

**ALASKA STATE LEGISLATURE
HOUSE RESOURCES STANDING COMMITTEE**

April 23, 2012

1:43 p.m.

MEMBERS PRESENT

Representative Eric Feige, Co-Chair
Representative Paul Seaton, Co-Chair
Representative Peggy Wilson, Vice Chair
Representative Alan Dick
Representative Neal Foster
Representative Bob Herron
Representative Cathy Engstrom Munoz
Representative Berta Gardner
Representative Scott Kawasaki

MEMBERS ABSENT

All members present

OTHER LEGISLATORS PRESENT

Representative Chris Tuck
Representative Pete Petersen
Representative Mike Doogan
Representative Tammy Wilson
Representative Kurt Olson
Representative Dan Saddler
Representative Bob Lynn
Representative Lance Pruitt
Representative Anna Fairclough
Representative Mike Chenault
Senator Cathy Giessel

COMMITTEE CALENDAR

HOUSE BILL NO. 3001

"An Act relating to adjustments to oil and gas production tax values based on a percentage of gross value at the point of production for oil and gas produced from leases or properties north of 68 degrees North latitude; relating to monthly installment payments of the oil and gas production tax; relating to the determinations of oil and gas production tax values; relating to oil and gas production tax credits including qualified capital credits for exploration, development, or

production; making conforming amendments; and providing for an effective date."

- HEARD & HELD

PREVIOUS COMMITTEE ACTION

BILL: HB3001

SHORT TITLE: OIL AND GAS PRODUCTION TAX

SPONSOR(S): RULES BY REQUEST OF THE GOVERNOR

04/18/12	(H)	READ THE FIRST TIME - REFERRALS
04/18/12	(H)	RES, FIN
04/20/12	(H)	RES AT 1:00 PM HOUSE FINANCE 519
04/20/12	(H)	Heard & Held
04/20/12	(H)	MINUTE(RES)
04/21/12	(H)	RES AT 10:00 AM HOUSE FINANCE 519
04/21/12	(H)	Heard & Held
04/21/12	(H)	MINUTE(RES)
04/21/12	(H)	RES AT 2:00 PM HOUSE FINANCE 519
04/21/12	(H)	Heard & Held
04/21/12	(H)	MINUTE(RES)
04/23/12	(H)	RES AT 9:00 AM HOUSE FINANCE 519
04/23/12	(H)	MINUTE(RES)
04/23/12	(H)	RES AT 1:00 PM HOUSE FINANCE 519

WITNESS REGISTER

WILLIAM BARRON, Director
Central Office
Division of Oil and Gas
Department of Natural Resources
Anchorage, Alaska

POSITION STATEMENT: Presented a PowerPoint titled "Decline Curves," and answered questions during discussion of HB 3001.

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

POSITION STATEMENT: During the discussion of HB 3001, answered questions as the project manager who has been hired by the Legislative Budget and Audit Committee.

ACTION NARRATIVE

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CO-CHAIR PAUL SEATON called the House Resources Standing Committee meeting to order at 1:43 p.m. Representatives Seaton, Feige, Dick, Foster, Munoz, Herron, P. Wilson, and Gardner were present at the call to order. Representative Kawasaki arrived as the meeting was in progress. In attendance from the House Special Committee on Energy were Representatives Tuck, Petersen, Olson, Saddler, Lynn, and Pruitt. Also in attendance were Representatives Chenault, Fairclough, T. Wilson, and Doogan and Senator Giessel.

HB 3001-OIL AND GAS PRODUCTION TAX

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CO-CHAIR SEATON announced that the only order of business would be HOUSE BILL NO. 3001, "An Act relating to adjustments to oil and gas production tax values based on a percentage of gross value at the point of production for oil and gas produced from leases or properties north of 68 degrees North latitude; relating to monthly installment payments of the oil and gas production tax; relating to the determinations of oil and gas production tax values; relating to oil and gas production tax credits including qualified capital credits for exploration, development, or production; making conforming amendments; and providing for an effective date." He noted that this was the second meeting of the day. He pointed out that the minutes from an earlier mentioned U.S. Senate meeting had been distributed to members.

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WILLIAM BARRON, Director, Central Office, Division of Oil and Gas, Department of Natural Resources, presented a PowerPoint entitled "Decline Curves." Directing attention to slide 2 entitled "Decline Curve Shapes: Semilog Rate-Time," he stated that decline analysis is a foundation of the oil and gas industry and is used for rate projections and reserve determinations. He explained that typically there are three decline curves, which are exhibited on the graph on slide 2. The curves reflect an exponential decline, a hyperbolic decline, and a harmonic decline. The harmonic decline is special and not seen very often, while the exponential decline is very typical, and many people have suggested that Prudhoe Bay is exhibiting a hyperbolic decline. However, he noted that [the decline curve] changes over time.

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REPRESENTATIVE TUCK asked if it would be true to say that Prudhoe Bay had been in an exponential decline, but progressed into a hyperbolic decline.

MR. BARRON explained that decline analysis is a strong indicator of future production and future cumulative recovery, but the mechanisms are reservoir generated and focused. He clarified that often it is not clear until later in the decline whether it is a hyperbolic or exponential decline. As a field matures and advances, the parameters can be changed based on EOR, water flood, gas cap injection, and etcetera. Some would view Kuparuk as an exponential decline and Prudhoe Bays as a hyperbolic decline. However, such dialogue is "slicing thin hairs." Mr. Barron specified that he merely wants to relate that there are different declines and they are more representative on a semilog plot than a Cartesian plot, which speaks to Co-Chair Feige's question yesterday regarding whether the Prudhoe Bay curve is flattening. The Prudhoe Bay curve looks as if it's flattening due to an aberration with the Cartesian plot, which is compounded because later in its life it looks like a hyperbolic rather than a linear exponential [decline curve].

REPRESENTATIVE TUCK inquired as to the circumstances regarding the rarely seen harmonic decline.

MR. BARRON offered to share more details at a later date.

REPRESENTATIVE HERRON asked if the proposed legislation, HB 3001, is seeking a harmonic decline.

MR. BARRON said that is difficult to answer as the decline graph is a reservoir delivery evaluation. The tie to a commercial term is very vague and maybe not at all. He opined that the legislation is attempting to flatten out the decline curve by "bringing more production on." He noted that later in the presentation he has an example that might help answer the question in that when a certain amount of work is done and the decline [curve] is changed, it will then return to the decline after the work is complete.

REPRESENTATIVE SADDLER asked what conclusion should be drawn from the first slide.

MR. BARRON, noting the formulas listed on the slide, said that he wanted to illustrate that there is very sound math and science associated with decline curve analysis.

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MR. BARRON moved on to slide 3 entitled "Items Affecting Production" and listed well drilling, well maintenance, enhanced oil recovery, new facilities and infrastructure, debottlenecking, and new technologies as means for increasing production. He stated that new technologies are introduced every day and it is the blending of these new technologies that bring advances that allow old fields to be maintained in the future as well as bring on other fields.

REPRESENTATIVE GARDNER requested an explanation of debottlenecking.

MR. BARRON explained that debottlenecking refers to changing the size of pipes and valves to allow more production through the system. Without debottlenecking, a decrease in production can occur. He offered an example in which engineers and geoscientists determine that a 1,000 barrel a day facility is all that is necessary to produce an oil field and that facility is built. Typically, at the inception of a 1,000 barrel of oil field there would be 900 barrels of oil and 100 barrels of water. As the field matures, the water to oil ratios could change such that there could be 900 barrels of water and 100 barrels of oil. Such changes would require debottlenecking to change the size of the pipes to allow the increased or decreased amounts of oil and water to maintain the flow. For those large processing facilities, pressure gauges are utilized throughout the system to find major pressure drops and address them because all pressure is more back pressure on the well that causes it to be a lower producer. The aforementioned is another example of debottlenecking.

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MR. BARRON, returning attention to slide 3, said that aging infrastructure, gas and water handling facilities, well failures, overall cost structure, and a decrease in new rate production would all lead to decreasing production.

REPRESENTATIVE TUCK inquired as to how much more oil production would be associated with delivering 2 billion cubic feet (bcf) of gas.

MR. BARRON explained that, for a field such as Prudhoe Bay, more energy going in increases oil production. Therefore, an off take of 2 bcf for gas production would result in a decrease in oil production. The aforementioned is why the Alaska Oil and Gas Conservation Commission (AOGCC) is concerned with any withdrawals of gas from the Prudhoe Bay reservoirs. For all systems, the more energy kept in the system the easier it is for the oil production to come out.

CO-CHAIR FEIGE inquired as to the impact to the recovery of Prudhoe Bay in a scenario in which another source of gas outside the Prudhoe Bay field, such as Point Thomson, is found, it is injected, and it raises the pressure of the Prudhoe Bay field.

MR. BARRON replied that anything, including gas from another source or water, could be injected to fill the void left from the withdrawal of oil, in order to re-build the pressure. In fact, some of the initial modeling results he has reviewed from the operators illustrate an uplift of oil production from a Point Thomson injection. Again, it does not matter from where the gas comes the goal is to maintain reservoir energy.

REPRESENTATIVE P. WILSON asked how this correlates to heavy oil.

MR. BARRON replied that the discussion focused on the recovery of oil from the main body for Prudhoe Bay. A discussion regarding viscous oil would revolve around the concern about the ability of the oil to flow through the rock. Clearly, maintaining reservoir energy in that regard is beneficial, but it is less traumatic than it is to merely move and extract the fluids from the rock in a viscous state.

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REPRESENTATIVE LYNN asked whether the injection gas is more advantageous than the injection of water or vice versa, in terms of oil recovery.

MR. BARRON replied yes. He explained that typically reservoirs contain a gas column, an oil column, and a water column, and the goal is to maintain the energy associated with the overall reservoir. Therefore, normally one would inject gas into the gas column and water into the water column to maintain full pressure for oil recovery. He reported that it is easier to push oil with water than it is to push oil with gas, but it is necessary to simultaneously maintain the gas pressure.

REPRESENTATIVE LYNN asked what the best alternative is in the context of HB 3001.

MR. BARRON answered that it is a combination of both gas and water injection.

REPRESENTATIVE PETERSEN related his understanding that there can be too much natural gas pressure, which makes a field difficult to develop as is exhibited at Point Thomson.

MR. BARRON replied that Point Thomson is a very complicated reservoir that those in the industry would describe as a retrograde condensate, which requires a constant balancing of the reservoir pressure. He explained that in a pressure-volume-temperature phase envelope, which considers the component of the product itself, at high pressure with constant temperature, reservoir pressure can be decreased such that the product moves from a gas phase to a liquid phase. For a retrograde condensate, if the reservoir pressure continues to drop, the product can return to a gas phase. Another problem with Point Thomson is that a high pressure reservoir is extremely costly to maintain the pressure at a level that keeps the gas in a gas phase rather than a liquid phase or, in a gas cycle, drop the pressure of the reservoir such that the liquids can be stripped out at very elevated pressures through the surface facilities.

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MR. BARRON, returning to his presentation, directed attention to slide 4 entitled "PBU Initial Participating Area," which depicts the 9.9 percent annual exponential decline in Prudhoe Bay. He explained that this graph reflects a work case decline, as opposed to a no-work case, as it includes every well, piece of equipment, work-over, and recompletion. He noted that some of his team is reviewing how to peel those components in order to determine the real decline of a no-work case.

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MR. BARRON moved on to slide 5, "PBU Initial Participating Area," which indicates the resulting changes during the timeframe when water is injected into the gas cap. Over two to three years there is a 3.5 percent decline, which is why some would say a hyperbolic decline is being exhibited in as much as a lot of parameters of the field have been changed by doing a lot of work. He pointed out that it took, starting in 2004,

almost four years to see any of the benefits to production from that capitalization. He declared that, as the parameters of the field were changed, the decline was altered. He stated that the goal is to create a fiscal regime to encourage the overall development and longevity of the field. However, one must be mindful that recognizable results for these capital investments can take five to seven years.

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REPRESENTATIVE GARDNER, directing attention to slide 5, asked whether the green dots from 2007-2011 on the graph are the result of funds spent in 2003 or earlier or from 2001 decisions.

MR. BARRON answered that the green dots are the direct result of investments made in 2002-2003 by putting the facilities in to put water in the gas cap at the IPA. The design, engineering, and capital projects were done in 1999 - 2004, but the benefits were not recognized until 2007. Some projects have a long lead time in terms of seeing any benefit, he remarked.

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MR. BARRON moved on to slide 7 entitled "Kuparuk River Unit - Kuparuk Participating Area," declaring it to be the second largest oil field in North America. He stated that this graph clearly reveals a 10 percent exponential decline for the Kuparuk River Unit. Moving on to slide 8, he reflected on the dramatic change in the decline curve from 10.5 percent to 7.5 percent, which he primarily attributed to increased infield drilling activities. Kuparuk is a world class water flood field and the company developing it is performing a great deal of reservoir management as it determines where the oil has been pushed to by the water, making work overs, drilling new wells, and performing recompletions necessary to capture the product. More recent additional drilling indicates a decrease in the decline curve to 5 percent. Therefore, it is important to understand the impacts of capitalization relative to the original base curve of the aggregate for all the wells.

CO-CHAIR SEATON said "We've got the AOGCC development service wells and well bores for ConocoPhillips, which as operator, presume that those are going to be Kuparuk. ... There didn't seem to be any uptick in wells being drilled in that timeframe over the other timeframes that we had. And so, how are we attributing that rate of decline to the same number of wells,

basically, being drilled in those years that they were being drilled in previous years."

MR. BARRON, in response to Co-Chair Seaton, said that it is not necessarily the number of wells drilled, but the location of the wells and the location to where they are recompleted. He posed a scenario in which there is line drive water flood reservoir and modeling to where the oil bank is being moved. Selective wells in selective locations can be drilled or recompletion can be performed such that a zone or part of a zone is shut off to increase oil production. He declared that there has not been a major drilling increase since 2000. In fact, he recalled a curve that relates that there has been a continuous decline in drilling on the North Slope, save one outlier in 2004. He informed the committee that the aforementioned means the decline is trying to be arrested by "attacking the reservoir at the right location." Mr. Barron related that to his knowledge there were no other major facilities installed or major change in reservoir management of the field, and therefore it could only be attributed to the increase in wells brought online at that time. He noted that it may be only half a dozen to a dozen wells every year.

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CO-CHAIR SEATON explained that he is trying to determine if the rate of decline is being attributed to drilling the same number of wells as had been drilled in the previous years. However, he related his understanding that it is being attributed to improved technology not to increased capital spending or any other system since capital spending in Kuparuk was basically the same throughout those years.

MR. BARRON said that he didn't know what the capital spending was through that timeframe. He clarified that from the information base he has the driving mechanism in this change of decline is based on drilling technology and the number of wells introduced. The multi-lateral coil tubing work and the selective workovers on existing wells have been advantages in Kuparuk. The point, he emphasized, is that as companies continue to work the field, they become smarter and are able to identify which wells to bring on and which wells to turn off. For example, in Prudhoe Bay there is a very robust reservoir simulator through which it's predicted where the gas will break out, and therefore the companies try to shut those wells in to conserve energy and free up the facilities. Mr. Barron stressed

that it is a dynamic process that is reviewed on a daily basis by engineers and geoscientists of these companies.

CO-CHAIR SEATON, referring to proposed HB 3001, questioned how a change in the tax system [is related to an increase in production] if it is not related to the number of wells or increased capital spending but rather to smarter drilling and increased technology.

MR. BARRON replied that each of the examples mentioned including every well drilled, workovers, and new technology, is capital driven and requires a dollar infusion into the field. The companies are trying to employ their capital in the most efficient manner and manage the reservoirs as prudently as possible.

CO-CHAIR SEATON surmised then that it is not about the amount of increased capital expended but rather the use of the capital in the field. Therefore, he questioned how a change in the tax regime would result in smarter employment of capital.

MR. BARRON characterized this as a "circular logic discussion." He countered that the current use of capital had decreased the decline of the field from 10 percent to 5 percent. If the companies received more money to perform more work because of a change in fiscal regime that improved their net present value (NPV) and internal rate of return (IRR) on any given project, the counter logic is that more money results in a flatter production profile. He clarified that he is pointing out that if the company had performed no work there would be an elevated decline rate. Therefore, clearly the more money companies receive and the more advances in technology that are employed that result in the reduction in the decline rate from 10 percent to 5 percent, it is not much of "a leap of faith" that the decline rate could be flattened or even reversed. He noted, however, that it is related to whether the smaller projects are available and economic as time passes. Again, the Prudhoe Bay example was a five- to seven-year project waiting for the true value to come to the company and the state. During that time, the oil companies were taking the risk with the product price. He shared that the design and conceptual work is being done today for projects that will hopefully come into play in the next several years and those projects are still very capital intensive. As time passes more gas and water has to be handled for a lower return of oil production for these two major fields. Therefore, anything the state can do to decrease costs for the oil companies is an advantage for the state in terms of

increased production as well as more capital infusion and expense infusion in the field. "It's how you spin it," he said. He expressed concern with recent discussion regarding reviewing the decline over the last two years and making that the base because it is not the true base decline of the field, rather it is an aberration attributable to ongoing capital work that has had a positive impact on the life of the field.

CO-CHAIR SEATON opined that he did not believe anyone disagrees, but indicated concern when increased drilling is specified without the number of wells increasing and attributing it to technological changes to production.

MR. BARRON clarified that his reference to additional drilling simply means that work, drilling wells, is being performed, but does not necessarily mean there has been an increase in the rate of drilling or the number of wells. Simply put, "additional drilling" means that more drilling occurred and more wells were added; this is a work case rather than a no-work case.

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REPRESENTATIVE P. WILSON reflected on the pipeline shut down during the cold weather two years ago, which is when the producers realized how serious low production is during a very cold period. She then asked if Mr. Barron is saying the results of work [done by the producers] at that time might still not be evident [in the production].

MR. BARRON explained that the concern at that time, as it was so cold, was that it would be difficult to re-initiate production through static line. He clarified that the problem was not with the oil fields rather it was the re-initiation of throughput through the pipeline. He declared that, as there is not a good benchmark to establish a "no-work" decline in the oil fields, it is difficult to establish any base decline rate as all the decline curves include ongoing work. However, he noted that he has a couple of examples of individual wells that might provide a glimmer of what a no-work case in Kuparuk might be, which he mentioned would be reviewed shortly.

REPRESENTATIVE TUCK opined that although a goal is to reverse the decline, it appears that the best result would be to slow the decline, unless new oil fields were brought online. He asked if there is any possibility of reversing the decline in these existing fields, or is the best scenario to slow the decline.

MR. BARRON replied "hold that thought."

CO-CHAIR FEIGE offered his belief that any additional oil production extends the revenue to the state. He asked if there is a technological limit for the amount of capital investment which would generate a corresponding increase in revenue.

MR. BARRON replied that the oil companies could offer a better answer as they better understand the cost structure and the benefit and reward system in their well productivity. He expressed agreement that there is "a point of diminishing returns."

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REPRESENTATIVE MUNOZ asked whether any current investments aim to reduce the decline.

MR. BARRON replied yes, and characterized the work with viscous oil as an investment in future production. For example, the ConocoPhillips drilled well in the southwestern part of Kuparuk, called Shark's Tooth, is an expansion of some of ConocoPhillips' work that is an investment today that would be future production. Furthermore, some of ConocoPhillips' gas handling and processing facilities for debottlenecking that are being designed today will be capitalization for future production; this ongoing design, modeling, and engineering work is a routine project for companies' process and product engineers. He said the reservoir management skills of these companies are exceptional. He offered further examples such as electrical submersible pumps versus gas lift, location of water injection, amount of water to inject or not inject as investments that could be made "today" for future benefit. He emphasized that the aforementioned are long-term projects "and this is not an immediate gratification kind of process."

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CO-CHAIR SEATON inquired as to why the natural rate of decline for an oil field is important to the [state]. He noted that the committee is considering the bill to change the tax system to provide incentives to additional economic projects beyond the current invested capital for those already economic projects. He requested an explanation as to why the natural rate of decline is being reviewed since he understood that they are

already reviewing the rate of decline above what is currently economically feasible and sanctioned.

MR. BARRON replied that his desire is for everyone to have the same fundamental understanding with regard to what the decline of the field is. For example, he wanted to ensure that the decline at Kuparuk River Unit at 5 percent is the direct result of a great deal of work and that if the case had been a no-work scenario, the decline might have been 23 percent. Mr. Barron reiterated the importance of recognizing the amount of work over time as all the work is aggregated together to obtain a sense of the magnitude of it and whether [the current decline] could be reversed.

MR. BARRON directed attention to the graphs on slide 10 entitled "Large Lower 48 Field, Mid Size North Slope Field," which address an economic situation by which there is early shut in and [the project] is no longer economic, whether it is due to the fiscal regime, product price, or lifting costs. With regard to the question of whether the aforementioned is a negative impact on the field, he explained that the top graph is the decline curve and the blue line represents 5,000 barrels a day and a field of that size could easily contain 100 oil wells, which amounts to 50 barrels of oil per day and 100-150 barrels of water each day. [In the second graph on slide 10], the curve is the cumulative production. He explained that if the economic limit is changed by 50 percent, the total recovery would slightly increase from 254,000 to 271,000. However, the life of the field would be extended by over 10 years. The graphs illustrate the impact of early shut in of a well due to economics, which is a loss of resource in terms of total recovery and the early termination.

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MR. BARRON moved on to slide 11 entitled "Cook Inlet Oil Well," which depicts graphs of decline curves in Cook Inlet and Kuparuk. He highlighted the graph for a Cook Inlet well that exhibits a 7 percent decline per year and informed the committee that this well was shut in at the end of its life due to high water cut. The well was shut in when it was at about 40-50 barrels per day, which is similar to the previous example. He then turned attention to the second graph that is a sample Kuparuk oil well, a single well, that has moved from its plateau to its decline of about 23 percent. Mr. Barron clarified that he is trying to illustrate the kind of work necessary to maintain a level of non-decline if the cumulative Kuparuk River

Unit is in a 5 percent decline and every well drilled is in a 23 percent decline. The third graph depicts a recent application of the new coil tubing and multi-lateral drilling technology, which is designed to drill horizontally and capture more net pay per well. The aforementioned [technology] exhibits about a 7 percent decline and is a well for which the new technology was able to capture more product cost effectively than drilling multiple wells.

REPRESENTATIVE TUCK, referring to the Cook Inlet Oil Well graph, related his understanding that the single well was cut off at 50 barrels of oil per day over a 215-month period and was due to the amount of water.

MR. BARRON expressed his agreement.

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MR. BARRON, returning to his presentation, said that slides 12 and 13 relate to earlier questions from Representatives Kawasaki and Tuck. The graph on slide 12 entitled "Kenai Gas Field Daily Production in mcf/d" exhibits actual data for the Kenai gas field, which has a lot of natural seasonal swing due to deliveries of gas to Anchorage. He then highlighted the negative decline between 1991 and 1999, after which there is a marked reversal of the decline as a result of increased drilling in the gas field that was primarily necessary to satisfy contractual obligations with the supply companies, Anchorage, and the liquefied natural gas (LNG) market. He characterized the Kenai gas field as a local exhibit of where the decline can be reversed. Moving on to the graph on slide 13 entitled "Forties Field, North Sea, production," he declared this curve to be an even more pronounced example for a new operator initiated program that reversed the decline. In response to an earlier question by Representative Gardner, he stated that there are over several hundred drilling rigs operating in the Permian Basin in Texas, which are not drilling into shale. More specifically, the Spraberry Field is experiencing a "robust renaissance" in an area that is not shale driven. He declared that all of these are tangible examples of areas experiencing a "robust uptick in production."

REPRESENTATIVE TUCK, referring to slide 12, asked if the reverse of the decline in the Kenai gas field was due to recent exploration for gas, as opposed to the earlier exploration solely for oil. He asked if gas and oil decline curves are comparable.

MR. BARRON replied that gas decline analysis could also be done, and he clarified that the initial Kenai exploration history had been for gas, not oil, to supply the local market. He reported that the particular operator in the Kenai gas field targeted most of its exploration dollars associated with gas rather than oil. However, during the last lease sale in Cook Inlet, Apache obtained a tremendous amount of acreage as Apache believes it is an unbelievably unexplored oil province. In fact, Apache is going to penetrate deep for oil and the notion is that as one seeks deep oil, one will penetrate shallow gas. In the last 20 years gas not oil has been the target in the Cook Inlet.

REPRESENTATIVE TUCK recalled in 2009 and 2010 when Pioneer sought exploration credits for gas and presented similar testimony.

MR. BARRON clarified that there is a difference between exploration work and development work. The Kenai gas field is an example of a known quantity in an existing field. He held the Kenai gas field as an example in which focused and concentrated effort can change a field's natural decline with capitalization and drilling.

REPRESENTATIVE KAWASAKI asked if there are any large, mature fields, similar to Kuparuk River Unit or Prudhoe Bay, which have had an adjustment to their decline curve. Referring to the Forties Field, North Sea, production graph, he inquired as to the amount of capital investment and circumstances required to get the uptick. He noted that the overall design of the curve is not changed.

MR. BARRON replied that he did not have the cost figures, but he offered to forward some information. He said that capital improvements could improve the decline, at least for a period of time, but that it would eventually return to the natural decline. The point is that the Forties Field is an example in which the influx of capital and facility modifications did reverse the decline, at least for five to six years.

REPRESENTATIVE DICK, describing a level of futility in the discussion, offered his belief that the legislature has the following choices: do nothing; offer some help and hope it does some good; get involved with details that are better understood by the industry; or, have a good conversation regarding incentives to get beyond the decline curve.

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MR. BARRON presented slide 15 entitled "What will it take to reach the goal?" which, he opined, echoes what Representative Dick has said. He declared that it is important to have a collaborative and competitive environment with a clear understanding for all the barriers and to define ways to increase access to all fields, at all locations, at all times.

REPRESENTATIVE PETERSEN reminded the committee that Alaska is competing with other oil fields. He asked if the proposed legislation, with its accelerated depreciation, is enough of an incentive for the oil companies to invest in Alaska sooner than in other areas.

MR. BARRON said that he did know how much one piece of tax legislation would work. He explained that the focus of the Division of Oil and Gas is to "be the technical repository for the state of oil and gas." He declared that economic levers which increase the net present value or the rate of return are generally viewed as favorable and could bring a project forward to operation. He informed the committee that he has had the good fortune to work as an operator, a contractor, and now as an owner over the course of his 35-38 years in the oil industry. From his years as an operator he learned that he wanted the contractors to be financially successful because it meant the contractor would have longevity and would lead to the contractor having better staff and equipment. That situation is really no different than what the state is in as the owner of the oil fields; it is necessary for the oil producers to have success in order to continue to invest in the fields. He declared that it is a balance between the oil producers having success and protecting the state's rights as the owner.

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REPRESENTATIVE OLSON asked Mr. Barron if there are any differences between his testimony to the House Resources Standing Committee and his earlier testimony to the Senate Resources Standing Committee.

MR. BARRON replied no, but added that the Senate Resources Standing Committee testimony did include discussion regarding the capacity of facilities, facility limitations, and the use of excess capacity by third parties.

CO-CHAIR FEIGE observed that there is a perception that newer oil producers face a barrier in terms of access to facilities. He asked how it works for a small producer that enters on the fringe of a larger field and wants to use existing facilities. He also inquired as to the impact on the new producer as well as the facility owner.

MR. BARRON replied that it is sometimes a corporate philosophy to piggyback on existing facilities to lower operational costs and decrease the necessary capital, whereas other companies want to stand alone with no impact from facility owners. The negotiation between the facility owner and the producer seeking use of an existing facility is a very complicated and integrated dialogue that will revolve around the cost and the priority of the product in the facility in the near- and the long-term. Therefore, most operators prefer the ability to stand alone.

CO-CHAIR FEIGE, acknowledging the suggestion for the state to mandate that facility owners accept oil from any producers, asked if that is an appropriate policy.

MR. BARRON related his belief that should not be under the purview of the legislature, as such a broad mandate could be very detrimental to the existing fields in Alaska.

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CO-CHAIR SEATON, pointing out that the independent oil and gas producers such as Brooks Range needed capital to build production facilities, asked if the Division of Oil and Gas has the expertise to assess a reservoir for potential reserves prior to the state making a loan to an independent producer.

MR. BARRON replied yes.

CO-CHAIR SEATON asked if the Division of Oil and Gas could estimate the potential for production in new fields and legacy fields and the timeframe in which it would occur.

MR. BARRON replied that any such information would be highly speculative. He reflected on earlier testimony regarding the impacts of truncating the life of shale oil wells from 20 years to 5 years, and added that such variables would be unknown and would require a technical estimation. Brooks Range is a good example in that the division does not know the results of the Repsol drilling to date. Any discussions on such developments would be broad with no specifics. On the other hand, the plans

of development for the legacy fields are available for review and those projects that are on a plan of development are almost always economic. The Division of Oil and Gas, however, would be researching opportunities that are not currently on a plan of development and are not yet recognized. He offered to coordinate with the Department of Revenue for more information.

CO-CHAIR SEATON requested a chart for speculative information to "new fields and potential probabilities," as that was better than zero information. He also requested the current plans of development, including the estimate for barrels per day of production, for both legacy fields and new fields.

[3:11:26 PM](#)

REPRESENTATIVE HERRON, referring to slide 15, asked if there is a priority for "minimizing these barriers."

MR. BARRON responded that each oil company would have its own priorities for the removal of barriers. He opined that across the board permit reform would be a priority, especially in terms of reducing the time between issuance of the lease, exploration, and first production, because it would have the largest impact on the state and the companies. Therefore, barriers to exploration and first production would likely be on the top of the list for review.

[3:13:24 PM](#)

REPRESENTATIVE KAWASAKI requested that the forward-looking capital expenditure forecasts be included with the request from Representative Seaton. He expressed interest in how DNR works with DOR in determining the five-year forward forecasts.

MR. BARRON offered to include that information.

CO-CHAIR FEIGE pointed out that statutory incentives could be applied at different points, and asked whether a North Slope-wide incentive for collective production targets had the potential to encourage cooperation among the operators.

MR. BARRON replied that it is "an intriguing idea." He surmised that the notion is to build a system in which greater production would result in a lower tax. He offered his belief that the idea is worthy of more dialogue as it could create an environment of cooperation between the major oil producers, the new players, and independent producers.

CO-CHAIR FEIGE inquired as to the best method to establish a framework for a statutory decline curve.

MR. BARRON clarified that part of the goal with his presentation is to relate that the decline curves cannot be interpreted solely over the prior few years, as the decline curve has been impacted by earlier work and investments. Therefore, it is important to review fields over a broader timeframe to account for the earlier work in fields that have been dynamically managed. For example, to say that the field decline of Kugaruk would be based on 5 percent, when an individual well in Kugaruk might be at 20 percent may result in the creation of an environment in which not doing anything for two years and forcing the decline rate could result in incremental work providing an advantage. Mr. Barron opined that introduction of the aforementioned type of gamesmanship is not desirable. Therefore, it is necessary to have active dialogue between the operators and the owners.

CO-CHAIR FEIGE asked about the equation in the proposed Senate bill. He further asked whether it is best to have the state and industry try to agree on something.

MR. BARRON, highlighting the individuality of each decline curve he presented today, replied that having a collaborative dialogue is probably better than using an equation because it is not straightforward.

[3:21:03 PM](#)

CO-CHAIR SEATON, reflecting on the small producer tax credit that would sunset in 2016, asked if companies felt that the time window is now too short to invest capital. He asked if there is any opposition to a 10-year extension of this tax credit.

MR. BARRON said that he has not heard of any such concerns.

[3:23:19 PM](#)

JANAK MAYER, Manager, Upstream & Gas, PFC Energy, reminded the committee that he had been contracted by the Legislative Budget and Audit Committee to be the project manager for the analysis of the fiscal term reform project.

REPRESENTATIVE TUCK recalled that Mr. Mayer has presented the committee with the following three options: the uniform

lowering of government take, differentiation between old and new production, and enhancements to the cost progressivity of ACES. He further recalled that in Texas there is a reserves tax and that the Iraqi model to increase production is unique. Representative Tuck then requested an explanation of the Iraqi model to increase production as that seems to be a possible goal for the state, whereas the goal for oil companies seems to typically be profit.

MR. MAYER, referring to the reserves tax in Texas, acknowledged that a very small component of the Texas fiscal regime levies a charge based on the net present value of what is left in the ground. He said that he has never seen such a reserves tax applied other than as a very small component of a fiscal regime. Furthermore, he said he was not aware of anywhere that it provides a significant incentive to develop reserves that would otherwise be undeveloped, particularly compared to relinquishment provisions, for instance, in contracts. He then turned to the Iraqi service contract, which he characterized as a relatively unique situation. The Iraqi service contract is for large, existing fields previously owned and run by the government who is now inviting international companies to provide capital, technology, and service to increase production. The contracts are structured to reward production beyond existing production, which is usually based on a negotiated plateau production figure, and possibly a decline, with a fee per barrel for production above [the plateau]. He said a lot of the terms [in the near-term] have not been favorable, but have been engaged by companies seeking a strategic foothold in a very large and significant reserve position in the future.

REPRESENTATIVE TUCK asked if the Iraqi government's offer for contracts to boost new production is limited in scope to this situation.

MR. MAYER replied that offering incentives for production above a decline curve is a similar idea.

[3:29:03 PM](#)

REPRESENTATIVE KAWASAKI recalled that slide 28 entitled "Key Issues" from Mr. Mayer's PowerPoint said, "Across-the-board reduction in government take is the simplest approach, but requires foregoing significant revenues on activities that are currently economic." He requested an explanation for this statement.

MR. MAYER replied that any approach in the legacy producing assets that seeks to differentiate between base production and something incremental, however defined, would immediately face a host of complex questions for administration of the system and the incentives, not to mention that ACES is already a complex system. Therefore, there is a cost and tradeoff. On the other hand, simply lowering government take across the board involves serious cash in terms of more than \$1 billion in fiscal year 2013. He acknowledged that the greater cost and the difficulty of tackling some of those things are worthwhile in terms of maintaining as much revenue for the state as possible.

REPRESENTATIVE KAWASAKI asked for suggestions to increase production, local jobs, and capital expenditures within the state.

MR. MAYER offered his belief that a reduction in government take can add new production, even significant new production. However, the question is whether it would add sufficient new production to account for the lost revenue in doing so. He opined that in the short term it might not be sufficient enough production to make up for the revenue lost, but in the medium to long term it is possible if there are significant production increases. To avoid the risk, one would take an approach that differentiates between existing and incremental production.

REPRESENTATIVE KAWASAKI presented a decline curve of production compared with the production tax rate at Kuparuk River Unit, which he declared is similar to every other legacy field in Alaska. [The illustration] points out that even under the Economic Limit Factor (ELF), which varied from 12 percent tax on the gross to the almost zero tax in 2006, production still declined. He then expressed disagreement with the argument that tax reform is the only means for a production increase, and offered his agreement with the Division of Oil & Gas that there are other means to improve the economics of an oil field.

MR. MAYER expressed agreement that taxes are only one lever and they have a certain and limited impact, particularly in the context of high costs and other things that are outside of the state's control.

[3:34:14 PM](#)

REPRESENTATIVE PRUITT asked if the defeat of the reserves tax in 2006 was the correct decision.

MR. MAYER said that he would need more information about the specific reserves tax put before the voters prior to offering any judgment.

REPRESENTATIVE PRUITT inquired as to Mr. Mayer's view on some form of a reserves tax.

MR. MAYER replied that if an activity is fundamentally uneconomic or so marginal as to be noncompetitive for capital, simply punishing not doing it will not make it happen.

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CO-CHAIR FEIGE returned to the situation in Iraqi, where there are fairly sizable reserves with porous, permeable rocks, and lots of oil. Upon the conclusion of the war in Iraqi, the oil production technology in Iraqi was relatively primitive. Therefore, offering contracts to outside companies was done primarily to raise production to a more profitable level and obtain outside expertise.

MR. MAYER expressed his agreement.

CO-CHAIR FEIGE related his understanding that Alaska does not have primitive oil production facilities.

MR. MAYER again expressed his agreement.

[3:36:39 PM](#)

REPRESENTATIVE TUCK offered his understanding that the reserves tax on the Alaska ballot had been a gas reserves tax, modeled after an oil reserves tax that had been instrumental in the startup of the pipeline. He then redirected attention to slide 28 of Mr. Mayer's PowerPoint and inquired as to whether there is any [guarantee] as to more production due to passage of the proposed legislation and if so, how much more production would it generate.

MR. MAYER said that he could not answer that question at the moment, but offered that it is not inconceivable that there will be the desire to lower taxes across the board and that over a significant amount of time one could reach a point at which sufficient new production is stimulated such that revenues exceed what they would absent that. However, the aforementioned is highly speculative as there are no guarantees.

[3:38:52 PM](#)

REPRESENTATIVE HERRON, referring to slide 5 of Mr. Mayer's PowerPoint, inquired as to the number of regimes similar to the State of Alaska.

MR. MAYER said it would depend upon the definition of similar.

REPRESENTATIVE HERRON described Alaska as a hands-off sovereign state with no direct benefit or investment.

MR. MAYER explained that Alaska is not similar to most developed countries with hydrocarbon resources. He said although much is made of the contrast of state ownership in Alaska versus private ownership in the Lower 48, in both cases someone owns the resource and receives a royalty. Therefore, in that sense he said he was not convinced that it is a defining feature in Alaska. He acknowledged that Alaska is similar to the tax royalty regimes in which the fixed royalty is extended to a profit based tax. For example, Australia has done the most in terms of moving from pure royalty to pure taxation "as a more intelligent way to go about taxing the resource." In that sense, the contrast is between tax royalty jurisdictions and production sharing contract jurisdictions. Production sharing contract jurisdictions are jurisdictions in which oil and gas is produced as a result of direct contracting between the state and the private sector in which revenue accrues to the state through a deliberately negotiated contract that provides for long-term stability, and thus may require no terms be changed over the next 20-30 years. The principle dividing line between tax royalty regimes, particularly in most of the developed world, is the government taking a more hands-off approach and setting a playing field to let the private sector enter versus those regimes that seek to get the most from their assets by directly negotiating contracts with the private sector, usually involving a bidding process regarding the amount of government take.

REPRESENTATIVE HERRON suggested the idea that the State of Alaska should become an investor instead of changing the tax structure and giving money to the oil producers. He asked for any "cautions to that thought process."

MR. MAYER cautioned that the investors understand in what they are investing and the risks being taken with the taxpayers' dollar. He said that he would need to study the dynamics of the private sector players in Alaska before he could offer any further advice.

CO-CHAIR SEATON inquired as to whether there is a downside to the State of Alaska offering commercial terms on loans to the smaller operators in order to stimulate oil production into the pipeline.

MR. MAYER reiterated that the state needs to understand the risks, especially if, for any reason, the loans are not available commercially. Furthermore, the state should understand the risk the private sector is not willing to bear that the state is and accurately judging that.

CO-CHAIR SEATON surmised then that differences in interest rate, timing, and whether there are adequate reserves should be reviewed in terms of the risk.

MR. MAYER agreed.

[3:45:20 PM](#)

REPRESENTATIVE PETERSEN, noting that proposed HB 3001 allows companies accelerated expense depreciation, asked if any other oil regimes have successfully implemented such to accelerate development and investment in the oil fields.

MR. MAYER replied that Alaska royalty, through the production tax, already has the ability to write off expenses immediately in terms of the production tax. However, the timeframe over which one claims capital credits that go with spending and enabling them to be claimed in a single year rather than stretching it over two years. Suddenly, Alaska is a high level of government take, notwithstanding more generous regimes, in terms of the timeframe over which those claims are allowed. There are many jurisdictions that have similar allowances or approaches to credits, but require them to be claimed from future production rather than in the current year or coming year or two. Therefore, Alaska's Clear and Equitable Share (ACES) works at the moment for the legacy lower cost assets, despite the high government take, is some of the upfront loading of take to contractors. The change from the two-year to one-year is a small change, but a positive one from the perspective of economics. However, alone it does not "move the dial."

[3:48:53 PM](#)

CO-CHAIR FEIGE offered that PFC could do any analysis that committee members requested.

REPRESENTATIVE KAWASAKI asked if any information has been received from the administration.

CO-CHAIR SEATON said that everything currently received has been distributed to the committee.

[HB 3001 was held over.]

[3:50:33 PM](#)

ADJOURNMENT

There being no further business before the committee, the House Resources Standing Committee meeting was adjourned at 3:50 p.m.