

COMMONWEALTH
NORTH

Alaska's Oil Investment Tax Structure Establishing a Competitive Alaska

A Commonwealth North Study Report

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Edited by Jim Egan and Joshua Wilson

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INTRODUCTION

Alaska's economy is built primarily on oil production. There is a deepening concern by Alaskans and the private sector regarding the oil industry's ability to stem oil production declines and retain jobs. One-third of Alaska's jobs are related to oil development and production in Alaska; including not only jobs within the petroleum sector, but also jobs throughout State and local government, finance, infrastructure, trade, construction and self-employed sectors. Further, 89% of the State's general fund unrestricted revenue in 2010 was derived from revenues from oil production.¹

Oil production in Alaska has declined from 2.1 million barrels per day in 1988 to less than 650,000 barrels per day in 2010², and is expected to continue to decline by more than five percent per year without new oil production. Exploration drilling activity in Alaska is down and North Slope oil projects have been deferred. That said, analysis indicates that there are still huge reserves of oil to be developed, both onshore and offshore.

No single factor determines the decisions made by oil explorers, producers or investors as to when and how much to invest in capital on the North Slope. Factors that go into capital deployment include access to proven or prospective areas such as the Arctic National Wildlife Refuge (ANWR) or the National Petroleum Reserve Alaska (NPR-A); environmental regulations; technical difficulties associated with extracting harder to get oil – like heavy oil; competitive opportunities in the United States and the world; comparative labor costs; access to transportation infrastructure; and distance from refineries. These all have a bearing on decisions made to invest, or not to invest, on the North Slope.

Since Alaska's Clear and Equitable Share (ACES) was first proposed the producers have made it clear that the current state oil tax structure is one of the main contributing factors to have a chilling effect on the decisions of explorers, producers and investors to make commitments on the North Slope.

Alaska needs to have policies in place that result in increased oil production and offer competitive advantages that attract investment in oil production. Alaska must restrain the current momentum of decline in oil production by creating a more attractive and competitive environment for expanding investment and reinvestment by the oil industry.

It is the responsibility of Alaskans to ensure the State establishes a fiscal and tax structure that does not inhibit growth. Commonwealth North has conducted this study to determine if and to what extent investment in Alaska's oil resources is supported and encouraged under the current oil tax structure. What action should be taken to establish tax policy, amend law, and reform regulations that incentivize investment and increase the competitiveness of Alaska relative to other oil basins? Commonwealth North determined that a tax adjustment is required for oil explorers and producers to increase investment and stem or stop the decline in oil production and preserve long term revenue for the State. The current oil production tax adversely affects investment for increased production on the North Slope and progressivity should be modified to restore the incentive to make new investments.

¹ Alaska Department of Revenue, Revenue Sources Book, Fall 2010

² Alyeska Pipeline Services Company website (<http://www.alyeska-pipe.com/PipelineFacts/Throughput.html>)

FINDINGS & RECOMMENDATIONS

The goal of this study is to identify and recommend changes to the existing oil and gas tax regime that will increase North Slope oil production. It is the responsibility of Alaskans to ensure the State establishes a fiscal and tax structure that, among other goals, assures long term economic stability through continued development and production of Alaska's oil resources.

Findings

- A. The health of the public and private sectors is directly linked to revenue from oil production. Without increased production, Alaska's economy is in jeopardy.
- B. The main effects of ACES are increased taxes on North Slope production, in particular through increased progressivity, so that when oil prices go high (over \$100 a barrel) for major producers the state is taking most of the increased value.
- C. The production tax rate provides credits of between 45% and 65% of investment to new entrants and explorers. All allowed investment can be recovered before a new entrant begins to pay the production tax.
- D. The price of oil since the passage of ACES has resulted in the State of Alaska receiving a greater amount of tax dollars from the basic tax rate plus progressivity than it has lost through tax credits granted to new entrants.
- E. While the progressivity calculation in ACES has substantially increased revenue to the state treasury, it appears to have decreased Alaska's competitiveness against other domestic and international oil basins, thereby creating a disincentive for investment in Alaska relative to many of those basins.
- F. From the oil company owner's perspective what matters is not the dollar amount of profit, but rather the ability to earn a competitive return on their investment.
- G. Increasing the rate of return for major oil producers' investment dollars will make Alaska more competitive. The study group concludes that trading some current oil tax revenue for longer-term production from North Slope fields is in the best interest of all Alaskans.
- H. Commonwealth North should continue to explore the public policy issues related to the production of Alaska's oil resources. Although not covered in this report, the study group was convinced that Alaska's oil investment tax structure will face challenges that will require us to explore creative solutions that will aid in the long term productivity of Alaska's petroleum assets.

Now is the time to act while there is still an opportunity to strengthen the Alaska economy through increased oil production. Commonwealth North therefore recommends the following:

Recommendations

- 1. Alaska's current oil tax structure under Alaska's Clear and Equitable Share must be made more competitive in order to encourage oil profits to be reinvested in Alaska. The progressivity tax should be reduced and/or capped.**
- 2. Alaska should continue to encourage exploration for new oil reserves through tax credits and incentive programs.**
- 3. The Governor and the Legislature must make oil production a matter of highest priority. The Legislature must pass revisions to ACES this year. If it takes a special session, hold one.**

A state's taxation policies can make or break a business decision on where to locate. They are clear signals of how "open for business" a state really is. The petroleum industry in Alaska is the single most important industry to the state. With production declining at a rate of approximately five percent or more per year and the state so heavily dependent on the industry for revenue, the economy's future appears gloomy. The good news is that although production is declining, there still is time to remove the barriers that are hindering Alaska's economic growth through exploration and development.

There have been sixteen statutory changes in industry taxes between 1973 and 1990, and three major changes in the last three years. When State revenues declined and appetites for State services were high, Alaskans looked to the oil industry to make up the difference. A stable and internationally competitive tax environment that reflects policy goals is necessary to encourage increased oil investment.

An effective tax policy should maximize resource potential and revenue generation over an extended period of time. An effective tax policy can remove many of the barriers to development and can make an economy more competitive by establishing a tax system and rate that is balanced but punctuated with special provisions, such as deductions or credits that target stimulating a desired investment or desired activity. Such a tax creates an environment of stability and predictability that allows for companies to make long range investments with confidence. Alaska's tax policy should be designed to result in increased oil production and state revenue over a long period of time and additional industry investment that includes increased use of new technologies, new supplies, and investment dollars by the oil industry.

Alaska's competitiveness is hindered by many inherent weaknesses:

- Alaska's remoteness and harsh conditions add to the cost of exploration and stringent environmental concerns in the US (in comparison with developing countries) add additional costs.
- Alaska's current progressivity tax may create an unhealthy environment for industry growth.
- According to one survey, Alaska ranks in the bottom half of all worldwide oil producing areas for capital investment attraction due to reasons such as the level of taxation and political uncertainties regarding taxes.³

If Alaskans are to maintain their present level of economic well-being, the Governor and Legislature must make increasing oil production the highest priority. Nationally, there is a growing awareness of the detrimental impact high taxes can have on the private sector and thereby, the general economy. Alaska has the opportunity to ease this impact by making improvements to the current oil tax structure. Now is the time to act while there is still an opportunity to strengthen Alaska's economy through increased oil production.

³ Wood Mackenzie, 2010

BACKGROUND

Alaska's Clear and Equitable Share (ACES) Overview

Alaska's Clear and Equitable Share (ACES) is the law that created Alaska's current production tax, or severance tax, imposed on the production of oil, or the severance of a non-renewable resource. This **production tax** (25-75% of net profit) is part of the larger fiscal regime that levies a variety of charges on the petroleum industry that include contract **royalties** (5-20% of gross value) to be paid to the state as owner of the oil when it is produced from leases on state land, **property taxes** (2% of property value) to be paid on industry assets to either the state or local government, and state corporate **income taxes** (approximately 9.4% of income). Federal income tax is approximately an additional 35% on profits.

In November 2007, retroactive to July 1, 2007, the Alaska Legislature enacted ACES during a special session amid concern that the then-existing system, Petroleum Profits Tax (PPT), had been approved by corrupt means. ACES made Alaska the state with the highest taxes on the energy industry in the United States. The Alaska Department of Revenue reported that since its inception through 2010, ACES has brought in an additional \$5 billion than would have been levied under PPT, the production tax reform passed in 2006.

The ACES tax consists of a base rate of 25% on the production tax value of oil - defined as the value after certain allowed exploration, development, production, operating, and transportation costs are deducted (e.g. if oil sells at \$56 but costs \$25 to produce and get to market, the tax is based on \$31). A progressivity surcharge is added to the base tax rate. This progressivity surcharge is triggered when a company's net profit per barrel (also known as the production tax value) exceeds \$30 per barrel. Beyond this point, the surcharge is increased by 0.4% for each additional \$1 increase in per-barrel production tax value until the production tax value reaches \$92.50, at which point the rate of increase of progressivity drops to 0.1% per \$1 increase.

With ACES, the combination of net profits tax and tax credits was intended to make the state an investment partner with the producers allowing the state to share in the risk of developing petroleum resources. Since the passage of ACES until 2010, the state has distributed over \$2 billion in tax credits to those investing in Alaska oil and gas activities. During that time, 2007-2010, the state production tax has generated approximately \$14 billion in state revenue, more than three times the amount than would have been generated under the pre-PPT gross-value based system.

ACES modified four major items in PPT:

1. **Base Tax Rate:** ACES raised the base tax rate from 22.5% to 25%.
2. **Progressivity Surcharge:** Under ACES, the surcharge was raised from 0.25% to 0.4% per dollar increase above a trigger production tax value. ACES also lowered the trigger production tax value from \$40 per barrel to \$30.

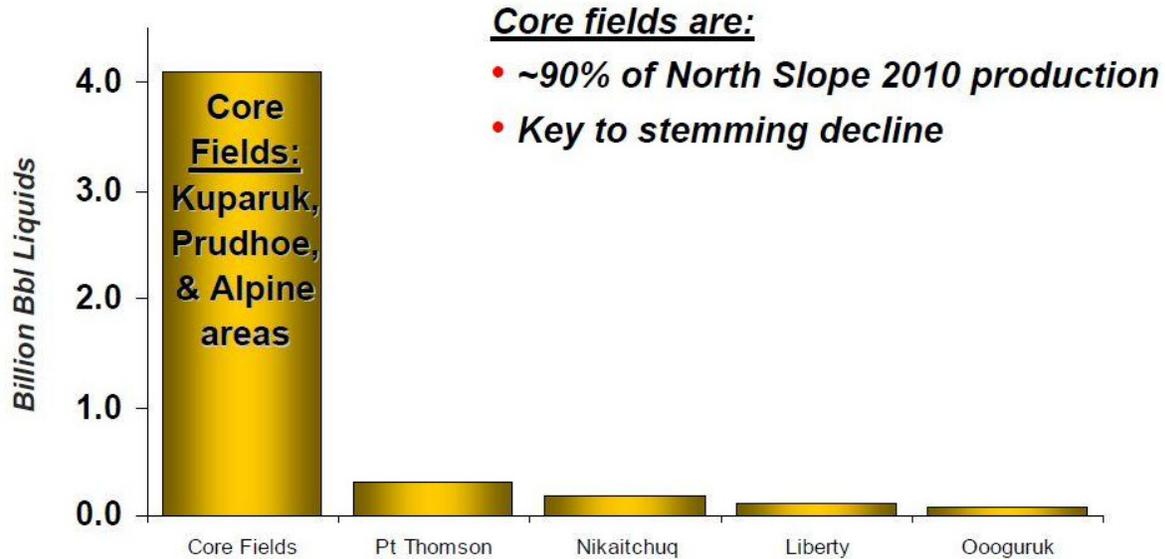
3. **Tax Credits:** Credits are among the most complex topic in the law. They were designed to promote drilling activities in many of Alaska's more challenging regions, incentivize the development of heavy oil, increase the use of extended reach horizontal wells and seismic technologies, and de-risk drilling offshore in Alaska waters by providing companies with tax incentives to develop these proven resources and find new ones. These tax credits include:
- *Investment/Capital Tax Credits* are credits deducted directly from the producers' tax liability. Under ACES, capital expenditure credits remain at 20%. ACES eliminated transitional investment expenditure (TIE) credits, which allowed producers to recover investment made in the years before PPT passed.
 - *Loss Carry-forward Credits* increased from 20% under PPT to 25% under ACES. These credits allow a company with production profit in a given year to carry-forward the effect of any lease expenditures that it could not use that year.
 - *Small Producer and New Area Development Tax Credits* remained unchanged in ACES. These are non-transferable credits applicable to small producers who make qualified expenditures but whose current tax liability is insufficient to apply the credits to their tax bill. ACES retained a \$6 million dollar new area development credit as well as a \$12 million dollar small producer credit.
 - *Exploration Incentive Credits* increased from 20% to 30% under ACES for exploration done 3 miles from existing wells or 25 miles from an existing unit. If both these criteria are met, a 40% tax credit is available for utilizing seismic drilling technologies.
4. **Production Tax Monitoring and Reporting:** ACES also included several significant changes to the information that producers must provide to the state. It requires producers and explorers to report certain expenditures and adjustments annually to the Department of Revenue (DOR) and allows the DOR to require monthly reporting of information for monitoring the taxes and expenditures.⁴

⁴ The Department of Revenue shows 18 production tax payers in FY 2010. Of these most are net recipients of credits as opposed to net payers of tax. Depending on how it is calculated, the three largest producers pay between 95 to 105 percent of the tax burden. In addition to the credits mentioned above, ceilings on taxes from production in Cook Inlet and gas produced and used in state, also limit the burden of many of these tax payers.

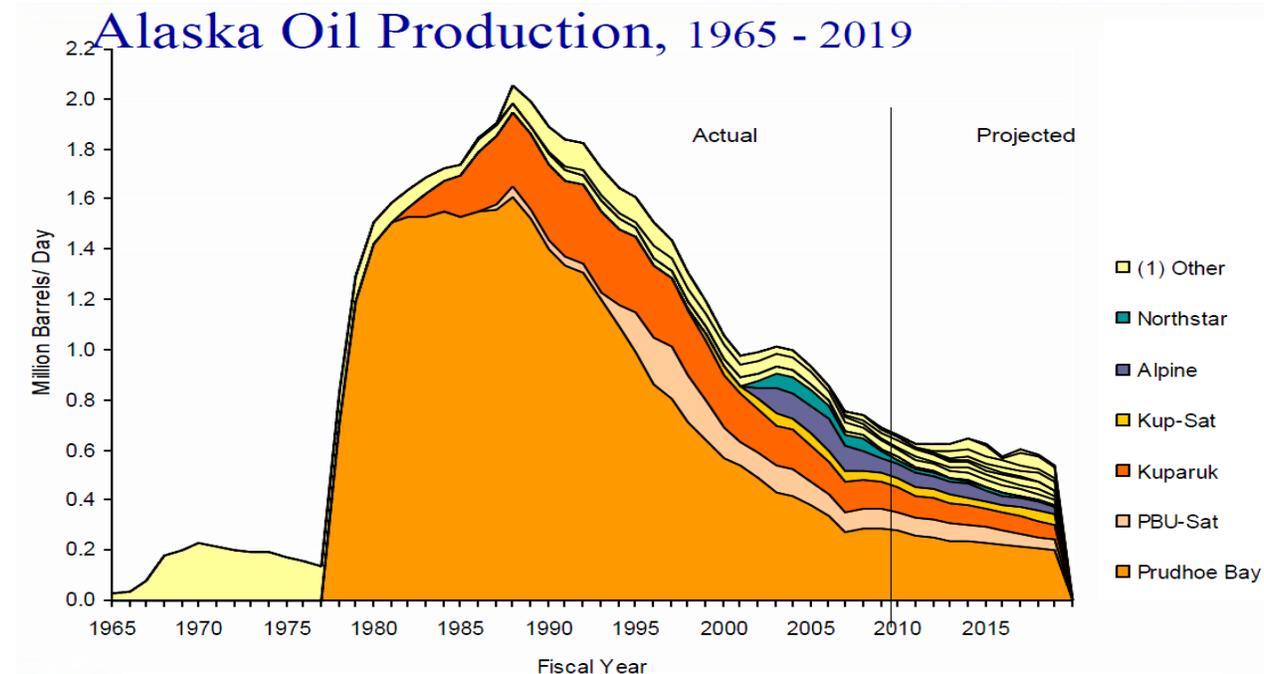
Core Fields Dominate State Oil Production

Two production issues do not seem controversial. First, while new fields are coming on line, they are relatively small compared to the giant Kuparuk fields and the supergiant or “elephant” Prudhoe Bay field. Second, the rate of actual decline data over the last decades.

North Slope Remaining Barrels⁵



Alaska Oil Production Rate of Decline 1965-2019⁶



⁵ DOR 2009 production forecast 2010-2050 volumes as presented by Wendy King and Bob Heinrich

⁶ Alaska Department of Revenue, Fall 2009 Revenue Source Book & Fall 1999RSB, DNR 2007 Oil and Gas Report. (1) Cook Inlet, Duck Island, Milne Point, Liberty, Pt Thomson, Fiord, Oooguruk, Nikaitchuq, and NPRA.

PHILOSOPHICAL TENSION

There is an inherent tension in determining what the “best” tax policy is.

First, that Alaska’s tax policy should get all the revenue it can, especially while prices are high. This approach maximizes the State’s tax revenue received from oil resources regardless of the potential impact on future oil exploration and activity. Alaska’s high tax rate at high prices under the current progressivity tax structure appears to reflect this approach.

Second, that Alaska’s tax policy should strike a balance between a tax rate that provides the state with a more moderate amount of revenue for its oil resources so it does not serve as a disincentive to new and long range investment in oil exploration, development and production. It is important to balance short-term revenue requirements against the goal of maintaining oil into the pipeline for as long as technically possible. Commonwealth North supports this perspective.

Looking at the current oil tax structure, three facts are clear: (1) the current progressivity tax formula has brought billions in tax dollars to the state; (2) investment (primarily maintenance of the fields and not new oil production) by major producers is continuing in the major North Slope oil fields; and (3) oil production is decreasing at a rate faster than the State Department of Revenue projected. These facts support both sides of the tension.

Alaska’s progressivity tax structure is bringing in significant oil revenue at high prices to meet the state’s operational and capital needs and providing substantial savings to help meet future needs when oil production has substantially declined. But at high prices the tension between the business motivation of the taxpayer and the need for the state to maximize its revenue becomes acute.

Having weighed the philosophical tension, Commonwealth North concludes that it is in the best interest of both current and future generations of Alaskans that Alaska's oil tax structure encourages long-term North Slope oil production. This goal requires that the major producers earn a comparable return on their investment dollars in Alaska as they can elsewhere in the oil producing world.

From the oil company owner’s perspective (equity shareholders) what matters is not the dollar amount of profit, but rather the ability to earn a competitive return on their investment. For example, a billion dollar profit on an investment of \$5 billion is terrific, but a billion dollar profit on an investment of \$20 billion is modest. A competitive return is contingent on how much capital is being tied up to generate the return. It is not the dollars of profit but the return on invested dollars that matter. On this basis oil company returns are not out of line with other large American companies. This is especially true when one considers that oil and gas exploration is a risky business. Increasing the rate of return for major oil producers' investment dollars will make Alaska more competitive for those investment dollars.

The study group concludes that trading some current oil tax dollars for the likelihood of a longer North Slope production cycle is in the best interests of all Alaskans. The study group further believes that revisions to the tax policy wherein we trade current oil tax dollars for a longer North Slope production cycle should continue to emphasize targeted tax incentives, such as deductions and credits, as on an overall reduction in rate across the board.

EVALUATING TAX POLICY

It is the responsibility of Alaskans to ensure the state establishes a fiscal and tax structure that, among other goals, does not undermine sustained long term economic stability. The practice of that responsibility varies. It is the responsibility of policy makers to ensure the representation they give to their constituents reflects a commitment to the future of Alaska, puts Alaska's interests before personal and special interests, is an exercise of intellectual integrity and rigor, and respects all peoples and cultures.

Alaska's economy is overwhelmingly dependent on a healthy petroleum industry to generate, sustain and stabilize state government operations, jobs for Alaskans, and business opportunities. Policy makers must be acutely aware of how tax burdens affect them and the economy, and carefully limit taxation to raise necessary revenue for the State's needs. If Alaska is to be perceived as open for business, it must encourage the private sector to develop technology, invest in infrastructure, diversify and grow the economy, and partner with business.

The private sector is the source of all wealth, and is what drives increases in the standard of living. An aim of the tax system should be to minimize distortions in the economy and produce the amount of revenue for the needs of the State without discouraging business. In the case of the current oil production tax rate, the information available to us leads to the conclusion that the current production tax structure is, indeed, discouraging business. The proposed progressivity rate (.2%) was doubled (to .4%) for the purpose of encouraging producers to re-invest profits into Alaskan fields. Profits re-invested could, in part, be eligible for credits, thus reducing the actual tax paid at the current rate.

Stability is critical to any tax structure. Instability in the tax system makes long-term planning difficult, and increases uncertainty in the economy. The transitions between Alaska's tax structures, from ELF, to PPT, to ACES, and current efforts to make changes to ACES make stability an issue that is difficult to solve in the short term. The development of the current oil tax structure resulted in a sophisticated law that does a good job of providing incentives to encourage the exploration and development of oil resources. However, it also undermines the very same traditional incentives that reward production risk with comparable return on investment. There is an immediate need to correct the oil production tax rate and a longer term concern that involves analysis of Alaska's competitive place in the oil producing world.

Commonwealth North is not attempting to tackle the public policy issues related to competitive markets in this report. But this issue does illustrate the need for the stability of long range fiscal planning. The Legislature must create a safety net for public and private sectors by implementation of a long term fiscal plan that includes a mechanism to bring government operating expenses in line with reduced revenue as a result of constantly declining oil production. The dramatic growth of Alaska's state government is unsustainable under any tax regime.⁷

⁷ This perspective is detailed in Commonwealth North's 2007 report titled, *At A Crossroad: The Permanent Fund, Alaskans and Alaska's Future*.

Selling Our Oil vs. Levying A Tax

Two factors are important in understanding oil taxation policies in Alaska. First, unique from any other state in the United States, Alaska has ownership of the hydrocarbon deposits, including oil. Second, Alaska is the sovereign taxing authority and regulator of the exploration, development, and production of those resources. These factors give rise to the challenge of rectifying whether oil taxes in Alaska are a price for selling of our oil, or levying of a tax.

One perspective may hold that oil taxes are not in fact taxes, but the price for which we sell our oil. Our constitution requires that our natural resources be used for the maximum benefit of the people and so Alaska sells most of its resources on the world market (while reserving a small portion for use by Alaskans). The total that Alaska receives (royalties and bonuses, property taxes, special oil income tax and production taxes with the progressivity component) are all proceeds from the sale of oil. Alaska's constitutional mandate is to sell those resources for the greatest return possible. A primary question is if too high of a price is charged in the short-term, do we diminish the ability to make future sales?

A second perspective holds that there is a distinction between the price we get for our oil, and the exercise of the State's sovereign right to tax. The state negotiates a price (royalty and bonuses) it will receive for a company's lease of state land for the purpose of oil exploration, development, and production. The sales price is reflected in the royalty contract. If the State decides it needs additional revenue, then it can levy additional taxes pursuant to Alaska's Constitution.

Put differently, Alaska wears two hats when it deals with oil extraction. Alaska is the owner of the oil (just like "Farmer Brown" in Texas) and Alaska is a sovereign government with taxing authority (a power that "Farmer Brown" in Texas does not have). Alaska acts as the owner when it sells its oil by entering into a lease agreement (contract) that gives an oil company (the lessor) a contractual right to explore and develop oil from the leased acreage. These royalty payments range from 5-20% of gross value of all oil produced under various lease agreements in Alaska). Royalty payments are the primary revenue source of non-investment earnings into the Permanent Fund from which annual dividends are paid to Alaskans.

MEASURING SUCCESS

Opponents and proponents of changing ACES can agree on at least one thing. The state of Alaska should act, or refrain from acting, because of the effect it might have on future oil and gas activities and revenues. Generally those opposed to any change argue that the state would be “giving” billions of dollars back to taxpayers while getting “nothing” in return. Proponents of change generally believe lower tax now will yield more activity and future revenues. Commonwealth North, in the resolutions and reports it has written on the subject, expressly takes the latter view.

How ought we to measure this future activity and revenue? How much will be considered enough to demonstrate that we were wrong or that we were right? As the data section shows, in the current debate advocates pick and choose from among the available facts to cite things correlated with success (more wells, increased investment and jobs up) or with disappointment (production down, unemployment up, wells down, or no new fields in active development). It is not clear, before choosing the evidence, which factors are expected to change by how much as a consequence of our activity or inactivity.

Intuitively, most everyone can describe the success case – the pipeline could again achieve a year in which it averaged 2 million barrels a day. We would also recognize the failure case – after the next TAPS shut down, its owners say they are unwilling to put up the cash to fix it, and begin the process of dismantling TAPS and the North Slope production structures that it had supported. However, neither of those scenarios appears to be very likely. Is there a level of production and use of the TAPS pipeline over the next decade between those two that could be considered the dividing line between a successful policy and a failed policy? For example, the DOR has forecast declining year to year production for the next ten years. If actual production continued to decline at the forecast rate over the next decade, some might consider that a failure. On the other hand, as the documents on page 22 show, the DOR’s forecasts have been too high 100% of the time. We should expect that with no change in investment for actual production to be below the DOR forecast. Maybe being able to even attain the DOR forecast might be considered a huge success. Other metrics may be good as well; level of investment, number of direct jobs, number of new discoveries, or number of new discovery wells. If these are all important, will we get clear signals of some increase or some decrease?

The study group concludes the most effective measure for changes to the oil investment tax structure is whether it results in increased North Slope production levels and the additional volume it puts into TAPS. The intended effect of these recommendations in this report is to substantially reduce the rate of decline in North Slope production.

CONTINUITY OF DATA

This data is a synthesized compilation of information discussed and presented to the Commonwealth North Board of Directors over the course of this study. This data is not intended to preclude certain conclusions, but rather lay out the information that was offered by the presenters below. This information allows the readers to understand the base of knowledge that was deliberated and upon which our findings were made. Included in this section are the following:

DATA

Appendix 1 - Well Activity: The number of wells (including oil and gas exploration, service, strata graphic and development) drilled in Alaska

- **Graph 1 – Development and Service Wells/Laterals Completed 1996-2010**
- **Graph 2 – Exploration Wells and Laterals Completed 1996-2010**
- **Graph 3 – Exploration and Delineation Wells Completed 2007-2010**

Appendix 2 - Investment: Series of investments reported by taxpayers to the Alaska Department of Revenue

- **Graph 4 – Capital Expenditures Producing Units vs. Units Under Development**
- **Graph 5 – North Slope Spending 2007-2010**
- **Graph 6 – North Slope Capital Spending 2001-2011**

Appendix 3 - Oil Field Employment: Employment data and unemployment data from Alaska Department of Labor and Workforce Development (DOLWD)

- **Graph 7 – Alaska’s Oil and Gas Industry Employment**

Appendix 4 - Time Series of Future Production: Production data by field from the Alaska Department of Natural Resources and Alaska Department of Revenue

- **Graph 8 – DOR North Slope Production Forecast Before and After ACES**
- **Graph 9 – DOR Annual 10 Years Forecasts vs. Actual Production**

Appendix 5 - International Tax Rate & Competitiveness Comparisons: International tax rate comparison data compiled from three presenters and International competitiveness comparison data from a Fraser Institute Survey

- **Graph 10 – International Marginal Tax Rate Comparison 1**
- **Graph 11 – International Marginal Tax Rate Comparison 2**
- **Graph 12 – Alaska ACES International Comparison Information Synthesis**

Appendix 6 - US State Comparisons: US State Tax Rates in other jurisdictions

- **Graph 13 – Prudhoe Bay State Comparison**

Appendix 7 - Prudhoe Bay Profitability Model: Profitability Model from BP for 2002-2005 Infield Drilling in Prudhoe Bay

- **Graph 14 – Prudhoe Bay Forecast Model**
- **Graph 15 – BP Well Investment Costs 2002-2006**

- **Graph 16 – Earnings by Industry (Net Income/Sales)**

Appendix 8 - ConocoPhillips Alaska Financial Data: Income statement data from ConocoPhillips for its Alaska segment, Lower 48 segment and worldwide operation

- **Graph 17 – ConocoPhillips Revenues 2007-2010**
- **Graph 18 – ConocoPhillips Regional Oil and Gas Production Breakdown 2007-2010**

Appendix 9 - 27th Legislature Oil Production Tax Progressivity Proposals

- **Graph 19 – \$/bbl Production Tax Under 4 Calculation**
- **Graph 20 – Marginal Production Tax Rate for each \$ Increase in PTV**

STUDY GROUP PRESENTATIONS

November 16, 2010: Commonwealth North Board of Directors Study Charge Developed

November 23, 2010: Dan Dickinson; Dan Dickinson, CPA

November 30, 2010: Ralph Samuels; Holland America (Former State Representative)

December 14, 2010: Roger Marks; Petroleum Economist

December 21, 2010: Senators Hollis French and Bill Wielechowski

December 28, 2010: Representative Mark Neuman

January 4, 2011: Ken Thompson; Brooks Range Petroleum Company

January 11, 2011: Pat Galvin; Former Alaska Commissioner of Revenue

January 18, 2011: Marilyn Crockett; Alaska Oil and Gas Association (AOGA)

January 25, 2011: Mark Hysten and Tom Hendrix; Alaska Support Industry Alliance

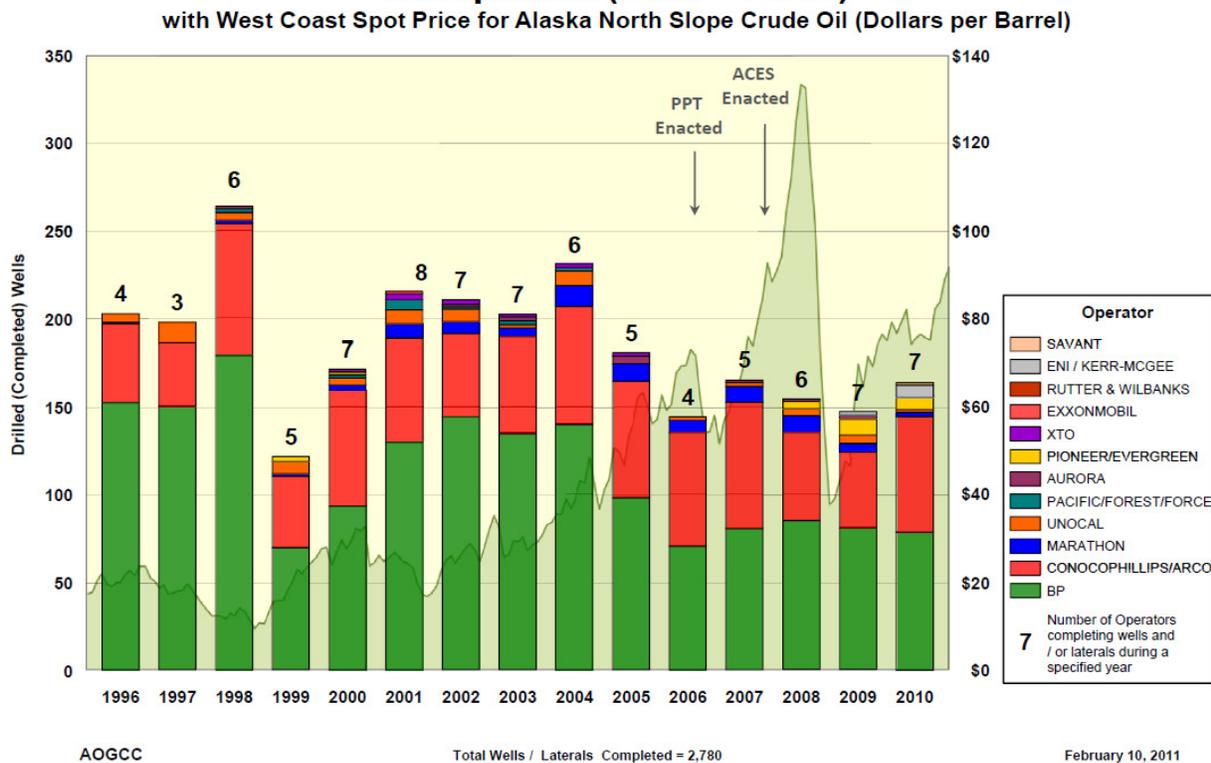
February 1, 2011: Wendy King and Bob Heinrich; ConocoPhillips

Appendix 1 - Well Activity

These graphs lay out the number of development and service wells and the exploratory wells drilled between 1996 and 2010. One of our presenters focused on producing wells and told us the number of production wells drilled each year on the North Slope increased from 2008 to 2010. This is reflected in Graph 1 which illustrates an increase in production wells drilled over that time frame.

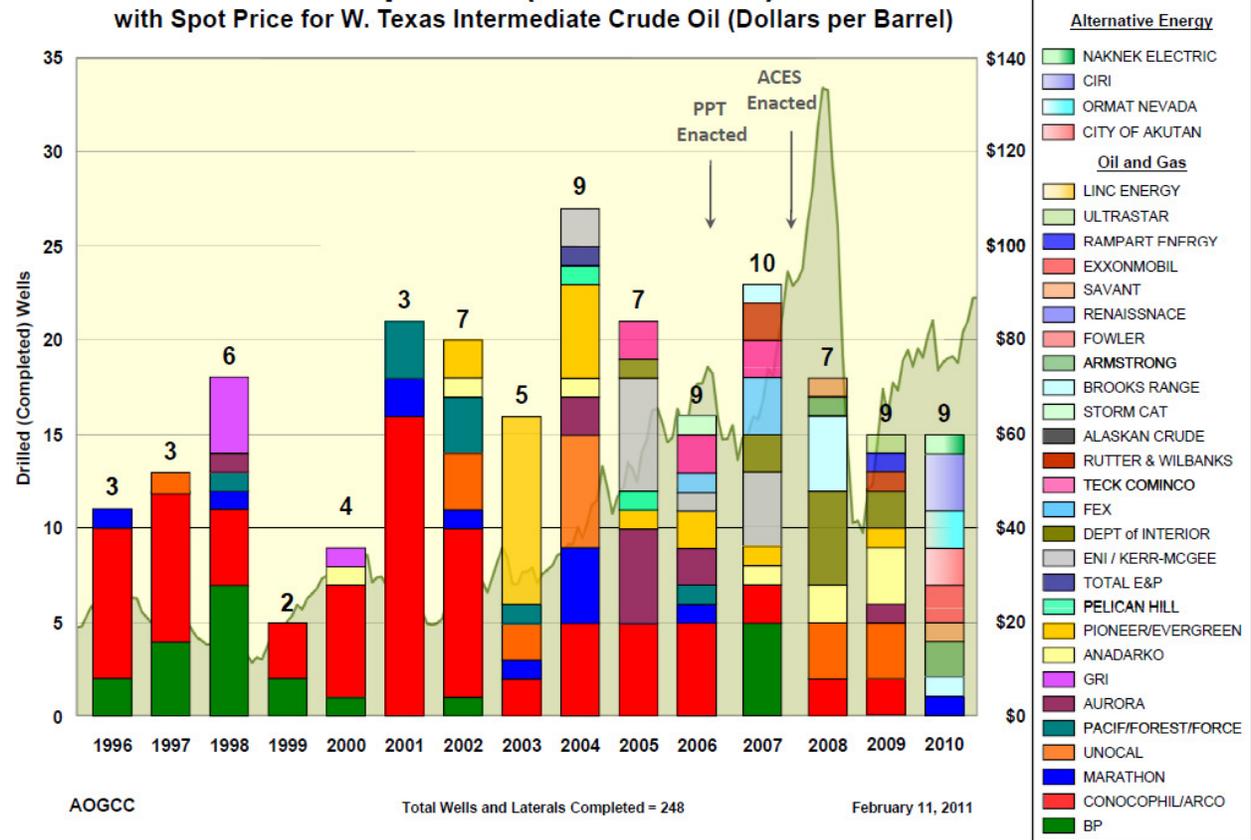
We were also told by another presenter that drilling in Alaska was decreasing from 2007 through 2010. These numbers are also correct: from 2007 to 2010 there was a decrease in the number of production wells drilled. If the exploration wells on Graph 2 are added, the decrease from 2007 to 2010 becomes even larger. Though both presenters using the two sets of data agreed that taxes are only one of several factors driving industry, they only gave post ACES data. Both used Alaska Oil and Gas Conservation Commission (AOGCC) as their data source.

Graph 1 – Development and Service Wells/Laterals Completed 1996-2010⁸
DEVELOPMENT AND SERVICE WELLS / LATERALS
Completed (1996 - 2010)



⁸ These AOGCC figures are still undergoing review and not yet been published on the AOGCC website. They are current as of February 10, 2011 as shown on the graph.

Graph 2 – Exploration Wells and Laterals Completed 1996-2010⁹
EXPLORATORY WELLS AND LATERALS
Completed (1996 - 2010)



In 2010, AOGCC was given authority over alternative energy wells, which account for 8 exploration wells in 2010. The “exploration well” category includes both exploration and delineation wells (wells drilled after discovering oil to determine how much oil there is). For example 2010 “exploration” activity of 4 North Slope wells included 3 wells within the Point Thompson and Badami units as indicated in Graph 3.

⁹ These AOGCC figures are still undergoing review and not yet been published on the AOGCC website. They are current as of February 11, 2011 as shown on the graph.

Graph 3 – Exploration and Delineation Wells Completed 2007-2010¹⁰

		2007	2008	2009	2010
Non Oil & Gas					8
TechCominco	ME	2			
Rampart	ME			1	
R&W	ME	2		1	
BP	NS	5			
ENI	NS	4			
FEX	NS	3			
Ultra Star	NS			1	
DOI	NS	2	5	2	
CP	NS	2	2	2	
Anadarko	NS	1	2	3	
Pioneer	CI/NS	1		1	
Unocal	CI/NS		3	3	
EM	NS				2 Delineation Wells at Pt. Thompson
Savant	NS		1		1 Delineation Well at Badami
Brooks Range	NS	1	4		1
Marathon	CI				1
Armstrong	CI		1		2
Aurora	CI			1	
Total		23	18	15	15
NS in North Slope		19	17	9	4
CI is Cook Inlet		0	1	4	3
ME (Middle Earth) everything else		4		2	
NA - Non O&G					8
Total		23	18	15	15

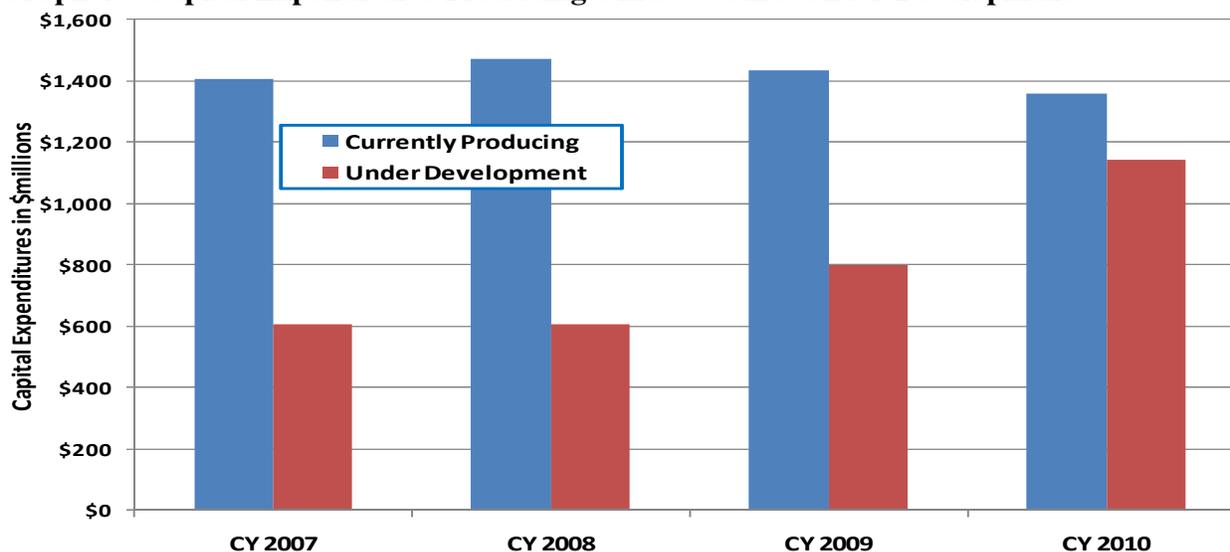
Because so much of Alaska’s oil production comes from the North Slope, sometimes statements about the North Slope and about other fields in Alaska get conflated. As Graph 3 shows, in 2009 and 2010, a significant portion of the exploration wells drilled were outside of the North Slope. Three of seven exploration wells were outside of the North Slope in 2010, 6 of 15 in 2009.

¹⁰ Adopted from AOGCC 2/11/11 “Exploratory Well and Lateral” graphic (NS/CI/ME designations are not AOGCC’s)

Appendix 2 - Investment

Multiple presenters reported Alaska Department of Revenue (DOR) information that total investment in Alaska has been increasing over the last several years. Another presenter reported that the two largest North Slope operators (who operate six of the nine largest fields on the North Slope) were not increasing their investment spending: the North Slope's largest operator, BP Exploration (Alaska), Inc. (BP), is reducing its capital expenditures (capex) and spending on development projects by ConocoPhillips, the North Slope's largest producer, is flat. Data from the DOR may reconcile this data in Graph 4.

Graph 4 – Capital Expenditures Producing Units vs. Units Under Development¹¹



* Units under Development include Oooguruk, Nikaitchuq and Pt Thomson, NPRA and other North Slope

Investments by ExxonMobil (Point Thomson not producing), Pioneer (Oooguruk began production in 2008) and ENI (Nikaitchuq began production in 2011) and new North Slope explorers (Savant, Brooks Range, Dewline) is up; investment in the legacy producing fields operated by ConocoPhillips and BP is down.

Only 2007-2010 data is shown because it appears that the data from before 2007 is not good data. It was assembled from a variety of not always consistent sources. Data from 2007 forward was collected consistently under a mandate from the legislature. However, care must be taken not to assume that the breakdown in spending over the last four years shows a different pattern than the prior decades.

Data was also presented that divided ConocoPhillips's spending in the three largest North Slope fields into development and maintenance spending by calendar year. DOR has restated its data from a fiscal year (July 1 to June 30) basis to a calendar year data, and both parties have updated data to include CY 2010. When integrated, the data from the two sources appears to be roughly

¹¹ Alaska Department of Revenue. At our request, DOR took data they had previously released in a January 18th, 2011 report on a fiscal year basis and restated it on a calendar year basis.

consistent – with one large caveat: it implies that even though roughly 90% of production comes from the three largest fields, spending in the smaller producing fields seems to be about one quarter of the spending in producing fields. The following picture emerges in Graph 5 below.

Graph 5 – North Slope Spending 2007-2010

Summary of North Slope Spending per Calendar Year

CP Data

Development capital 3 largest fields *

Opex Inside three largest fields

DOR Data

Development capital new fields **

(DOR data adj by CP data)

Remainder - Capex & Opex in other fields

Total Spending

	2007	2008	2009	2010
Development capital 3 largest fields *	1,250	1,350	1,150	1,100
Opex Inside three largest fields	1,500	2,000	1,750	1,750
Development capital new fields **	606	608	797	1,145
Remainder - Capex & Opex in other fields	921	1,004	1,137	1,025
Total Spending	4,277	4,962	4,834	5,020

all figures in \$millions

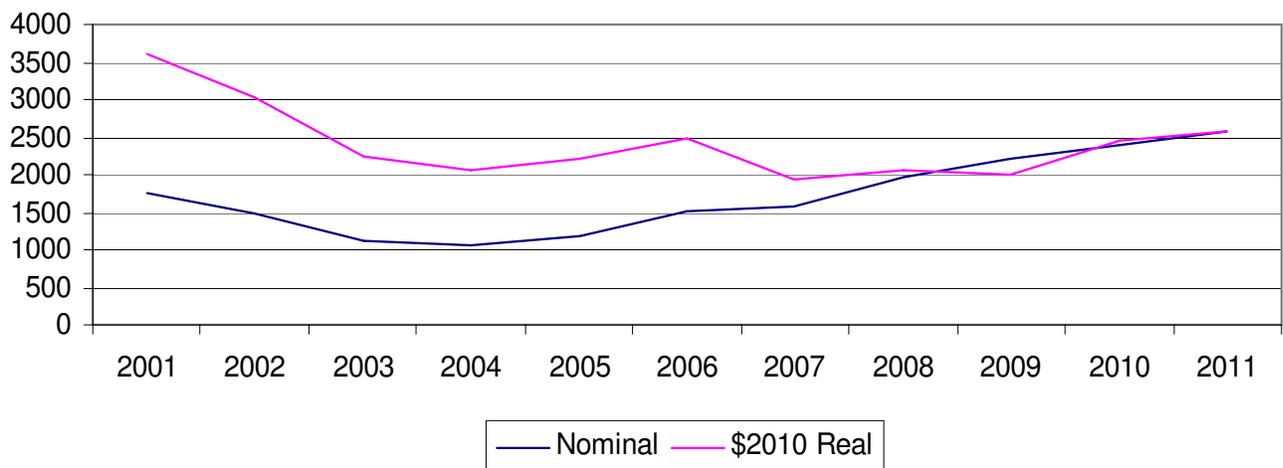
*3 largest fields: Prudhoe Bay, Kuparuk and Colville River Unit (Alpine & satellites)

**New Fields are Oooguruk(2008),Nikaichuq (2011), Pt Thomson (not producing) and NS exploration

***Other fields are BP operated Milne Point, Northstar, Endicott(Duck Island) and Badami.

Finally, because investment and workers are needed to increase production, the conversation around the tax reforms of 2006 and 2007 focused on incentivizing investment that would create jobs and new production. However, the increase in jobs (documented in the Oil Field Employment on the next page) and investment do not appear to have led to an increase in either actual or forecasted production. Two explanations may account for this. One is gold plating, or when spending itself is rewarded, so then companies increase spending but on things that do not necessarily increase production. The other explanation is that Alaska may have received the same kind of investment it always has, it just cost more. The huge inflation in oil field costs that accompanied the price run up in 2007- 2009 was cited as a possibility. Using worldwide figures developed by Cambridge Energy Research Associates (IHS CERA) investment measured in real terms actually declined over this period.

Graph 6 – North Slope Capital Spending 2001-2011¹²

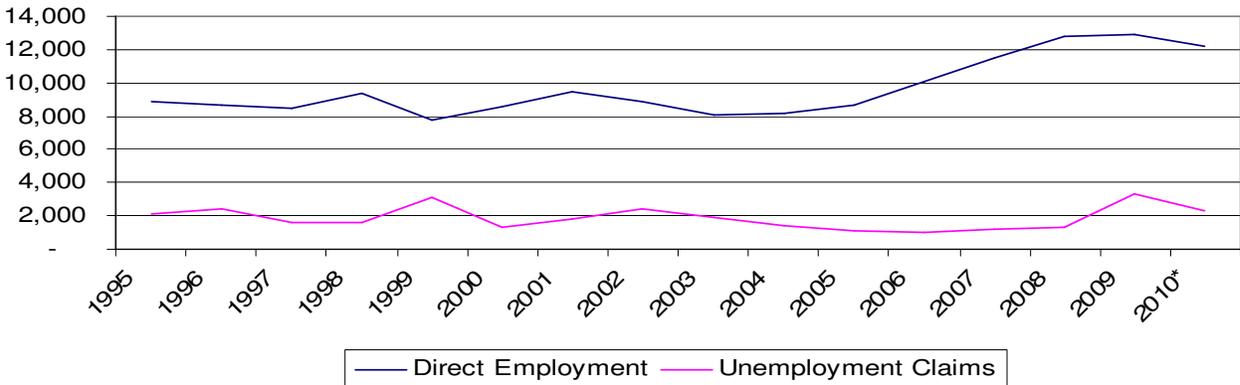


¹² DOR data from Annual Revenue Sources Books, adjusted by IHS CERA upstream capital cost inflator. Includes forecast spending. All figures in millions of dollars. <http://www.ihsindexes.com/>

Appendix 3 - Oil Field Employment

Two data sets are plotted below. One set of numbers tracks direct employment (blue line) in the oil and gas industry. The other set of numbers tracks the number of unemployment claims (pink line) that originate from workers in the oil and gas industry. Both figures reached historic highs in 2009.

Graph 7 – Alaska’s Oil and Gas Industry Employment¹³



It appears that after every rise in the employment rate there is an offsetting rise in the unemployment claims. It may be that with the sustained rise in employment from 2005 through 2009, the unemployment rise began before the employment boom had peaked. In short the unemployment figure may be a sign of the kinds of turnover that occurs after any rise in employment. One presenter said the work situation felt more like 1999 when the wellhead value of Alaska oil on the North Slope was in the \$10/bbl range. The unemployment figures bear out this contention.

The Department of Labor reported in a 2008 analysis of oil and gas employment in Alaska that the direct employment understates what might be thought of as jobs in the industry. First, it does not include pipeline transportation or refining, thus excluding employment on TAPS and its associated refineries. Secondly,

“There are certainly thousands of other direct jobs that service the oil industry but aren’t categorized as jobs with oil industry employers. Out of more than 9000 jobs in Prudhoe Bay in 2007, more than 1500 weren’t with oil industry employers. For example, Nana Management Services is one of the largest employers in Prudhoe Bay. Its employment falls into the four facilities of catering, accommodation, facilities management and construction. Other direct jobs associated with oil industry activity but not categorized as oil industry employment include those for security, transportation, engineering and logistic employees among others”¹⁴

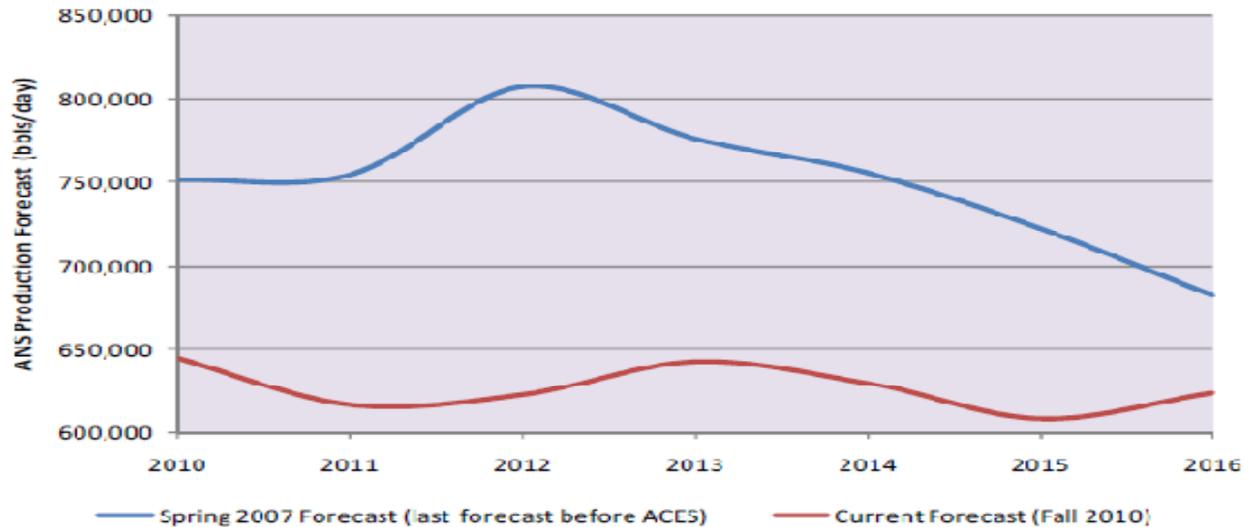
¹³ DOLWD 2010 preliminary figures. Employment numbers from 2001 – 2010 from ak95prs file downloaded from DOLWD website, 1995 through 2000 figures extrapolated from table 3 of the Sept 2008 Alaska Economic Trends available on DOLWD website. Unemployment figures from 2010, 2006 and 2003 Unemployment Insurance Actuarial Study and Financial Handbook issued by DOLWD. Note employment figures are for oil and gas workers, while unemployment figures are for “mining workers,” of which oil and gas are by far the largest component.

¹⁴ Fried, Neil; Robinson, Dan, Alaska’s Oil Industry (Alaska Economic Trends, Sept 2008) pg. 5

Appendix 4 - Time Series of Future Production

One presenter spoke of the dramatic difference between two DOR forecasts of production for the years 2010-2016. One, made in the spring of 2007 was the last forecast before adopting ACES. The other is the most recent forecast DOR has published 3 and half years after the adoption of ACES.

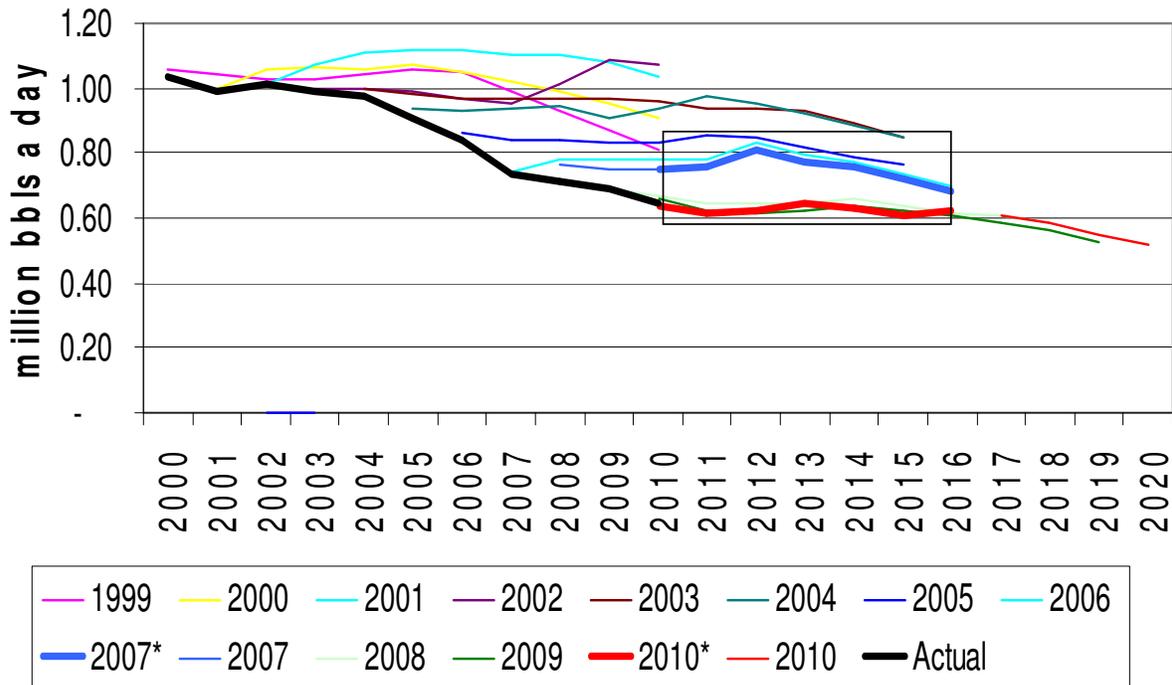
Graph 8 – DOR North Slope Production Forecast Before and After ACES¹⁵



The DOR is charged with forecasting revenue, and publishes forecasts every year in the Fall Revenue Sources Book, sometimes updating those forecasts in the Spring Revenue Sources Book. In Graph 9 are assembled forecasts from over the last decade. The graphic also highlights the two snippets found in the dramatic comparison above – the small box in the graph below illustrates the area covered by the presenters’ graphic. (Note: All data is from the fall forecast, except in 2007 when the spring forecast is used to match the presenters slide. (Asterisked data series are those portions that line up with Graph 8 above))

¹⁵ Department of Revenue figures as interpreted by Roger Marks in his presentation to the study group 12/14/10.

Graph 9 – DOR Annual 10 Years Forecasts vs. Actual Production¹⁶



As can be seen in Graph 9, over the last decade, even in periods when the legislature was not reforming the tax rules, the DOR was too optimistic in any forecast in this period that can be checked against actual production. Roughly half of those predictions can now be checked against actual. The DOR was always on the high side, and never missed on the low side. The gap between the two forecasts identified by the presenter is indeed stark, and may be attributable to ACES. However there will also be gaps between other forecasts, and this suggests that falling DOR forecasts may be attributed to events other than the passage of ACES.

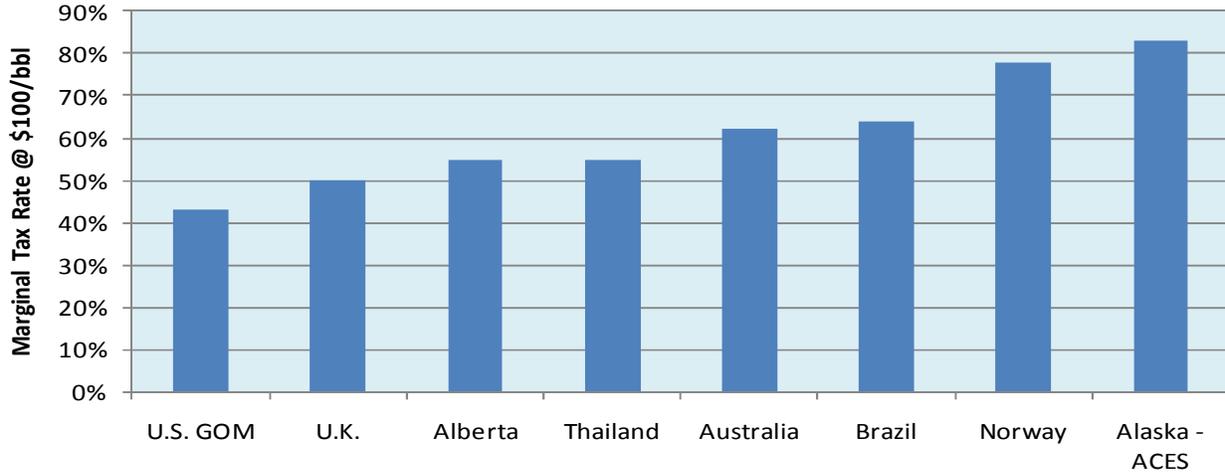
More alarming is the sense communicated by this graphic that the actual production – the heavy black line – as it extends beyond 2010 is likely to fall below forecast if the past is any guide.

¹⁶ Department of Revenue, Revenue Sources Books, 2000 - 2010

Appendix 5 - International Tax Rate & Competitiveness Comparisons

Three separate international comparisons were offered yet many expressed frustration with the international comparison data. One presenter compared nine regimes and found Alaska's take under ACES was the highest of the eight (Graph 10).

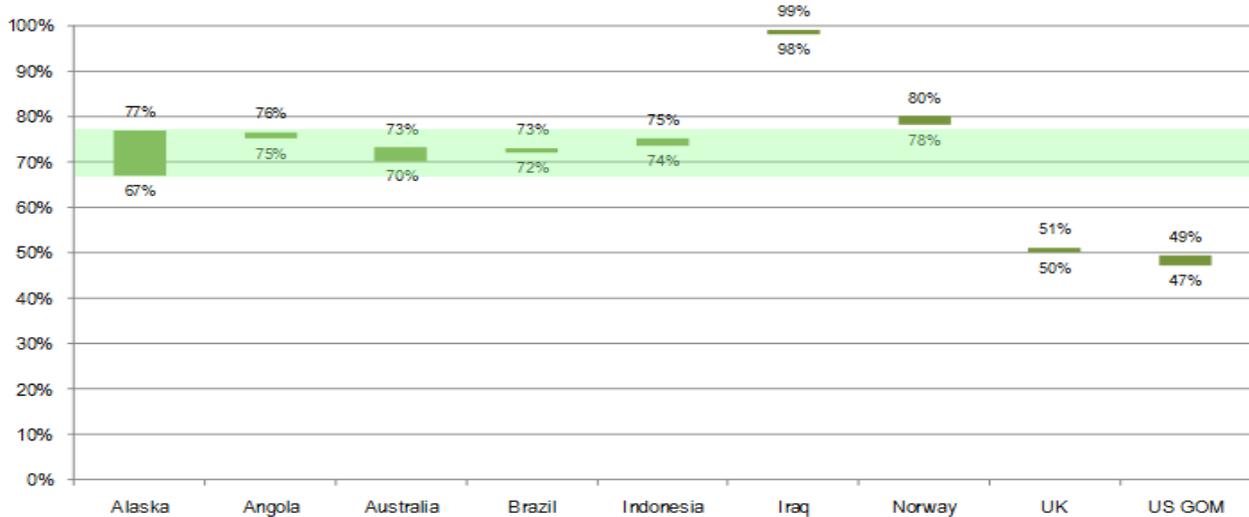
Graph 10 – International Marginal Tax Rate Comparison 1¹⁷



Another presenter compared 8 regimes and found Alaska take under ACES to be the lowest of the eight. This presenter characterized the UK, Norway, Angola, Russia, Venezuela and Nigeria as having tax rates of 90% with Iraq even higher – well above the tax burden under ACES.

The final presenter to use specific international comparisons compared 9 regimes at two prices creating a range and found Alaska take under ACES to be in the same range as 4 others, while two were higher and two were lower (i.e. Alaska was “midpack”) (Graph 11).

Graph 11 – International Marginal Tax Rate Comparison 2¹⁸

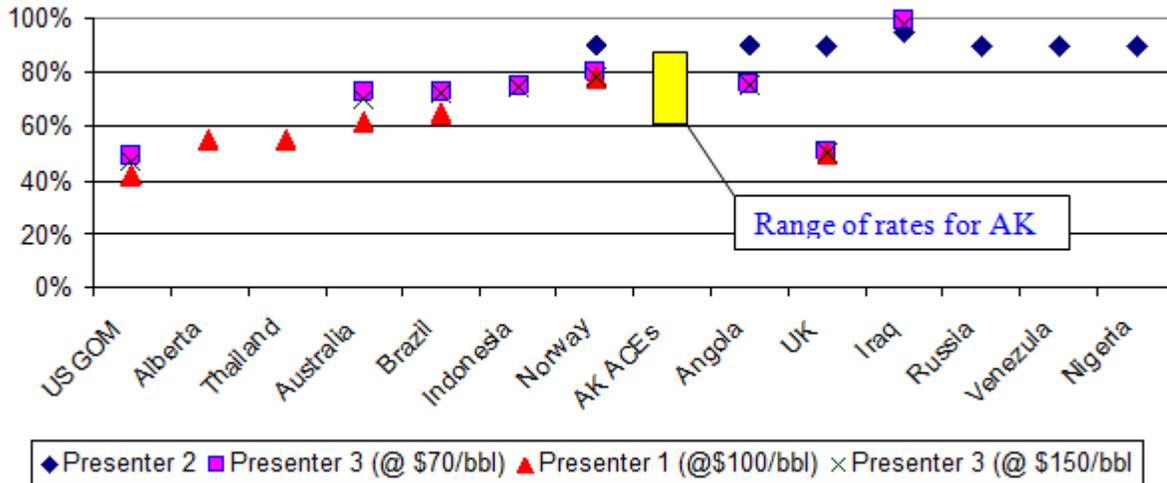


¹⁷ Roger Marks, Tax and Royalty Regimes as presented to the study group 12/14/10

¹⁸ DOR Legislative Presentation, February 4, 2010 Note: Total Government Take Percentage; Oil price \$70-\$150/bbl as presented to the study group by Patrick Galvin 1/11/11.

Graph 12 is a synthesis of all the international comparison data received depicted on one chart. As a side note, one of the difficulties of using international comparisons is illustrated as all three used UK and Norway as comparables with remarkably different results. One said ACES is higher than either; another said ACES was lower than either; and finally one presenter said Norway was higher than ACES but the UK was lower than ACES.

Graph 12 – Alaska ACES International Comparison Information Synthesis¹⁹



The blue diamonds represent 8 comparables mentioned by one presenter but it is not clear whether they represent a tax rate at a particular price, whether they include other taxes and other forms of take or whether the analysis was marginal or effective (average) rate.

The red triangle figures included all state take (including royalties) and federal income tax, expressed as a marginal rate when the destination is \$100 a barrel. When using effective rates, the figures agree that Norway’s rate was indeed above ACES.

The pink boxes and Xs also presented total government take and analyzed the rate at \$150 a barrel (indicated by an X) and \$70 dollars a barrel (indicated by a pink box).

As another illustration of the complexity of such comparisons, several speakers called on the state to change its fiscal system to allow a full return of investment before any taxes were paid. However, other speakers confirmed that while the mechanism is complex, in fact the current system does just that (although the recovery is restricted to all “allowed” costs.)

The Fraser Institute’s Global Petroleum Survey²⁰ released June 2010 looks at barriers to investment. Executives working in investments ranked 17 items on a scale from 1 (very conducive to investment) to 5 (would not invest based on this factor). The number of 3rd, 4th and 5th place rankings determined the overall rank. Two of the rankings were “fiscal terms” and “taxes”. Alaska is ranked 68th out of 133, essentially midpoint, between Morocco and Japan.

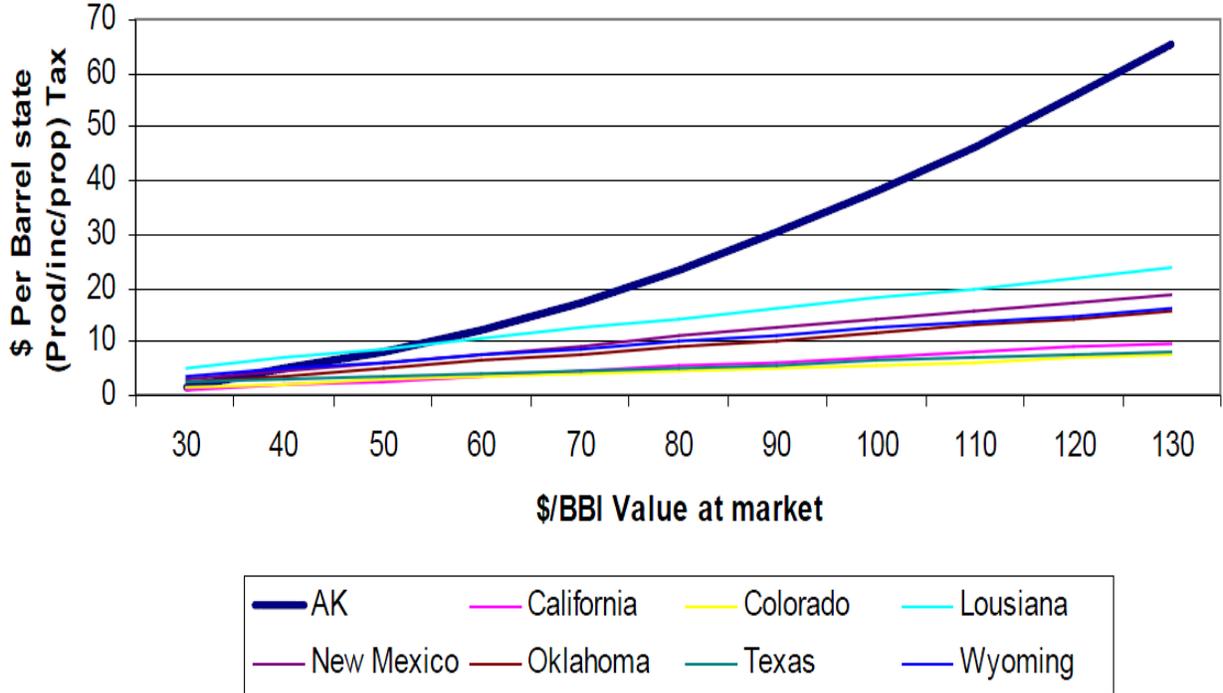
¹⁹ Data from Roger Marks, Patrick Galvin and Senator Bill Wielechowski presentations to the study group, as interpreted by Dan E. Dickinson CPA

²⁰ Fraser Institute Global Petroleum Survey, 2010 www.fraserinstitute.org

Appendix 6 - US State Comparisons

One presenter specifically asked if Prudhoe Bay were producing in any other state, what would be the combined tax and royalty rate that production from that site would bear. Federal Taxes were not included.

Graph 13 – Prudhoe Bay State Comparison²¹



Other comparisons build up from adding various tax rates. For example, federal income tax rates which tax net income, state severance taxes which typically tax gross value, and property taxes, school taxes or other types of fees which each might have their own base seemed to have limited applicability or usefulness.

²¹ Dan E. Dickinson CPA, as presented to the study group 11/23/10

Appendix 7 - Prudhoe Bay Profitability Model

How profitable is the oil industry? Profitability can be measured in many ways. We received two very different answers to that question. One suggested that in Prudhoe Bay industry was able to earn an IRR of 123%. Another presenter stated that the oil and gas industries earnings overall was actually 6%. Of course each of these metrics was measuring something quite different, and no presenter argued that its number disproved the other. However the general case that the presenters tried to make was that either the industry was very profitable or that it was not profitable at all. We can examine those two figures.

The 123% comes from an interactive model that was mentioned by multiple speakers. The model was reported as being critical to the legislature's decision to increase the progressivity, both above the level in the then current PPT law and the lower level proposed in the original bill.

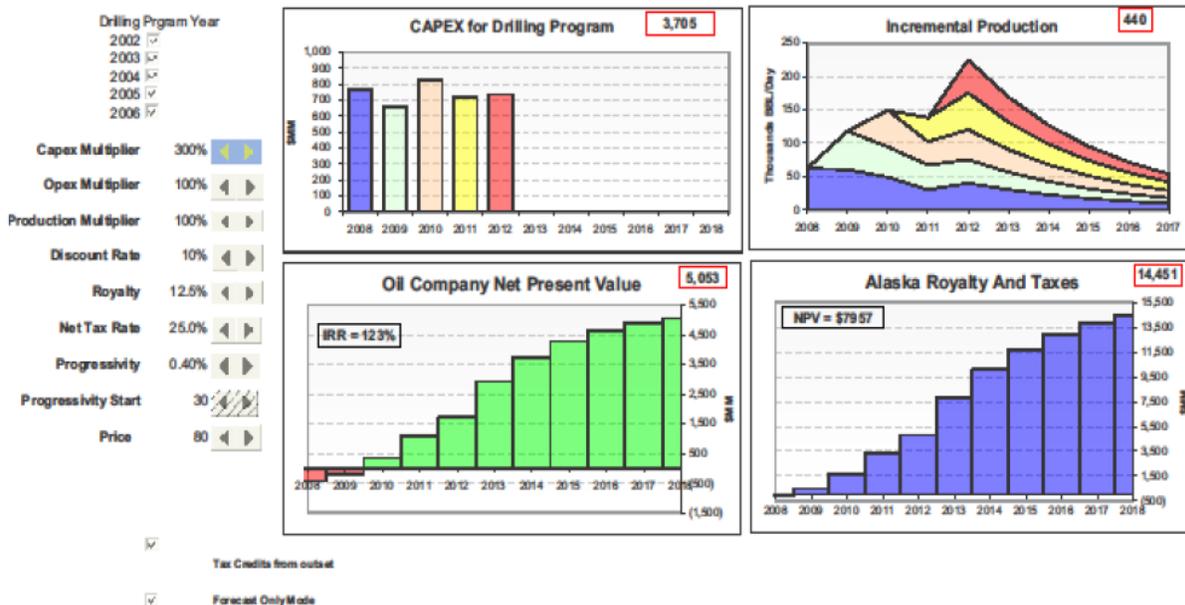
Graph 14 – Prudhoe Bay Forecast Model²²

Senate CS – Forecast Model \$80 oil



- IRR = 123%, NPV10 = \$5.375 billion

Modeling the Prudhoe Success contained in AOGA/BP Testimony



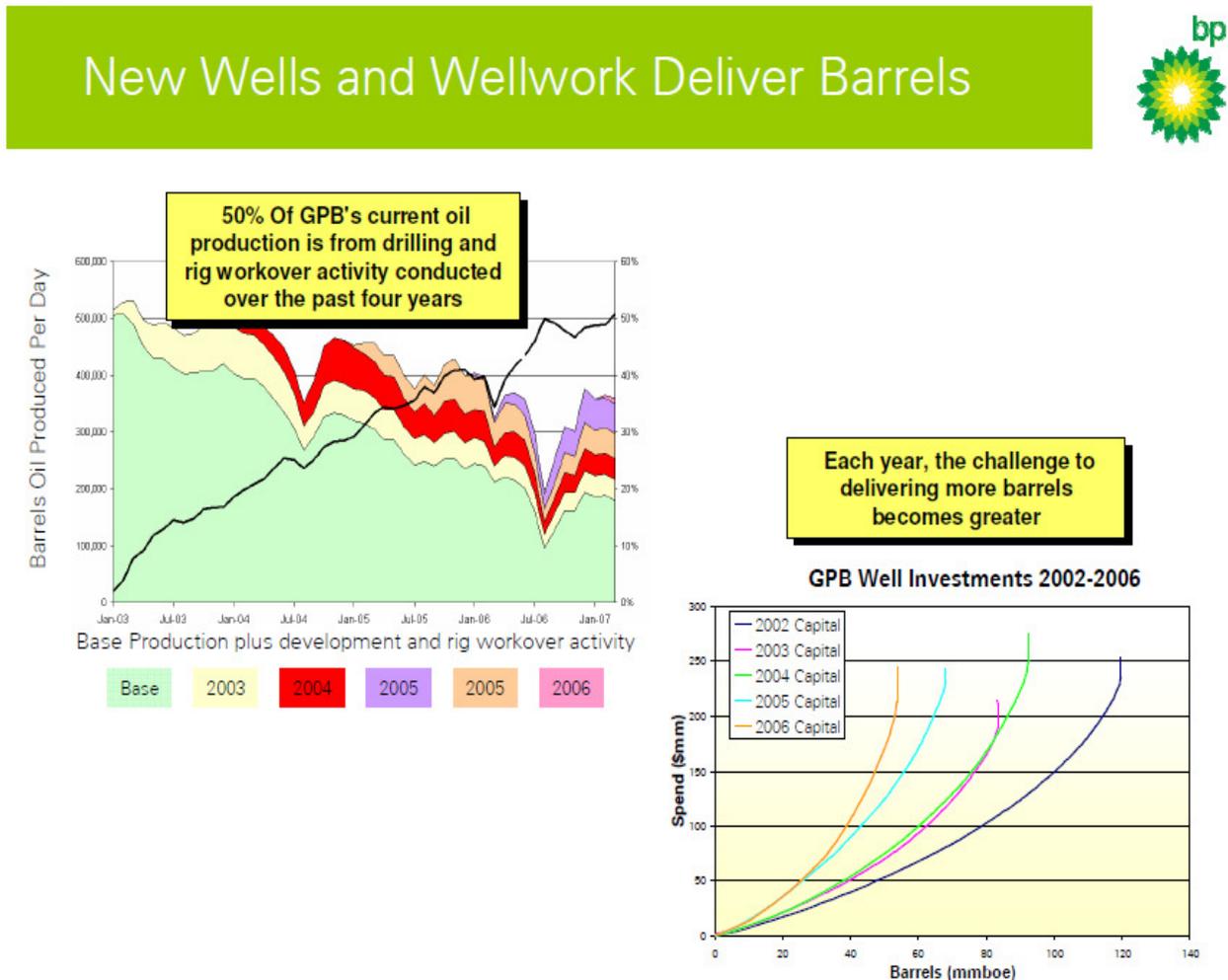
Gaffney, Cline & Associates

09 November 2007

²² Gaffney, Cline & Associates, November 2007, as presented to the study group by Senators French and Wielechowski 12/21/10

The model has many features and levers to allow sensitivities to be investigated. However, the key statistic is visible from this screen. Note that the capital multiplier (top switch below the radio buttons on the left hand side of the slide) has been set to 300% which means investing \$3.7 billion generates 440 million additional barrels. That works out to roughly \$8.40 a barrel. The model is based on the following slide from an October 22, 2007 presentation by BP in legislative testimony, where it stated capital spending was about 1.2 billion dollars (the sum of the dollars in the graphic in the lower right), producing an additional 440 million barrels (distributed in time as shown in the graphic to the upper left.) Dividing dollars by barrels mean less than a three dollar per barrel investment was needed to generate each barrel (implying internal rates of return of over 300%).

Graph 15 – BP Well Investment Costs 2002-2006²³



This model was mentioned in the context of unwarranted conclusions being drawn from data. For example, does this mean that by getting industry to invest \$1.5 billion every year the pipeline could be filled again at 2 million barrels a day (The calculation is \$3/bbl x 365 days x 1.4 million barrels/day which is needed to fill the pipeline which equals 1.5 Billion)? No one has suggested that or even that \$4.3 billion a year of investment (the same calculation using \$8.40/bbl) will fill

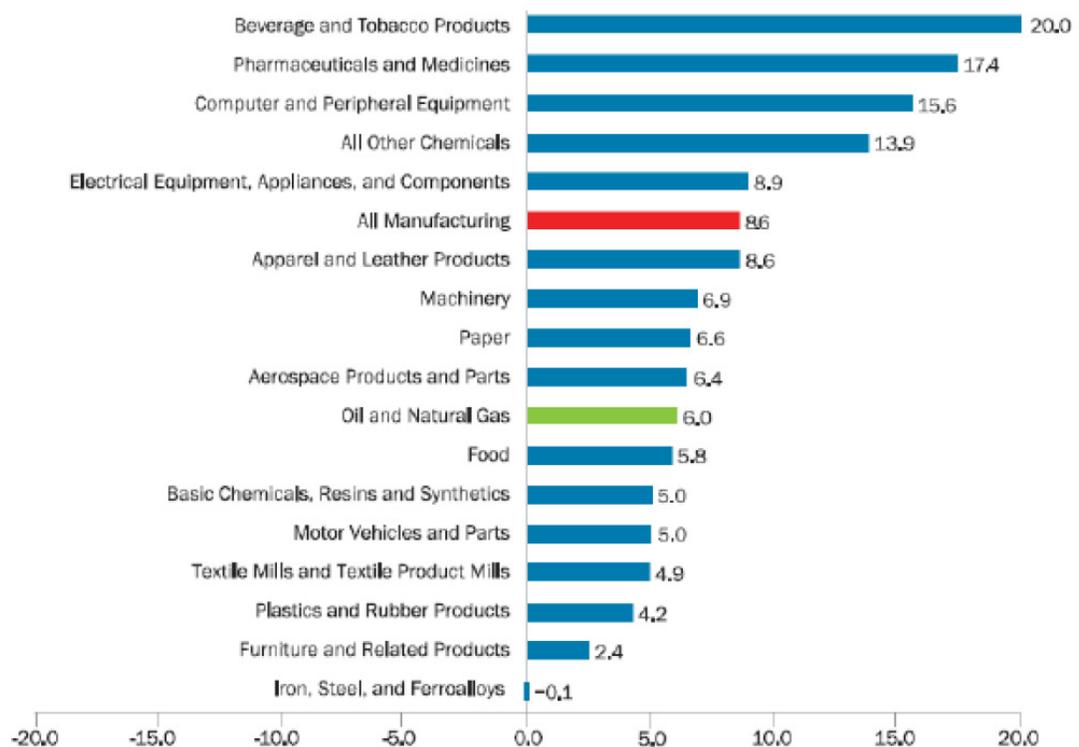
²³ BP House Testimony on HB 2001 October 22, 2007

the pipe. However this conclusion is implicit in using these figures as representative of overall economics.

The 6% earnings rate at the other end of the spectrum takes no account of assets employed or invested. Instead it simply takes a current snap shot with net income as the numerator and sales as the denominator. A 6% earning rate means that after all costs were accounted for the net income returned to the company only represents 6% of sales.

Graph 16 – Earnings by Industry (Net Income/Sales)²⁴

Third Quarter 2010 Earnings by Industry (net income/sales)



While these calculations of earnings are vastly different, the terms of the debate seemed to be framed between “high earnings” implying that high taxes are appropriate, and “low earnings” implying that taxes are destroying margins and investment.

²⁴ American Petroleum Institute, based on company filings with the federal government as reported by the US Census Bureau and Oil Daily, as presented to the study group by Wendy King and Bob Heinrich 2/1/11

Appendix 8 - ConocoPhillips Alaska Financial Data

ConocoPhillips is the only current major producer to treat and report Alaska as a discrete segment of its business. That segment data was referenced by many of our speakers, with each one referring to different years or aspects of the data.

Graph 17 – ConocoPhillips Revenues 2007-2010²⁵

Alaska	2007	2008	2009	2010
Total Revenues	7.18	9.19	5.52	6.34
Taxes Other Than Income Taxes	1.66	3.43	1.14	1.57
Income Taxes	1.25	1.32	0.72	1.98
Other Costs	2.01	2.13	2.14	1.01
Net Income	2.26	2.32	1.54	1.74
US E&P except Alaska	2007	2008	2009	2010
Total Revenues	8.5	10.2	5.1	6.5
Taxes Other Than Income Taxes	0.6	0.8	0.4	0.5
Income Taxes	1.1	1.3	(0.1)	0.6
Other Costs	4.9	5.7	4.8	4.3
Net Income	2.0	2.7	(0.0)	1.0
World E&P except Alaska	2007	2008	2009	2010
Total Revenues	27.6	35.5	21.4	28.9
Taxes Other Than Income Taxes	1.0	1.7	0.7	1.0
Income Taxes	7.4	10.6	4.1	5.5
Other Costs	13.3	13.8	14.6	14.9
Net Income	6.0	9.5	2.0	7.6

all figures in \$billions

Different speakers focused on different comparisons in the data. One presenter focused on the net income earned in Alaska, and how that amount of net income compares to net income earned in the rest of the US. Another speaker focused on the fact that even as Alaska revenues jump from 2007 to 2008, net income in Alaska stayed flat. The final speaker looked at the relative change in after tax income revenue between 2008 and 2009.

When ConocoPhillips' Alaska data is compared to either worldwide or other US operations, the question arose over the relative mix of oil and gas. That is, as the statistics below show in Alaska ConocoPhillips is an oil business, while worldwide its exploration and production arm produces

²⁵ Dan Dickinson interpreting and expending material presented by Dan Dickinson, Roger Marks and Senators French and Wielechowski. All data taken from required SEC filing reported quarterly (10Q filings) and on an annual basis (10-Ks) with the latter then typically included in ConocoPhillips' annual reports. All these reports can be found at: http://www.conocophillips.com/EN/investor/financial_reports/sec_filings/Pages/index.aspx

about equal amounts of gas and oil. As a very rough rule of thumb, thousands of cubic feet (mcfs) of gas can be converted to barrels (bbls) of oil by dividing by 6.

Graph 18 – ConocoPhillips Regional Oil and Gas Production Breakdown 2007-2010²⁶

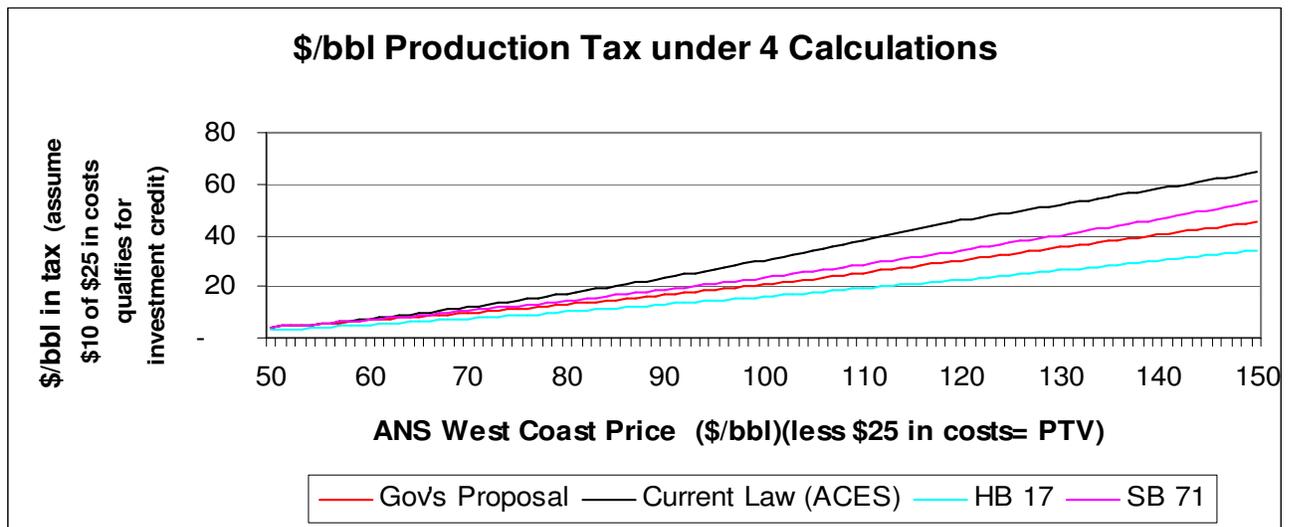
ConocoPhillips 10K Statistics	2007	2008	2009	2010
<u>Production:</u>				
OIL & NGLs Thousand bbls/day				
AK	280	261	252	230
Lower 48	181	165	166	160
World	925	899	913	858
Gas Thousand mcf/day				
AK	110	97	94	82
Lower 48	2,182	1,994	1,927	1,695
World	5,082	4,836	4,793	4,437
<hr/>				
<u>Average Sales Price:</u>				
OIL & NGLs \$/bbls				
AK	69.79	99.10	59.23	78.61
Lower 48	55.15	74.70	44.12	57.69
World	66.01	89.35	55.47	72.63
Gas \$/mcf				
AK	3.68	5.36	5.33	4.62
Lower 48	5.99	7.71	3.42	4.25
World	6.26	8.20	4.40	5.07

²⁶ ibid

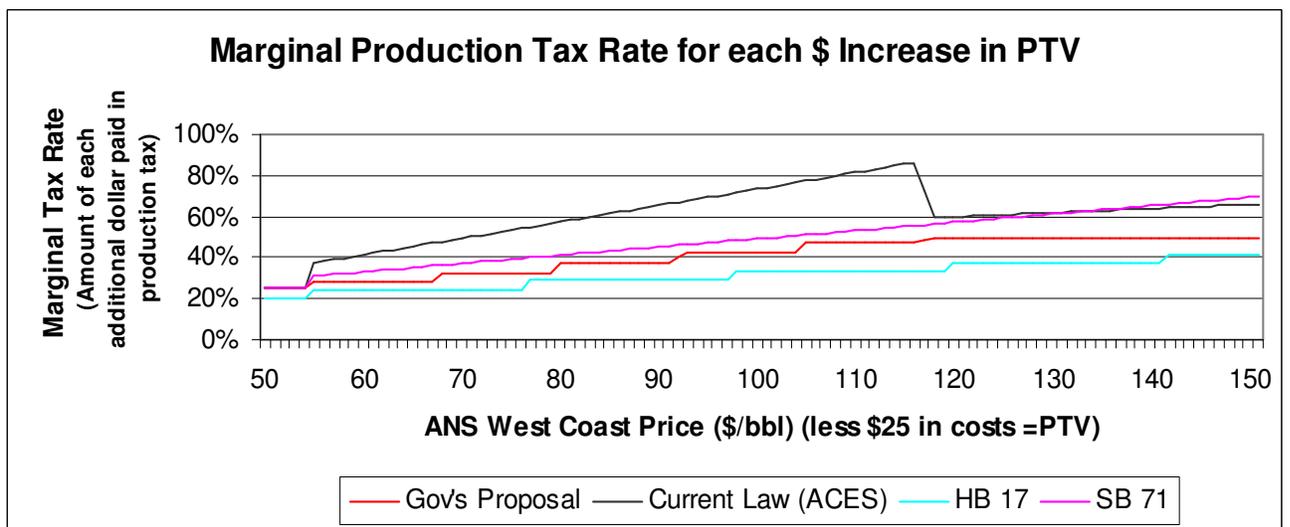
Appendix 9 - 27th Legislature Oil Production Tax Progressivity Proposals

The current law (ACES) has a base rate of 25% and .4% progressivity factor for PTVs (production tax values) between \$30/bbl and \$92.5/bbl, at which point the progressivity factor drops to .1%. The governor's proposal incorporates brackets starting at 25% with the highest bracket at 50%. House Bill 17, or HB 17, incorporates brackets which start at 20% and advance much more slowly toward a top 50% bracket. SB 71 or Senate Bill 71 also has a base rate of 25%, and a .2% progressivity factor until the PTV reaches \$155/bbl, at which point it drops to .1%.

Graph 19 – \$/bbl Production Tax Under 4 Calculations²⁷



Graph 20 – Marginal Production Tax Rate for each \$ Increase in PTV²⁸



²⁷ Dan E. Dickinson, as requested by the study group

²⁸ Ibid. Though not visible, HB 17 has one additional bracket for PTVs over \$160/bbl with a 50% tax rate

GLOSSARY OF OIL & GAS TERMS

Alaska's Clear and Equitable Share (ACES) – (See ACES Overview Page 6).

Alaska Department of Revenue (DOR) – (See Key Alaska Oil and Gas Regulators).

Alaska Oil and Gas Association (AOGA) – (See Key Alaska Oil and Gas Regulators).

Alaska Oil and Gas Conservation Commission (AOGCC) – Regulates the drilling for and production of oil and gas resources under the Alaska Department of Administration (See Key Alaska Oil and Gas Regulators).

Alaska Outer Continental Shelf (OCS) – The Federal Government administers the submerged lands, subsoil, and seabed, lying between the States' seaward jurisdiction and the seaward extent of Federal jurisdiction.

Alliance – A nonprofit trade association, made up of nearly 500 businesses, organizations and individuals that provide products and services to the oil, gas and mining industries, and represent approximately 45,000 Alaskan workers.

Arctic National Wildlife Refuge (ANWR) – The Refuge was established in 1960 and expanded in 1980 to conserve wildlife and wilderness in northeast Alaska. It is managed by the U.S. Fish and Wildlife Service.

Badami Oil Field – On the Alaska North Slope, the field is about 35 miles east of Prudhoe Bay and about 30 miles west of the western border of the Arctic National Wildlife Refuge. Badami was discovered by ConocoPhillips in 1990. The oil field is described as a complex and discontinuous reservoir containing heavy oil. Initial cost of development was approximately \$300 million.

Bbl – Barrel; a barrel of oil contains 42 US gallons and is the standard unit of measurement for petroleum products. An oil barrel is not to be confused with an oil drum, which contains 55 US gallons.

BP Exploration (Alaska), Inc. – BP focuses its strategy and investments in Alaska on these key areas: renewing its North Slope infrastructure; ensuring safe and sustainable operations; and commercializing known resources, such as heavy oil and Alaska natural gas. BP's Alaska workforce includes nearly 2,000 employees and more than 6,000 contractors. Of the BP Alaska employees, 81 percent call Alaska home.

Brooks Range Petroleum (BRPC) – Operates on behalf of a joint venture including working interest owners AVCG LLC, TG World Energy Inc., Brooks Range Development Corporation and Ramshorn Investments Inc., to provide land, exploration, and operation services for Alaska exploration and production. The group controls three core areas of contiguous leases covering approximately 240,000 acres on the North Slope, which offers a diverse portfolio of exploration

and development opportunities. They were one of the more active explorers in Alaska during the 2009/2010 winter drilling season.

Capex – Capital Expenditures.

DOR – Alaska Department of Revenue.

DNR – Alaska Department of Natural Resources.

E&P – Exploration and Production.

IHS CERA – Cambridge Energy Research Associates is a consulting firm for international energy companies, governments, financial institutions, and technology providers. IHS CERA delivers knowledge and independent analysis on energy markets, geopolitics, industry trends, and strategy.

ConocoPhillips Alaska, Inc. – ConocoPhillips has more than 50 years of history in Alaska. The company has major ownership in and operates the Kuparuk River Unit, the Colville River Unit (Alpine), the Greater Mooses Tooth Unit (in the National Petroleum Reserve-Alaska), the Bear Tooth Unit as well as the North Cook Inlet Unit, the Kenai Liquefied Natural Gas Plant, and the Beluga River Unit. Additionally, ConocoPhillips has major ownership in the Prudhoe Bay Unit, and owns 28 percent of TAPS. ConocoPhillips' oil production in Alaska in 2009 was 252,000 barrels of oil per day and its gas production was 94 million cubic feet per day. As Alaska's number one explorer, the company has participated in about 50 exploration wells since 2000, including more than 20 in NPR-A. 2010 is the first year since 1965 that ConocoPhillips did not drill an exploration well. The company employs approximately 1,100 people in Alaska.

Delineation Wells – Wells drilled after oil is found to determine how much oil there is in the ground.

DOLWD – Alaska Department of Labor and Workforce Development.

ExxonMobil – One of Alaska's top three oil producers, ExxonMobil has been working in the state for over 50 years, from Cook Inlet to the North Slope. The company's core asset in Alaska is its 36 percent working interest in the Prudhoe Bay field. ExxonMobil owns 20 percent of TAPS. ExxonMobil, as operator, is advancing a project at Point Thomson to develop a major gas reservoir. Initial drilling operations commenced in May 2009.

Gross-Value Tax – The term gross refers to the total amount made as a result of some activity. It can refer to things such as total profit or total sales. Under this type of tax system for oil and gas the point of taxation is before operating expenses are deducted. Alaska has such a production tax until the 2006 reforms introduced the PPT.

Heavy Oil – Also known as viscous oil, it is any type of crude oil which does not flow easily. It is referred to as "heavy" because its density is higher than that of light crude oil. Production,

transportation, and refining of heavy crude oil present special challenges compared to light crude oil. There are significant reserves of heavy oil on the North Slope.

Income Tax – A tax levied on the income of individuals, businesses or entities such as trusts.

Kuparuk Oil Field – Located on North Slope is the second largest oil field in North America by area. It produces approximately 230,000 barrels per day of oil and is estimated to have 2 billion barrels of recoverable oil reserves. Kuparuk was discovered 1969 and production began December 1981 on 5 small gravel drilling pads. Production peaked in 1992 at 322,000 barrels per day.

Mcf – 1,000 cubic feet and is the standard measurement to record natural gas market prices. MMcf is 1 million cubic feet. Bcf is 1 billion cubic feet. Tcf is 1 trillion cubic feet.

MMBO – Million barrels of oil.

National Petroleum Reserve - Alaska (NPR-A) – Formerly known as the Naval Petroleum Reserve No. 4, it is a vast 23-million acre area on Alaska's North Slope that has a history of nearly 100 years of petroleum exploration.

Net-Value Tax System – Net refers to the amount left over after all deductions are made. Once the net value is attained, nothing further is subtracted. Under this type of tax system only the profits are taxed.

NGL – Natural Gas Liquids.

Nikaichuq Oil Field – A field off Alaska's North Slope which ENI, an Italian oil company, began producing in 2011. It estimates reserves at 220 million barrels. At full development, the field is projected to have 26 producing wells, 21 water injectors, and 5 water source and disposal wells. Twenty-two of the wells will be onshore and the rest offshore, drilled from an artificial island. The field lies in an average 3 meters of water.

North Slope – The region located on the northern slope of the Brooks Range along the coast of the Chukchi Sea being on the western side of Point Barrow and the Beaufort Sea on the eastern. The region contains the National Petroleum Reserve - Alaska, with the bulk of Alaska's known petroleum until the Prudhoe Bay Oil Field was discovered in 1968, as well as the Arctic National Wildlife Refuge. The petroleum extracted from the region is transferred south by means of the Trans-Alaska Pipeline System to Valdez on the Pacific Ocean.

Oooguruk – Oooguruk is located in the shallow waters of the Beaufort Sea northwest of the Kuparuk River Unit. First production from the unit occurred in June 2008 and a multi-year development drilling program is currently underway. The net resource potential at Oooguruk is 120-150 million barrels of oil and net production is expected to peak at 10-14 thousand barrels of oil per day. It is the first field operated by an independent company, Pioneer, on the North Slope.

Opex – Operating Expenditures.

Petroleum Profits Tax (PPT) – The tax on the production of oil and gas in effect from 2006 to 2007 before the passage of ACES (See ACES Overview Page 6).

Pioneer Natural Resources Alaska – A large US independent oil and gas exploration and production company headquartered in Irving, Texas. In Alaska, Pioneer is the 70 percent working interest owner and operator of the Oooguruk Unit on the North Slope and the 100 percent working interest owner and operator of the Cosmopolitan Unit in Cook Inlet.

Point Thomson – Point Thomson, located 60 miles east of Prudhoe Bay, contains approximately 25 percent of the known gas resources on the North Slope with half of Point Thomson's oil and gas extending offshore under the Beaufort Sea. Point Thomson leaseholders have spent over \$800 million on the project and plan on spending an additional \$1.3 billion to bring the field into development. Current plans call for a phased development approach that will yield 10,000 barrels per day of liquid condensates in 2014.

Production Tax – Also frequently called a severance tax, it is a tax on the production of oil, or more technically on the severance of the non-renewable resource from the land.

Progressive Tax – A tax in which the rate increases as the taxable base amount increases.

Prudhoe Bay Oil Field – The largest oil field in both the United States and in North America, covering 213,543 acres and originally containing approximately 25 billion barrels of oil. The amount of recoverable oil in the field is more than double that of the next largest field in the US. The field is operated by BP; partners are ExxonMobil and ConocoPhillips Alaska.

Royalties – An agreement between the owner of the subsurface and the agent it hires that actually has the ability and knowledge to produce oil or gas. Most oil and gas in Alaska is produced from state land in Alaska so the contract is most often between the state and an oil company, however some production is from federal and private land in the state. Royalties are negotiated between the parties, as opposed to taxes that are imposed by the state using its sovereign taxing authority.

Property Tax – A tax on the value of property. In Alaska there is a special oil and gas property tax that is shared between state or local government.

Savant Alaska LLC – Savant came to Alaska in 2006 after acquiring leases in a North Slope sale. Savant worked with Arctic Slope Regional Corp., in Badami's Sands on the North Slope to develop an estimated 120 million barrels of oil.

Trans Alaska Pipeline System (TAPS) – The transportation system that moves crude oil from the Alaska North Slope to the Valdez Marine Terminal. The system includes 800 miles of 48-inch diameter crude oil pipeline, pump stations, communications sites, material sites, a work pad and access roads, and other related facilities. TAPS contributes approximately 13% of the nation's domestic oil production.

KEY ALASKA OIL AND GAS REGULATORS

State of Alaska

Below are key state departments and agencies that impact Alaska's oil and gas industry.

Department of Administration (DOA)

- Alaska Oil & Gas Conservation Commission (AOGCC)

Department of Commerce, Community & Economic Development (DCCED)

- Alaska Energy Authority (AEA)
- Alaska Industrial Development and Export Authority (AIDEA)
- Division of Economic Development
- Regulatory Commission of Alaska (RCA)

Department of Environmental Conservation (DEC)

- Division of Air Quality
- Division of Environmental Health (EH)
- Division of Spill Prevention and Response (SPAR)
- Division of Water

Department of Natural Resources (DNR)

- Alaska Coastal Management Program (ACMP)
- Division of Geological & Geophysical Surveys
- Division of Mining, Land and Water Management
- Division of Oil and Gas
- Office of Project Management and Permitting (OPMP)

Department of Revenue (DOR)

- Tax Division

Department of Administration

Alaska Oil & Gas Conservation Commission (AOGCC) – A quasi-judicial agency originally established in 1955 responsible for overseeing oil and gas drilling and production, reservoir depletion, and metering operations on Alaska lands. It provides online access to public well files, production data, pool rules documents and other Conservation Orders, including containing valuable technical background on commercial oil and gas accumulations. <http://doa.alaska.gov/ogc/>

Department of Commerce, Community & Economic Development

- **Alaska Energy Authority (AEA)** – A public corporation of the state with a separate and independent legal existence created in 1976 by the Alaska Legislature. It constructs, acquires, finances, and operates power projects and facilities that utilize Alaska's natural resources to produce electricity and heat. <http://www.akenergyauthority.org/>
- **Alaska Industrial Development and Export Authority (AIDEA)** – Promotes, develops, and advances economic growth and diversification in Alaska by providing various means of financing and investment. <http://www.aidea.org/>
- **Division of Economic Development** – Helps businesses and developers navigate the network of programs offering technical assistance and support for start-ups, expansions,

and relocations. It has a development section that provides specialized assistance to Alaska industries and a financing section that administers loan programs designed to promote Alaska industries. <http://www.dced.state.ak.us/ded/>

- **Regulatory Commission of Alaska (RCA)** – Alaska Statutes 42.04 - 42.06 and other statutes authorize the Commission to regulate public utilities by certifying qualified providers of public utility and pipeline services and to ensure that it provides safe and adequate services and facilities at just and reasonable rates, terms, and conditions. It issues certificates of public convenience and necessity which public utilities or pipeline carriers must obtain which describe the authorized service area and scope of operations of the utility. It regulates the rates, services, and practices of utilities that meet the criteria for a certificate of public convenience and necessity to provide service to the public for compensation and regulate oil and gas pipeline carriers that operate within Alaska. <http://rca.alaska.gov/RCAWeb/home.aspx>

Department of Environmental Conservation – Controls water, land, and air pollution, in order to enhance the health, safety, and welfare of the people of the state and their overall economic and social well being. It provides policy direction for the department, coordination of investment and service delivery, ensures that public concerns are fully considered in department decisions and actions, establishes department objectives and assures performance, serves as spokesperson for the Governor on environmental matters, and issues decisions on administrative appeal requests. <http://dec.alaska.gov/>

- **Division of Air Quality** – The Federal Clean Air Act and state law in Title 44, Chapter 46, and Title 46, Chapter 3 and Chapter 14 establish its duties for controlling and mitigating air pollution and for conserving clean air. It also provides health advisories and suggested protective actions. <http://dec.alaska.gov/air/index.htm>
- **Division of Environmental Health (EH)** – Deals with safe drinking water and food and sanitary practices. It provides businesses with standards to protect the environment and provide safe food and drinking water to Alaskans. <http://dec.alaska.gov/eh/index.htm>
- **Division of Spill Prevention and Response (SPAR)** – Prevents spills of oil and hazardous substances, prepares for when a spill occurs, and responds rapidly to protect human health and the environment. <http://dec.alaska.gov/spar/index.htm>
- **Division of Water** – Improve and protect water quality. It establishes standards for water cleanliness, regulates discharges to waters and wetlands, provides financial assistance for water and wastewater facility construction, trains, certifies and assists water and wastewater system operators, and monitors and reports on water quality. <http://dec.alaska.gov/water/index.htm>

Department of Natural Resources (DNR)

- **Alaska Coastal Management Program (ACMP)** – Provides stewardship for Alaska's rich and diverse coastal resources to ensure a healthy and vibrant Alaskan coast that efficiently sustains long-term economic and environmental productivity. Most proposed activities in the coastal zone must meet its standards and go through a public comment period. <http://www.alaskacoast.state.ak.us/>
- **Division of Geological & Geophysical Surveys** – Tasked with determining potential for mining and energy resources, groundwater, construction materials, and geologic hazards. Energy program field research includes opportunities for industry sponsorship and

collaboration in annual oil and gas related field programs. Online access to an inventory of fully digital DGGs and USGS publications are available for download. <http://www.dggs.dnr.state.ak.us/>

- **Division of Mining, Land and Water Management** – Provide for the use and protection of Alaska's state owned land and water. When all land conveyances under the Alaska Statehood Act are complete, the division will be responsible for over 100 million acres of uplands, including non-petroleum minerals in these lands. It also manages Alaska's 65 million acres of tidelands, shorelands, and submerged lands, including some 34,000 miles of coastline and has jurisdiction over all of the State's water resources, equaling about 40% of the entire nation's stock of fresh water. It authorizes plans of operation for mineral development, ice roads, support facilities, exploration camps for oil and gas development, gravel sales for road construction and private development, access for public and private entities across state lands and waters including power and telephone lines, and for developing land use plans to guide the use, development, and disposal of state lands. <http://dnr.alaska.gov/mlw/index.htm>
- **Division of Oil and Gas** – Responsible for oil and gas leasing and licensing on state lands and in state waters, promote exploration and development through incentives, advocacy, and negotiation, provide oversight of royalty, rental, bonus revenues, and permitting and oversight of surface operations and technical and policy support to the State government. It is dedicated to expanding industry outreach and improving the integration of surface and subsurface petroleum research throughout Alaska. Online access to information on Alaskan oil and gas potential, leasing and licensing opportunities, and industry operations. <http://www.dog.dnr.state.ak.us/oil>
- **Office of Project Management and Permitting (OPMP)** – Coordinates the review of larger scale projects in the state. A project coordinator is assigned to each project in order to facilitate interagency coordination and a cooperative working relationship with the project proponent. The office deals with a diverse mix of projects including transportation, oil and gas, mining, federal grants, ANILCA coordination, and land use planning. The project coordinator facilitates these connections for the project and helps to steer the project or the plan through the State approval process. <http://dnr.alaska.gov/commis/opmp/>

Department of Revenue

- **Tax Division** – Collect state taxes, administer tax laws, provide revenue estimating, and economic forecasting. It promotes tax compliance and provide accurate and timely information to Alaska taxpayers. Online services, tax forms, reports and answers are available. <http://www.tax.state.ak.us/>

Federal Agencies and Organizations

Below are key federal agencies and national organizations that impact Alaska's oil and gas industry.

Department of Energy (DOE)

- Office of Fossil Energy

Department of the Interior (DOI)

- Bureau of Land Management (BLM)
 - Joint Pipeline Office (JPO)
- Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE)

Environmental Protection Agency (EPA)

- EPA's Underground Injection Control Program (UIC Program)

Federal Energy Regulatory Commission (FERC)

Ground Water Protection Council (GWPC)

Interstate Oil & Gas Compact Commission (IOGCC)

Department of Energy (DOE) – Ensures America's security and prosperity by addressing its energy and environmental, challenges through by collecting of industry data and conducting energy research. <http://www.energy.gov/>

- **Office of Fossil Energy** - Ensures that America can continue to rely on clean, affordable energy from our traditional fuel resources which includes working on such priority projects as pollution-free coal plants, more productive oil and gas fields, and the continuing readiness of federal emergency oil stockpiles. <http://www.fossil.energy.gov/index.html>

Department of the Interior (DOI)

- **Bureau of Land Management (BLM)** – Responsible for managing oil and gas activities on the more than 225 million acres of federal onshore lands in Alaska. The BLM administers the Federal oil and gas leasing program and issues permits for geophysical exploration, operation permits to drill oil and gas wells, and authorizations to construct pads and install production facilities. Oil companies pay lease bonuses and lease rentals to the BLM for the leasing of lands and pay royalties for oil and gas production. The State of Alaska receives 90% of these bonuses, rentals and royalties from the lands in the Cook Inlet Region and 50% of the bonuses, rentals, and royalties from the NPR-A. Online links to permitting and regulatory information, lease sale schedules, and exploration activity summaries. http://www.blm.gov/ak/st/en/prog/energy/oil_gas.html
 - **Joint Pipeline Office (JPO)** – Established in 1990, it is state and federal agencies sharing similar regulatory or management responsibilities related to oil and gas pipelines in Alaska, most notably the Trans-Alaska Pipeline System (TAPS). It coordinates oversight of pipelines, and issue right-of-way leases and other permits needed for oil and gas projects. Cooperative agreements were developed between agencies to share staff, knowledge, equipment, and office space. <http://www.jpo.doi.gov/index.htm>
- **Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE)** – Formerly known as the Minerals Management Service, it is the federal agency

responsible for overseeing the safe and environmentally responsible development of energy and mineral resources on the Outer Continental Shelf which includes the issuing of permits and regulation enforcement. Online links to publicly available OCS seismic data, resource assessments, lease sale schedules, environmental impact statements, and well log data inventories. <http://alaska.boemre.gov/>

Environmental Protection Agency (EPA) – Sets and enforces standards on air and water quality. When Congress writes an environmental law, the EPA implements it by writing regulations, often, setting national standards that states enforce through its own regulations. If states fail to meet the national standards, the EPA can help them. Nearly half of its budget goes into grants to state environmental programs, non-profits, and educational institutions. Online educational materials and activities available. <http://www.epa.gov/>

- **EPA's Underground Injection Control Program (UIC Program)** – Protects underground source of drinking water (USDWs) from endangerment by setting minimum requirements for injection wells. All injection must be authorized under either general rules or specific permits. The purpose of the UIC requirements is to ensure that injected fluids stay within the well and the intended injection zone, or mandate that fluids that are directly or indirectly injected into a USDW do not cause a public water system to violate drinking water standards or otherwise adversely affect public health.
 - In 1974, Congress passed the Safe Drinking Water Act (SDWA). Part of SDWA required EPA to report back to Congress on waste disposal practices, and develop minimum federal requirements for injection practices that protect public health by preventing injection wells from contaminating underground sources of drinking water. <http://water.epa.gov/drink/>

Federal Energy Regulatory Commission (FERC) – An independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines. As part of that responsibility FERC also regulates the transmission and sale of natural gas for resale in interstate commerce, regulates the transportation of oil by pipeline in interstate commerce and approves the siting and abandonment of interstate natural gas pipelines and storage facilities. <http://www.ferc.gov/>

Ground Water Protection Council (GWPC) – A national association of state ground water and underground injection control agencies whose mission is to promote the protection and conservation of ground water resources for all beneficial uses. It provides a forum for stakeholder communication and research in order to improve governments' role in the protection and conservation of ground water. http://www.gwpc.org/home/GWPC_Home.dwt

Interstate Oil & Gas Compact Commission (IOGCC) – A multi-state government agency that works to ensure our nation's oil and natural gas resources are conserved and maximized while protecting health, safety, and the environment. It advocates for environmentally-sound ways to increase the supply of American energy. It also assists states in balancing a multitude of interests through sound regulatory practices. <http://www.iogcc.state.ok.us/>

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