR MCGUIRE referenced his last point about marginal taxation and that Pedro van Meurs had talked to them about the concept of efficiency in projects and the tendency for companies to want to gold plate when marginal rates go up, and asked if he would say that is how inefficiencies get built into the system.

MR. MAYER replied that it's possible that there may be perverse incentives under systems with a high marginal rate.

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SENATOR MCGUIRE said Alaska offers credits in an unusual way; they forward fund them and don't force companies to carry them

forward into their tax liability. Alaska allows companies to turn in credits for cash unlike other countries like Australia that makes companies carry them forward to when they have tax. She asked if Alaska would be better off to lower its progressivity rate and perhaps correct what it's doing with respect to credits - either reduce the amount or force them to be carried forward against the actual tax liability - to build more efficiency into the system.

MR. MAYER responded that this is one of the issues that this committee and the legislature as a whole needs to grapple with. PFC has been doing a lot of research and analysis on it.

SENATOR MCGUIRE said she wanted to know if Alaska would be more competitive by lowering the progressivity rate and adjust the way they do credits. Where would the "sweet spot" be? And did he have any information about whether companies look at these credits in decision making? It didn't seem like companies were factoring them in.

MR. KEPES replied that companies do factor them in and they also take them as a signal of the government's or state's intent in terms of investment climate. Maybe the existing credit structure is incenting investments in part of the production base, but not in terms of new projects, for instance.

[4:43:33 PM](#)

MR. MAYER added looking at the ACES regime on slide 16 and using the high cost development as an example, that the reason the economics of a project like this are particularly challenged is just because of the very high upfront capital cost. It is somewhat ameliorated in this case by the 20 percent capital credit, but the problem is that it's not sufficiently ameliorated to make up for the overall challenge of the economics.

MR. KEPES said companies often look at how much capital they are out in any one year. So, if they are out \$2.3 billion at peak before they can get a project on stream that is a risk metric for them. They wouldn't want to do that in Ecuador, for instance, but would feel better about doing it in a place like Alaska.

CO-CHAIR PASKVAN remarked that another way of saying "risk mitigater" is that Alaska is attractive in regard to its credits.

MR. KEPES agreed; if you compare Alaska and Ecuador, Alaska is more attractive for a number of different reasons, not just because of the government.

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SENATOR FRENCH asked to go back to slide 11 and asked for more discussion on the internal rate of return graph.

MR. MAYER explained that the chart provided an indication of what some very rough project economics look like for the generic low cost development example across a range of different cases. The numbers are more instructive in terms of comparison between the different fiscal scenarios than they are in their own right, since this isn't an actual project. If they look at the \$100 level, they see an increase in the overall project net present value, that being the discounted value today of the future cash flows of the project, from in this case \$712 million to \$756 million. That comes almost entirely as a result of the decrease in the progressivity coefficient from .4 percent to .35 percent, since at the \$100 level the 60 percent cap isn't binding.

[4:47:08 PM](#)

SENATOR FRENCH asked him to talk about what the 23 percent figure means for IRR.

MR. MAYER answered that IRR means Internal Rate of Return, which is another benchmark metric that is often used in terms of project evaluation and approval. On the one hand, net present value (NPV) enables one to get a sense of the absolute level of value of a given project, but it's less useful in comparing very different projects with each other, because it doesn't say much about where the value comes in terms of time value of money. It becomes quite difficult to compare very expensive projects with relatively cheap ones. IRR can be more useful for that. He said companies may have particular IRR benchmarks as one first filter in the process of capital allocation that may be lower in developed countries than in developing countries where probably a company would expect to see a 15 percent rate of return at a minimum and in many cases significantly higher, as a hurdle, depending on a range of things.

SENATOR FRENCH said they had heard the 15 percent number used before as a benchmark for investment and asked what would happen to that IRR using \$120 as the price - for something at Prudhoe Bay.

MR. MAYER said he didn't want to give a precise answer, but it would be further up in the 20s.

SENATOR FRENCH asked if drilling an infield well at Prudhoe Bay would be a low cost development.

MR. MAYER replied that he wouldn't want to go so far as to say that somehow these particular figures apply to that, but that is the general idea. One of the key things to grasp here is that there absolutely are profitable forms of investment on the North Slope at the moment, and they are ongoing as they speak. Capital is being spent on the North Slope both on renewing and maintaining old facilities that were built to last 25 years and now require significant investment if they are going to keep going. Doing a range of well work going from what otherwise would be a 15 percent decline curve to a 6 percent decline curve involves a lot of capital, but there are healthy returns to be had by spending that money, and that is why it is spent.

He said as soon as one gets away from the established infrastructure and starts drilling much more challenging wells into viscous oil reservoirs, if one has to build a sand island to put production facilities on, these things suddenly start costing much, much more money. When that's the case, you see much more challenged economics in the high cost example.

[4:50:56 PM](#)

SENATOR FRENCH said they talked about how the state might be \$2.3 billion out of pocket for total costs before money starts coming back and asked how the state could improve the economics of a \$2 billion field if it wanted to invest \$500 million alongside that private investment.

MR. KEPES asked if he meant the state would take an equity stake.

SENATOR FRENCH answered yes.

MR. MAYER replied that doesn't change the ROR; it just means that ROR applies to both.

SENATOR FRENCH added assuming that the state wanted to participate at the exact same ROR.

MR. MAYER responded that the state is putting in its share of the capital as an equity partner, but it's also taking out its

share of the cash flows and the impact of those two things is neutral.

MR. KEPES added unless the state is willing to pay "a promote" to the operator in place. In theory, if Chevron asked BP to "farm into 25 percent of this and I'll pay \$500 million," and they want it badly enough, BP might charge them a promote where Chevron would actually pay an additional amount just to enter. That could make the ROR different.

SENATOR FRENCH asked if the buy-in partner is willing to take a lower ROR, the economics for the other entity could be improved.

MR. KEPES said that was correct.

[4:53:08 PM](#)

SENATOR WIELECHOWSKI asked his sense of the North Slope where legacy fields are relatively low cost, high ROR, high profit margins, but then there's some new exploration, which is probably not as lucrative - in other words, a blended portfolio. He said the way ACES is structured that investing in high cost fields actually lowers tax rates on the low cost fields as well.

MR. MAYER said that was true, that effect occurs, but it's a relatively marginal effect. For instance, looking at the hypothetical high cost development in the context of an existing portfolio, two things could occur to improve the economics compared to what it looks like to a new operator starting from scratch. Those are the ability to not only take capital credits for the initial capital spending and deduct those from existing production and, second, the question of whether in that process of blending the average rate is reduced and that's a marginal benefit. In a case like this, by and large, they don't change the fundamentals of the question of very high costs combined with an overall high level of government take making a project very challenging.

[4:54:54 PM](#)

SENATOR WIELECHOWSKI said if the policy for the state was to encourage new higher cost developments that a couple of amendments provide allocations for different ways of doing it, and asked if he had looked at them.

MR. KEPES replied no.

MR. MAYER said he had looked at them very briefly, precisely because they were more challenging to model. Aspects of those

regimes don't look at total government take and total revenue, but what it looks like if it's a new project versus an existing project.

CO-CHAIR PASKVAN said they see low cost developments and translate that to the legacy fields. Yet they look at the fall 2011 Revenue Source Book and see the figure north of \$37 for transportation, OPEX and CAPEX and asked why that is different than the \$22 Mr. Mayer is using.

MR. MAYER replied like any process of averages, you have a very wide range of extremes. By simply looking at a mean, one loses all of the data on the granularity and it's particularly crucial to understand that as they think about this. Because the economics of what ACES looks like is very different for a mature asset that has just enough capital being spent on it to keep it on a particular decline to what it looks for a brand new high cost development far from infrastructure. And to the extent that it's the difficult oil that is going to provide incremental barrels to make up for some of the decline, that is what needs to be incentivized through a fiscal system that is not currently happening.

MR. KEPES added that it looks like ACES is a fiscal system designed to get the maximum out of a harvest area as opposed to using it in a growth area.

[4:58:36 PM](#)

SENATOR WIELECHOWSKI asked if they had looked at the exploration credit aspect of ACES and what sort of credits companies get for new exploration.

MR. KEPES replied that they had looked at that, but hadn't prepared formal testimony on it for today; it hadn't been their primary focus. They focused on things that would impact the state of Alaska over the next 10 or 12 years from a revenue perspective.

SENATOR WIELECHOWSKI asked if they understand exploration credits.

MR. MAYER answered that the principal one is the exploration credit that can be up to 40 percent.

CO-CHAIR PASKVAN thanked the presenters and held SB 192 in committee.

5:00:34 PM

CO-CHAIR PASKVAN adjourned the Senate Resources Standing
Committee meeting at 5:00 p.m.