ALASKA STATE LEGISLATURE
HOUSE RESOURCES STANDING COMMITTEE
May 1, 2019
1:22 p.m.

MEMBERS PRESENT

Representative John Lincoln, Co-Chair
Representative Geran Tarr, Co-Chair
Representative Grier Hopkins, Vice Chair
Representative Sara Hannan
Representative Ivy Spohnholz
Representative Dave Talerico
Representative George Rauscher
Representative Sara Rasmussen

MEMBERS ABSENT

Representative Chris Tuck

COMMITTEE CALENDAR

PRESENTATION(S): OIL AND GAS INDUSTRY UPDATE

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

KARA MORIARTY, President & CEO
Alaska Oil and Gas Association (AOGA)
Anchorage, Alaska
POSITION STATEMENT: Provided a PowerPoint presentation titled "AOGA," dated 5/1/19.

SCOTT JEPSEN, Vice President
External Affairs and Transportation
ConocoPhillips Alaska, Inc.
Anchorage, Alaska
POSITION STATEMENT: Provided a PowerPoint presentation titled "North Slope Outlook," dated 5/1/19.

DAMIAN BILBAO, Vice President

Commercial Ventures
BP Alaska
Anchorage, Alaska
POSITION STATEMENT: Co-provided a PowerPoint presentation titled "House Resources," dated May 2019.

SCOTT DIGERT, Resource Development Area Manager
Greater Prudhoe Bay
BP Alaska
Anchorage, Alaska
POSITION STATEMENT: Co-provided a PowerPoint presentation titled "House Resources," dated May 2019.

J. BENJAMIN JOHNSON, President/CEO/Director
BlueCrest Energy Inc.
Fort Worth, Texas
POSITION STATEMENT: Provided a PowerPoint presentation titled "BlueCrest Cosmopolitan Overview," dated 5/1/19.

ACTION NARRATIVE

1:22:22 PM

CO-CHAIR GERAN TARR called the House Resources Standing Committee meeting to order at 1:22 p.m. Representatives Talerico, Rauscher, Rasmussen, Hannan, Hopkins, Lincoln, Spohnholz, and Tarr were present at the call to order.

PRESENTATION(S): OIL and GAS INDUSTRY UPDATE

1:23:03 PM

CO-CHAIR TARR announced that the only order of business would be presentations by representatives of the oil and gas industry in Alaska.

1:24:01 PM

KARA MORIARTY, President & CEO, Alaska Oil and Gas Association (AOGA), turned to slide 1 of her PowerPoint presentation, titled "AOGA," dated 5/1/19, and noted AOGA is the professional trade organization for the state's oil and gas industry. She moved to slide 2 and said [BlueCrest Energy, Furie, Glacier Oil & Gas, Hilcorp, and Marathon] are the companies currently operating in Alaska's historical oil basin of Cook Inlet. She directed attention to maps in the committee packet regarding Cook Inlet and North Slope oil and gas activity and noted the Department of

Natural Resources (DNR) develops the maps about twice a year, these October 2018 maps being the most recent. She said the map on slide 3 of Cook Inlet oil and gas activity gives a good synopsis of what can be expected to happen. Displaying slide 4, she pointed out that Hilcorp plans a very aggressive schedule of drilling and workovers in a variety of locations throughout Cook Inlet and Glacier Oil and Gas is scheduled to begin drilling operations at the Osprey Platform in June. About 16 offshore rigs are currently in Cook Inlet, along with operations and production onshore, she added.

MS. MORIARTY displayed slides 5-6 and said AOGA also represents Interior companies [Petro Star Inc. and Alyeska Pipeline Service Company]. She noted that Arctic Slope Regional Corporation is the sole owner of Petro Star, which runs a refinery in Valdez and a refinery in North Pole. She related that Petro Star has a total of 335 employees, with over 150 in the combined Fairbanks and North Pole area, and that the refinery's primary products are jet fuels, special products for the military, home heating fuel, and low-sulfur diesel. She pointed out that a refinery has been operating in Nikiski for almost 50 years, which has had a variety of owners and is currently owned and operated by Marathon. She said Marathon has nearly 300 employees statewide, and 99 percent are Alaska residents, and the refinery produces quality fuel products used by Alaskans every day, such as gasoline, jet fuel, diesel fuel, propane, and asphalt. These three refineries, she emphasized, are shining examples of Alaska's in-state manufacturing sector.

MS. MORIARTY moved to slides 7-9 and highlighted North Slope activity. She stated that on 4/6/19 Hilcorp started production on Moose Pad in Milne Point, with 3,000 barrels per day currently being produced, an expected total recovery of 62 million barrels, and a total pad construction and drilling cost of $450 million. She reported that Hilcorp is also leading the way by working with the University of Alaska Fairbanks and the National Energy Technology Laboratory in funding the first ever pilot project to try to validate the use of polymer floors for heavy oil enhanced recovery. This project, she continued, could unlock for economic recovery the billions and billions of barrels of heavy oil that are thought to be on the North Slope. She related that Glacier plans a rig workover at Badami [in summer 2019] and Eni continues to plan additional exploration work at Harrison Bay and other field development at its current Spy Island operation. She said Repsol is partnering with Oil Search to get the Pikka Unit sanctioned for development.

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CO-CHAIR TARR requested further information about Glacier Oil & Gas Corporation and noted the company has not yet been before the committee.

MS. MORIARTY replied that Glacier has been an AOGA member for a couple of years, so it is not AOGA's newest member. She said Glacier acquired some of the Buccaneer properties in Cook Inlet several years ago and then acquired the Badami Field on the North Slope, so Glacier is unique like Hilcorp in that the company has assets in Cook Inlet and on the North Slope. She noted Glacier is based in Anchorage, has a small team, and has acquired other assets that have been in Alaska for some time.

CO-CHAIR TARR inquired who the newest member of AOGA is.

MS. MORIARTY responded that Repsol is newest in that it recently rejoined AOGA a couple weeks ago, as did ConocoPhillips.

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MS. MORIARTY resumed her presentation. Turning to slide 10, she stated it would make sense to assume that record high oil prices would result in increased oil production. However, she said, that was not the case from 2008-2013 when oil prices skyrocketed and yet Alaska lost about 185,000 barrels per day. The good news, she continued, is that policies were changed, and the production decline stemmed and leveled off, as depicted in green on the graph, which is important for state revenue and jobs. She pointed out that declining production causes operational challenges for the Trans Alaska Pipeline System (TAPS) and the Cook Inlet pipelines, plus it costs more per barrel when there are less barrels to share the costs. So, she added, this new trend line is encouraging for a host of reasons.

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REPRESENTATIVE RAUSCHER asked whether another tax policy change would be able to affect the decline.

MS. MORIARTY answered it would depend on how the policy is changed because the industry responds to policy. Investment in capital dollars is very competitive, she advised, so to remain competitive, competitive policies need to be maintained.

REPRESENTATIVE RAUSCHER inquired whether there is any way Ms. Moriarty could see an adjustment helping.

MS. MORIARTY replied that having more encouraging policies would, in theory, increase production and investment, but without a proposal she can't speak to any specifics.

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REPRESENTATIVE RASMUSSEN posed a scenario of removing $1 of the taxable credit, making the maximum be $6-$7 for credits for transportation costs for oil companies. She asked what impact this would have in total for the industry.

MS. MORIARTY surmised Representative Rasmussen is referring to the per barrel credit that is used as a calculation for the tax rate. She said any adjustment downward is an automatic tax increase on the industry, so that is less money the companies have to invest in Alaska.

REPRESENTATIVE RASMUSSEN inquired as to what a change of $1 would be in total for the industry.

MS. MORIARTY deferred to the Department of Revenue (DOR) for an answer, but estimated that at current prices and production a total repeal would be about a $1.2 billion tax increase.

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MS. MORIARTY returned to her presentation and stated that Alaska could be doing a lot better in stemming the decline. She explained slide 11 depicts the most recent data [August 2018-January 2019] from the Energy Information Administration for a six-month average for production from the seven largest producing states in the U.S. She noted that Alaska is sixth in production [479,000 barrels a day], but pointed out that when she started with AOGA 14 years ago Alaska was second.

MS. MORIARTY turned to slide 12 and further pointed out that Alaska has fallen behind while the U.S. has become the world's largest producer. She said Alaska has been surpassed by other states and has become a tiny fraction of the total production from the U.S. She maintained Alaska doesn't have to stay in sixth place because it is known that about one-third of all of the U.S. reserves onshore and offshore are in Alaska. She recalled that a variety of legislative consultants through the

years have said Alaska's policy should focus on one thing – how to get more oil and more oil production.

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REPRESENTATIVE RAUSCHER asked what the reason is for Alaska falling behind.

MS. MORIARTY responded that companies are working to stem the decline in Alaska's aging 40-year-old fields, and they are investing in new fields. In North Dakota and Texas, she said, technology, price, and innovation have unlocked resources that were thought would never be economically feasible. Companies have also become incredibly efficient in driving down the costs to make those fields profitable and economic, she continued. Alaska still has a lot of oil, but is a very challenging place to do business, she said, and later on the committee will be hearing about some near-term projects that could bump up that [number of 479,000 barrels a day].

1:38:44 PM

REPRESENTATIVE SPOHNHOLZ remarked that it is not so much that Alaska has dropped in production as it is that other states have had dramatic increases in the Permian Basin during the timeframe depicted on slide 11. She recalled Ms. Moriarty stating that technology allowed previously uneconomic fields to become economic now and inquired whether those technology changes are serving in Alaska.

MS. MORIARTY answered yes; industry has been utilizing hydraulic fracturing on the North Slope for 50 years and counting. She said if hydraulic fracturing couldn't be used there wouldn't be production from most offshore platforms, Oooguruk being an example. The forthcoming speakers, she related, will be talking about how they are utilizing advanced technologies in Alaska. Ten years ago Alaska was at around 700,000 barrels a day, so the state has the potential for more production than it does today, she advised, but it is never going to be 4.76 million barrels.

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MS. MORIARTY turned to slide 13 and continued her presentation. She said Congress passed a bill authorizing two lease sales in the Arctic National Wildlife Refuge (ANWR) and later this year a final Environmental Impact Statement (EIS) for a lease sale is expected. The Energy Information Administration has now started

to forecast production from the refuge, she continued, so the next generation of oil and gas is being talked about, with peak production likely in about 2040. She pointed out that the black line on the chart represents the base case reference case, or the average of what is thought will be produced. She said the Department of Revenue (DOR) does the same thing when it gives a production forecast, but DOR might call it something different. She noted the chart shows that the base case for production could be over 1 million barrels per day just from the refuge alone. The point, she added, is that the future is incredibly promising because it is known the resources are available.

MS. MORIARTY moved to slide 14 and stated that for decades the oil and gas industry has produced the most revenue for the state and local governments in Alaska. She said the projected total of unrestricted and restricted oil revenue to the state for fiscal year (FY) 2020 is $2.3 billion, and local governments are projected to receive $440 million. In addition to taxes, she noted, industry pays fees to a variety of state agencies [for example, $7.6 million to the Alaska Oil and Gas Conservation Commission (AOGCC) Regulatory Cost Charge and $7.0 million to the Spill Response Fund]. She displayed slide 15 and explained the pie chart represents a summary of total revenue to the state, local governments, and a variety of agencies from the oil, mining, and commercial fishing industries. She turned to slide 16 and noted the chart comes from the 2017 McDowell report on the seafood industry. The chart, she specified, shows that oil and gas represents nearly a third of all wage and salary jobs in Alaska, meaning oil and gas creates more jobs than seafood, visitor and mining combined.

1:43:57 PM

REPRESENTATIVE HANNAN inquired as to how many of those jobs are permanent residents of Alaska.

MS. MORIARTY displayed slide 17 and replied that 100,000 jobs are Alaska residents. She said the McDowell Group study, funded by AOGA, looked at Alaska-based zip codes to determine jobs and wages, rather than the Permanent Fund indicator that is used by the Department of Labor and Workforce Development for resident hire. She related that in 2016 AOGA members - called the "primary oil and gas companies" in the study - provided 4,275 Alaska residents with jobs, which is 80 percent of the roughly 5,000 jobs that the primary companies employ in Alaska. She said that that generated 6,000 resident jobs in the oil and gas support service industry, which then created another 35,000

indirect and induced jobs, and 58,000 jobs are related to the oil and gas taxes and royalties that the industry pays. She specified that 100,000 is the number of Alaska residents whose employment can be attributed to the oil and gas industry.

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REPRESENTATIVE HANNAN brought attention to the chart on slide 16 that compares [the total jobs and income created by] the oil and gas, seafood, visitor, and mining industries. She surmised the chart shows not just the 4,275 direct employees of the industry that are Alaska residents, but also the service sector and indirect jobs. She asked whether the number of seafood industry jobs depicted on the chart also reflects the indirect jobs.

MS. MORIARTY offered her understanding that all the industries [depicted on the chart] in this summary slide include direct and indirect jobs, that it is a like-like comparison. She said she could double-check the figures.

CO-CHAIR TARR disagreed. She said she knows that the depicted number of seafood jobs [36,800] is for direct jobs.

MS. MORIARTY answered that there may be more direct jobs in the seafood industry, but these [numbers] are Alaska resident jobs.

CO-CHAIR TARR maintained that that number could not, then, include the other categories because it is too low.

MS. MORIARTY replied that the chart is from the [McDowell] seafood report and she would go back and look.

REPRESENTATIVE HANNAN asked what the total number of direct jobs is in oil and gas in Alaska, besides the Alaska resident jobs.

MS. MORIARTY responded that the total number of direct jobs by the primary companies in 2016 was just over 5,000, so 85 percent of that 5,000 were Alaska residents.

REPRESENTATIVE RASMUSSEN offered her belief that perhaps the question Representative Hannan was coming from was the percentage of overall employees. She said it is interesting to note that Alaska residents in this industry make up 85 percent of the primary [companies], while [previously presented] slides for fisheries stated about 50 percent are Alaskan employees.

1:48:11 PM

CO-CHAIR TARR recalled that 2016 was a higher than average employment year on the North Slope. She offered her belief that in 2019 the primary employment is more in the range of 3,500.

MS. MORIARTY answered she would have to double-check. She said AOGA updates this study every three years, so it is due to be updated in the next 12 months and she doesn't have that number off the top of her head.

CO-CHAIR TARR inquired whether AOGA has a study from 2013 that could be compared to [the 2016 study].

MS. MORIARTY replied yes, AOGA has studies for 2016, 2013, and 2009.

CO-CHAIR TARR requested that Ms. Moriarty share these studies with the committee. She recalled seeing a slide sometime in the past that showed a spike [in jobs] that paralleled the spike in prices, but returned to the historic levels of 3,500-4,000.

MS. MORIARTY agreed to get that answer to the committee. She said AOGA's primary company resident hire stays in the 80-85 percent range regardless of the number of direct employees on the North Slope and in Cook Inlet. It is important to note, she added, that for every $1 earned by AOGA's primary company direct employees, another $8 in wages is generated throughout the state of Alaska.

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MS. MORIARTY resumed her presentation. She said Alaska needs all its industries to be successful and her presentation is not about "us versus them." She stated she was trying to put it in context based on the reports the committee has seen in the last few weeks. Clearly, she continued, [oil and gas] stands out, no other industry comes close to the economic impact that [the oil and gas industry] has statewide, but the state needs all industries to be successful.

MS. MORIARTY moved to slide 18 to discuss the future of oil and gas globally. She noted the source for the charts depicted on the slide is the "World Energy Outlook 2018," a report published by the International Energy Agency. She said the three pie charts on the top left show the growth in global demand by sector from 2000 to 2017 to 2040 and the four pie charts on the bottom left show the composition of fuels used to provide

worldwide energy. She explained that the first of the four charts compares 2017 to three different policy scenarios in 2040 that might be adopted by countries globally. She noted that gas is shown in purple and oil is shown in red, and pointed out that [the percentage of] renewables grows in every policy and the percentage of oil and gas remains at about 53-54 percent of the energy supply over the next three decades.

REPRESENTATIVE HANNAN inquired about the abbreviations used in the pie charts.

MS. MORIARTY responded that "mb/d" in the top three pie charts stands for million barrels per day and that she would get back to the committee as to what "Mtoe" stands for. [It stands for millions of tons of oil equivalent.] She added that the report is about 350 pages and her point in showing these charts is to demonstrate that the world needs oil and that oil and gas are still going to be more than 50 percent of the energy mix for the next several decades.

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MS. MORIARTY continued her presentation. She said the graph on the right of slide 18 demonstrates why investment is needed over the next 30-40 years. According to the report, she related, without new investment from 2018 onward, global oil production could be cut in half, but the demand for oil and gas would still be there. She stated that the world needs energy and policies are being adopted to ensure energy efficiency for taking care of the climate, but the reality is that oil and gas are still going to supply over 50 percent of the world's energy for at least the next 30-40 years.

CO-CHAIR TARR observed [from the four pie charts on the bottom left] that renewable energy is expected to double over that time period. She offered her understanding that some of AOGA's member companies are presently involved in renewable energy. She asked whether AOGA would at some point become comprehensive in that energy portfolio and expand its mission.

MS. MORIARTY answered that AOGA's mission is for the long-term viability of the oil and gas industry in Alaska. She said other organizations are looking at water, wind, and solar, and right now AOGA has not expanded its mission. As the industry evolves, she continued, it could be something the board decides to do at a later date and would depend on how that matters in Alaska. She added that she doesn't see it any time soon because

renewables are very challenging in Alaska and she has her hands full right now just advocating for the long-term viability for oil and gas.

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MS. MORIARTY turned to slide 19 and continued her presentation. She stated that [exploration] for oil and gas doesn't happen without investment, as demonstrated by the boom in the Lower 48. She said the oil and gas industry was expected to spend close to $120 billion in capital and exploration projects, with Alaska slated to get about 2 percent of that. Drawing attention to the bar graph, she said expenditures in North America, depicted in dark red at the bottom of the bars, are expected to grow for the next several years and could exceed $200 billion in 2025.

MS. MORIARTY addressed the recent news headlines displayed on the right side of slide 19 and said they show that Alaska needs to remain competitive. For example, she noted, the Wall Street Journal article highlights that Chevron is expected to double production in the Permian Basin of west Texas and eastern New Mexico. The Permian Basin, she pointed out, is the reason why New Mexico is currently the third largest producer in the U.S., with ExxonMobil possibly having a million barrels a day in that basin alone by 2024. She said this same article points out how competitive the industry is in that it reports ExxonMobil can generate a 10 percent rate of return at $35 oil. Companies will invest based on a variety of factors, but clearly rate of return is important, she continued, and that is playing out with the public bidding war between Chevron and Occidental Petroleum, along with Berkshire Hathaway, for Anadarko, a company that used to be in Alaska. The industry is very competitive and highly fluid, she advised, and Alaska needs to remain competitive to be considered a player in the global market.

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REPRESENTATIVE HOPKINS concurred Alaska must remain competitive. Bringing attention to slide 14, he agreed it is unequivocally true for Alaska that oil and gas produces the most revenue. He observed that the FY 2020 unrestricted oil revenue [to the State of Alaska] is projected to be $1.754 billion. He asked what the revenue is to the North Slope producers over this same time period in order to arrive at the $1.754 billion.

MS. MORIARTY replied that since AOGA is a trade association it must comply with strict antitrust laws. She said she therefore

doesn't know the answer to that question because the profits and returns of individual members cannot be talked about.

2:00:30 PM

REPRESENTATIVE RASMUSSEN addressed slide 19 and keeping Alaska competitive. She surmised that again changing Alaska's oil and gas tax structure wouldn't keep Alaska competitive, but inquired whether – from AOGA's perspective - maintaining the stability is sufficient for keeping Alaska competitive. She further inquired if something else could be done to make Alaska more competitive.

MS. MORIARTY responded that AOGA is not currently advocating for any changes to the tax structure, investment opportunities, or policies in Alaska. At the new administration's request, she continued, AOGA is identifying regulatory changes. She said AOGA has met with the Department of Revenue (DOR) on improving the audit process, the Department of Natural Resources (DNR) on a couple of policies, and the Department of Environmental Conservation (DEC) on making things more streamlined and eliminating duplication in regulation and oversight. She stated this doesn't mean oversight isn't wanted, but that the oversight is sometimes duplicative and could be more efficient and modernized to match the industry's changing technologies.

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REPRESENTATIVE HANNAN returned to slide 6 regarding refineries. She asked how much of the product from those three refineries is consumed in state and offered her presumption it is 100 percent.

MS. MORIARTY answered it is almost 100 percent in that, while rare, there are situations where it is shipped out of state.

REPRESENTATIVE HANNAN asked what percent of Alaska's consumption of those products is being refined in state.

MS. MORIARTY replied she doesn't know the percentage by product and will get back to the committee with an answer. She pointed out that products used by Southeast Alaska consumers come up from refineries in Washington state because transportation costs are cheaper from there versus Valdez or the Kenai Peninsula.

REPRESENTATIVE HANNAN asked if bunker fuel is a refined product.

MS. MORIARTY responded she is unsure.

2:05:05 PM

REPRESENTATIVE RAUSCHER drew attention to slide 12 and offered his assumption that [industry] is constantly exploring and finding new ways to produce oil and gas in the U.S. He observed from the chart that Russian and Saudi Arabia are holding steady [in their production]. He asked why they are holding steady and whether it is by design.

MS. MORIARTY answered she cannot speak specifically to other countries and what their policies are, she can only tell the committee what the data shows. She stated slide 12 shows the combined production of gas and oil and the U.S. has increased in both oil and gas. At one point in time, she noted, the U.S. was importing gas and creating terminals to bring more gas into the country, but now those have been turned into export facilities.

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MS. MORIARTY moved to slide 20 and concluded her presentation. She said it is the industry's great people who bring the oil and gas out of the ground, refine it, and ship it to market. She drew attention to a profile in the committee packet of Klint Vanwingerden, an Alyeska Pipeline Service Company employee. She said he is part of the next generation of energy workers who are committed to using the most advanced technologies, engineering, and pipeline management systems. She further noted that Mr. Vanwingerden is part of the team striving to ensure that TAPS is viable for the next 40 years.

2:08:19 PM

SCOTT JEPSEN, Vice President, External Affairs and Transportation, ConocoPhillips Alaska, Inc., provided a PowerPoint presentation titled "North Slope Outlook," dated 5/1/19, regarding his company's plans on the North Slope. He displayed slide 2 and noted that because he is making forward-looking statements, committee members might want to read the cautionary statement.

MR. JEPSEN explained the map on slide 3 shows the areas on the North Slope where ConocoPhillips has working interests. He said ConocoPhillips has about a 36 percent working interest in the Prudhoe Bay Unit, which is operated by BP; a 95 percent working interest in the Kuparuk River Unit; and a 100 percent working interest in the Western North Slope (WNS) [comprised of the Colville River, Greater Mooses Tooth, and Bear Tooth units]. He

explained that the black and white dashed line is the boundary of the National Petroleum Reserve-Alaska (NPR-A). He pointed out that the Alpine Field is located within the Colville River Unit and noted he uses these two terms interchangeably when talking about Alpine. Mr. Jepsen stated that over the last year ConocoPhillips increased its ownership of the Kuparuk River Unit and the Western North Slope. He said ConocoPhillips bought out its co-ventures there primarily because the company had a different vision and desire for pace of development there.

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MR. JEPSEN said the graph on slide 4 summarizes ConocoPhillips' perspective on the North Slope and how it has changed over the years. The steadily declining grey bars, he said, depict his company's long-range plans as they were in 2013, at which time the anticipation was for production to be about 100,000 barrels a day in 2028. The red bars, he stated, depict ConocoPhillips' present day anticipation that production will rise to upwards of 300,000 barrels a day in 2028 of net production coming from the company's North Slope working interests. He noted that if the company's acquisitions were taken out of this the anticipation would have been for around 250,000 barrels a day. But by any measure, he continued, it is a radical change in the company's perspective. He explained the red bars fade out at the top to indicate that it isn't a hard number because ConocoPhillips has a lot of running room in exploration and is unsure where that production is going to peak.

MR. JEPSEN discussed the drivers of transformation listed on the right side of slide 4. He said the fiscal framework improved in 2013 when the state moved from [House Bill 2001], Alaska's Clear and Equitable Share (ACES), to Senate Bill 21, an act that made Alaska competitive for investments again. Over the last few years, he continued, ConocoPhillips has focused on its core fields and in Alpine and Kuparuk the increased drilling was successful. He said technological advancements have been made in drilling and in some areas of the North Slope ConocoPhillips is leading what is going on in the shale developments. He pointed out that the last downturn was tough on everybody and ConocoPhillips was in a tough spot when oil prices dropped below $30 a barrel. However, he said, the industry as a whole, not just in Alaska, took a lot of cost out of the system; for example, in some places the breakeven cost fell by $20-$30 a barrel. ConocoPhillips was able to take a lot of costs out of its system in Alaska, he related, so Alaska is still competitive with the company's other investments in places like Texas and

North Dakota. The corporate center allocated dollars for exploration in Alaska, he added, which has been successful and is driving the shape of the curve depicted on the graph.

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MR. JEPSEN moved to slide 5 and reviewed the significant changes that drilling has undergone. He recalled that during the early days in Prudhoe Bay, about 1970, a drill site was approximately 65 acres, spacing between wellheads was about 20 feet, and a radius of 3-4 square miles could be drilled from a single drill site. Today, he said, the size of a drill site has shrunk to about 12 acres, spacing between wellheads is about 20 feet, and a radius of 55 square miles can be developed, depending on depth, from a single drill site. He related that Doyon Drilling is now building the next generation of drilling rig for ConocoPhillips, called an extended-reach drilling (ERD) rig. The drill site will still be 12 acres, he explained, but [a radius of] 154 square miles can be developed from this single drill site.

MR. JEPSEN stated the story gets even deeper because of the incredible directional drilling technology being employed right now. He related that if the ERD rig was in the ConocoPhillips tower in Anchorage it could drill over to the south side of Anchorage and put that drill bit inside Cabella's gun safe. He further related that in 2018 in the Alpine Field, ConocoPhillips set the record for the longest horizontal well drilled in North America - 21,000 feet in zone. To do this, he explained, a hole was cut in the side of the primary wellbore through which the directional drilling assembly went out and into the producing sand. Even though faults may have shifted that sand up or down, he said, the directional drilling assembly could be kept in that sand because the contractors have tools that can see ahead. When faults are seen, the drill bits are adjusted through pressures in the drilling mud to go around the fault and then back into the sand. Mr. Jepsen said another lateral was drilled above that, giving another 10,000 feet in zone before running out of sand, and therefore one wellbore had over 31,000 feet, about six miles, of [pay, which is defined as a reservoir or a portion of a reservoir that contains economically producible hydrocarbons]. He compared this to Prudhoe Bay in the 1970s when only 280 feet of pay would have been open to the wellbore.

MR. JEPSEN stated this technology makes a huge difference: smaller drill sites, fewer drill sites, fewer roads, less gravel, fewer pipelines, and fewer wells. He said this means

that accumulations can now be developed that probably would not have been economic 20 years ago. A lot of this technology is technology that is being used in the shales, he continued, but ConocoPhillips is pushing that horizontal technology further in Alaska than it has been pushed in the shale places.

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REPRESENTATIVE RASMUSSEN asked when the extended-reach drilling technology is going to be rolled out. She further asked what the cost savings look like from the efficiencies realized from this larger underground footprint.

MR. JEPSEN replied that ConocoPhillips anticipates having the ERD rig up on the North Slope in April 2020 and said the cost savings are highly dependent upon where the company will be developing. He noted that today's 55 square miles compared to [154] square miles means that one-third fewer drill sites will be needed.

REPRESENTATIVE RASMUSSEN inquired whether it would be reasonable to say that one-third more production could be done within the same cost if using the ERD.

MR. JEPSEN responded that it's not that simple because it's dependent upon the field being developed, the reservoir quality, and the reservoir thickness. However, he added, it does allow for the drilling of things that couldn't otherwise be reached because putting a drill site out there wasn't affordable. Also, he said, it will allow for thinner sands that couldn't have been produced with conventional technology.

2:17:12 PM

REPRESENTATIVE HANNAN inquired whether there has been a change in the rigidity of the drill pipe itself as well as the robotics going through it.

MR. JEPSEN answered that there are no robotics. He explained that with these much more advanced systems the driller has a two dimensional (2-D) picture, but gets a good view in terms of 3-D of where that drill bit is in the ground, where the wellbore is, and where all the other wellbores of a site are. Regarding the pipe's rigidity, he said there is no new technology - the pipe has a certain amount of degrees of bend per 100 feet and that is considered when determining where to kick off the wellbore. He added that there is another type of rig called a coiled tubing

drilling rig, where the tubing is run into the hole and can be bent almost vertical in a short turn radius of about 100 feet. He explained it looks like an oversize garden hose on a spool, with a continuous drilling string of 10,000-12,000 feet of coiled tubing on a single spool. He said ConocoPhillips has deployed coiled tubing for going back into existing fields, primarily for bypassed oil in places like Alpine, Kuparuk, and Prudhoe Bay. He stated it accounts for a tremendous amount of his company's production right now; for example, about 30 percent of Kuparuk's current production.

2:19:34 PM

MR. JEPSEN turned to slide 6 and continued his presentation. He said the map depicts the various projects that ConocoPhillips is progressing on the Western North Slope. He related that CD5 was started in 2012, GMT1 is on stream, and that the company is now moving ahead with GMT2, Fiord West, and Willow. Fiord West, he noted, is located in the northwest corner of the Alpine Field and is the reason for building the ERD rig. He elaborated that ConocoPhillips was unable to figure out a way to economically develop its leases there given they are on the coastline, a very sensitive place to permit. He said the ERD rig is going to allow development of that accumulation from the CD2 drill site. About 12 acres of gravel have been put down to accommodate the new wells, he stated, but no pipeline or roads will be needed on the coast and the difficulty of permitting on coastal wetlands will be avoided. Basically, he continued, the ERD rig is going to allow development of an accumulation that couldn't have been developed otherwise. He said current estimates are for a peak production of about 20,000 barrels a day from the Fiord West leases, a substantial addition to the Alpine Unit. He reported that ConocoPhillips is currently in the process of building GMT2 and first oil is expected in 2021 at probably 35,000 barrels a day of production. He noted that for projects like GMT1 and CD5, the peak workforce of about 700 construction jobs is during the winter. ConocoPhillips sources most of those construction jobs out of the union halls in Fairbanks, he pointed out, since hiring as many Alaskans as possible is a focus of the company. He added it would be about $1 billion in gross to develop GMT2.

2:21:37 PM

MR. JEPSEN related that the Willow Discovery, announced in 2017, is a substantial discovery at potentially 100,000 barrels a day. Displaying slide 7, he elaborated on the development plan for the Willow Discovery. He said BT1, BT2, BT3, BT4, and BT5 in

the Bear Tooth Unit are going to be the drill sites for the Willow development. He stated the production will be large enough and far enough away from existing facilities that a new central processing facility will need to be built at the location on the map labeled WCF [Willow Central Facility]. Other opportunities, he noted, are Greater Willow 2 (GW2) and GW1, a discovery made last year that is called West Willow. The core plan right now, he continued, is to use these sites to produce at Willow.

MR. JEPSEN specified that between the Willow Discovery and a couple of others, ConocoPhillips has found an estimated 500 million to 1.1 billion barrels of resource and the goal now is to translate that into reserves. He pointed out that resource doesn't mean reserves, it just means something is out there and now it must be determined if it can be produced economically. Willow accounts for 400-750 million barrels of the estimate, he said, and the process now is to narrow that to better understand what the accumulation looks like. He stated it is going to cost about $2-$3 billion in investment before getting to the first drop of oil; this money will be used to build roads, pipelines, the central production facility, and the initial wells. He added that another $2-$3 billion would be spent to drill up the rest of the project. He noted that places like West Texas don't require $2-$3 billion, generally speaking, to get out there and drill. However, he continued, in some instances there isn't infrastructure and pipelines; for example, ConocoPhillips had to do some of that in its Permian Basin and Eagle Ford Shale Formation production. He said that for Willow, ConocoPhillips expects a final environmental impact statement (EIS) from the Bureau of Land Management (BLM) in the last half of 2019 and a Record of Decision (ROD) is expected in 2020.

MR. JEPSEN drew attention to other discoveries shown on slide 7. He said ConocoPhillips discovered Stony Hill and Putu last year, but that Stony Hill is [not close to] infrastructure and the best way to develop this discovery is still being determined. Putu, he continued, is located inside the Colville River Unit and it is anticipated that another gravel pad will be put down and the discovery produced back through the Alpine facilities. He related that ConocoPhillips believes some of the Narwhal Trend or Nanushuk Trend can be drilled from CD4. He said a test well was drilled over into the Narwhal this last season and the hope is to drill another well off CD4 later in 2019 to continue trying to understand the geology of this particular exploration play, as well as to potentially inject water to have a long-term

test out of this play. Getting those tests, he explained, helps to understand the long-term producing potential.

2:25:08 PM

REPRESENTATIVE HANNAN observed on the map on slide 7 a circle delineated by red dashes and labeled "new gravel mine." She asked what the other circles with dashed lines indicate.

MR. JEPSEN explained the red circle is the most likely new gravel source with regard to Willow because the company's current gravel source is across the Colville River and is a longer haul to bring gravel over to Willow. The more that haul can be shortened the less the development costs, he said, and the hope is to find something even closer. But, he added, there aren't a lot of good gravel sources going west in the NPR-A. He said the other circles near GW1 and GW2 identify that there is some exploration and production.

REPRESENTATIVE HANNAN observed on the map on slide 7 a solid blue line that turns into a dashed line. She inquired whether this line indicates a road.

MR. JEPSEN responded that this is an ice road, not a full-time road. He said it is basically the road system: from CD4 the road can be taken to CD5 and GMT1, he thinks the road to GMT2 is in, and then a road will be built to WCF. He specified that a pipeline is also going to be built to take production from the Willow Central Facility back over to the Alpine pipeline, which then runs to the Kuparuk pipeline, which then runs to TAPS.

REPRESENTATIVE HANNAN observed a line on the map on slide 7 that connects BT4 with BT1 and BT2. She asked what it represents.

MR. JEPSEN answered that it is a spine road and that pipelines will be [built] there as well.

2:27:25 PM

REPRESENTATIVE RAUSCHER inquired whether ConocoPhillips is going to be able to keep up with, and build new pads as good as, those built by Hilcorp at Moose Pad at Milne Point.

MR. JEPSEN replied he is unaware of anything significantly different [between the pads of the two companies].

2:28:16 PM

MR. JEPSEN displayed slide 8 and resumed his presentation. He summarized the exploration work done by ConocoPhillips in 2019: eight wells were drilled; an exploration well was drilled on Cairn, which was drilled off of gravel at Kuparuk; the Putu well was drilled off of CD4 into the Narwhal; seven well tests were done; two reentries were made in Willow and four other new wells were drilled; two rigs were running; there were about 54 miles of ice roads for the exploration program and about 147 miles equivalent for all of the work done by ConocoPhillips in the NPR-A; and about 400 jobs were associated with the exploration projects.

MR. JEPSEN said the map on slide 8 depicts the exploration prospects that ConocoPhillips has yet to drill. He explained that Willow, West Willow, and the Narwhal Trend are discoveries, while the dark orange blobs are potential accumulations that have been identified from seismic. ConocoPhillips has only tested about 25 percent of its exploration portfolio, he pointed out. The company plans to start drilling next year in some of these additional opportunities in the hope of finding more oil, he said, which is the reason why the red bars were faded out on the graph he provided at the start of his presentation.

2:29:41 PM

MR. JEPSEN moved to slide 9 and discussed his company's core field activity. He said ConocoPhillips currently has seven rigs running - two are workover rigs at Kuparuk, one is a coiled tubing (CT) rig, three are development rigs, and one is an exploration rig. But, he added, towards the end of 2019 the number of rigs will be down to three. He said ConocoPhillips has about a three rig continuous drilling program that will be in place by the end of 2019. Once the ERD rig is brought out by the second quarter of 2020, he continued, the number of rigs will go up to four for the rest of 2020. The focus at Kuparuk, he explained, is infill drilling to find pockets of oil that were missed, as well as continued enhanced oil recovery (EOR) implementation. He related that ConocoPhillips is providing the infrastructure for other companies that are developing plays, such as Caelus, ENI, Brooks Range, and Oil Search. He said these other companies all drive the roads, use camps belonging to ConocoPhillips, and use the common carriage pipelines for moving oil to market. The focus at Alpine, he noted, includes development drilling at CD5 and Fiord West, and development at Putu, along with continued EOR implementation.

2:31:19 PM

MR. JEPSEN explained that slide 10 is his company's version of a map by the Department of Natural Resources (DNR) that depicts all of the opportunities on the North Slope. The core fields, he pointed out, still take a lot of attention and are still where a fair amount of his company's money goes. Those core fields are the heart and lungs of the North Slope, he advised, and must be kept healthy because they provide the infrastructure that makes possible the other smaller developments. He posed a hypothetical scenario in which all the production from new developments - like Liberty, Pikka, Nuna, and the places he has talked about - come on stream in one day, and said the production would be between 350,000 and 400,000 barrels a day. In actuality they will come on stream at different times, he continued. Mr. Jepsen related that, assuming everything talked about here happens and happens in the timeframe talked about by proponents, new production could be 200,000 barrels a day with an estimated $13 billion in capital expenditures (capex) over the next 7-8 years to develop all of this. He pointed out that the projects being talked about aren't just concepts, they are either being built, like GMT2, or are in the permitting process. He urged members to have confidence that results will be seen from this.

2:32:51 PM

MR. JEPSEN turned to a map of the Lower 48 on slide 11 and said the good news story on the North Slope isn't without challenges. One challenge, he noted, is all the opportunities for investment elsewhere and the "unconventionals" in the Lower 48 are the center of gravity for investment. He explained that the green areas on the map denote oil accumulations in the unconventionals, with the big three being the Eagle Ford, the Permian, and the Bakken. He said the areas shown in red are the natural gas plays, with the Marcellus being a huge accumulation at 400 trillion cubic feet of gas (TCFG). He pointed out that the numbers for the Lower 48 unconventionals are multiple Prudhoe Bays; for example, Eagle Ford's 35-60 billion barrels of oil equivalent (BBOE) is five times Prudhoe Bay's 13-14 BBOE recoverable. Therefore, he continued, attracting investment to Alaska is a big challenge because [the Lower 48] has tens of thousands of drilling opportunities, has a lower cost of supply, is closer to market, is easier to permit, and by and large has had stable fiscal policies. He explained that cost of supply is the metric that most of the industry is using today and it means breakeven price at 10 percent discount rate. He added that for

producers like ConocoPhillips, it has been helpful that Alaska's fiscal policy has been pretty stable since the passage of Senate Bill 21 and the citizens' initiative.

2:34:25 PM

REPRESENTATIVE SPOHNHOLZ recalled that ConocoPhillips had a goal a few years ago of trying to get production in Alaska to be profitable at $40 per barrel. She asked where the company is in that process.

MR. JEPSEN replied that that is still the goal because competing for capital cannot be done without meeting that hurdle.

REPRESENTATIVE SPOHNHOLZ asked what the timeframe is for meeting that goal.

MR. JEPSEN responded that ConocoPhillips is doing it.

REPRESENTATIVE SPOHNHOLZ remarked that that is fantastic.

2:34:54 PM

MR. JEPSEN turned to slide 12 and concluded his presentation. He specified that as a competing business, ConocoPhillips must always have access to lands with more resource. Regarding the regulatory side, he said Alaska does pretty well, although it takes a bit longer than other places to get permits. He stated that having a stable, competitive fiscal environment has played a key role in his company's decision to continue investing the billions of dollars that he has talked about. If there were an increase in the tax rate, he advised, it could be expected that ConocoPhillips would act like rational investors by looking at the economics, and if not competitive then those dollars would go elsewhere since the company does not lack for opportunities.

2:36:20 PM

DAMIAN BILBAO, Vice President, Commercial Ventures, BP Alaska, along with Scott Digert, provided a PowerPoint presentation titled "House Resources," dated May 2019. He displayed slide 2 and said the top left graph depicts global oil demand to the year 2050. He said today's demand is about 100 billion barrels a day and BP sees that continuing to increase with a billion more people expected on the planet through 2050, two billion of them currently without access to primary energy who are going to continue to seek that access moving forward. But, he noted, a

diversified [energy] supply is seen coming from renewables and natural gas, and so as the 2040s and 2050s are approached BP sees a "tip over point" in global oil demand. However, he continued, an interesting dynamic is seen when looking at oil supplies, which are depicted on the bottom right graph. He explained that the left bar on the graph depicts all the barrels that are in the ground in various regions around the world and the right bar depicts the sum of all the demand that is represented on the top left graph. He pointed out that there are two barrels in the ground around the world for every barrel that is going to be required over the next several decades, meaning half of those barrels are going to end up not being produced while the rest of the barrels compete for investment and make their way to market. So, he asked, where does that position Alaska in that conversation?

MR. BILBAO turned to slide 3 to answer this question. He explained that the graphic shows how all the different barrels of oil in the ground around the world compete against each other on a cost supply basis in the year 2025, assuming 10-12 million more barrels of oil are going to be required. He said looking from left to right along the x-axis shows there is a long list of oil sources throughout the Lower 48 and around the world that are going to be cheaper to produce than Alaska. He noted that Alaska is in the third quartile of competitiveness relative to other potential sources. He further noted that Alaska becomes more or less competitive (moves left or right on the graph, respectively) for investment depending upon whether [Alaska's industry] becomes more efficient, uses new technology, or counts on a change in the fiscal regime. He reminded committee members that when Senate Bill 21 passed [in 2013], the legislature's consultants said Alaska would move from the fourth quartile of competitiveness into the third quartile, which is what this slide from Wood Mackenzie reflects today.

2:40:00 PM

REPRESENTATIVE HANNAN returned to slide 2 and asked what "CIS" stands for in the bar labeled technically recoverable resources.

MR. BILBAO replied it is former Soviet countries. Responding further, he confirmed that Russia is included in that.

2:40:32 PM

MR. BILBAO moved to slide 4 and resumed his presentation. He said the graphic provides a comparison of six years under

Alaska's Clear and Equitable Share (ACES) and six years under Senate Bill 21. He pointed out that [during the time under ACES] the overall production from the North Slope, or production down TAPS, declined by 185,000 barrels a day, an equivalent to more than 1.5 times the size of Kuparuk, the second largest field in North America when it was discovered. After six years under Senate Bill 21, he continued, there has been a flattening of production to [a decline] of 18,000 barrels a day. He explained this is because investment has shifted to Alaska in a way that wasn't there during ACES and because Senate Bill 21 creates a fundamental policy incentive and requirement for production. To offset [Alaska's] high 35 percent base rate, he said, the producer needs to pull the barrels out of the ground and bring the barrels to market to earn the credits, and so the policy of Senate Bill 21 is working.

MR. BILBAO turned to slide 5 and discussed what a 1 percent decline under Senate Bill 21 versus a 6 percent decline under ACES means for the State of Alaska going forward for 40 years. He explained the graph takes a common starting point and the top light blue line is a 1 percent decline and the dark blue line is a 6 percent decline, and the difference between them is an additional $50 billion of revenue to the state under a 1 percent decline. He said policies that incentivize production and encourage a decline of 1 percent or less are going to result in greater revenue to the State of Alaska over time. He added that BP Alaska believes there is at least another 40 years of oil to produce from the North Slope that can compete in the very competitive landscape he previously talked about.

2:43:14 PM

REPRESENTATIVE RAUSCHER referenced the ongoing argument over whether credits should be repealed. He inquired how repeal of the credits would factor into the way that BP Alaska would look toward production and exploration.

MR. BILBAO offered his recognition of the difficult challenge before the legislature. In regard to how repeal of the oil tax credits would affect BP Alaska's investment decisions, he said it would effectively raise taxes on the industry by $1.3 billion. Referring to the graph on slide 3, he said a $1.3 billion tax increase on the industry would shift Alaska to the right in competitiveness and would cause other places around the world to compete more effectively for investment. For example, he continued, the many fields in the Lower 48 that are multiples the size of Prudhoe Bay, that are closer to market, and that are

without Arctic conditions would compete more effectively if Alaska were to shift to the right.

REPRESENTATIVE RAUSCHER recalled that the previous presentation had Russia steady and Saudi Arabia very steady. He asked why these countries are so steady in their production.

MR. BILBAO answered that keeping a field flat is incredibly challenging, so keeping a Russian or Saudi Arabian field flat requires a tremendous amount of investment to start with. Second, he said, a technological shift in U.S. production has enabled the shale revolution and is increasing the productivity of each well that is drilled. So, he continued, there is more production per well and more production in areas where there was no production before, while at the same time mature production is being seen in other places around the world. He qualified that this is his judgment and therefore he would have to go back and look at the data to verify his answer.

2:46:49 PM

REPRESENTATIVE RASMUSSEN asked what kind of impact it would be to reduce the tax credits by $1 instead of repealing them.

MR. BILBAO performed a "back of the envelope" calculation. He calculated that if the total in credits is $1.3 billion when it is $8 a credit, reducing it $1 is one-eighth and so a reduction of about 12.5 percent, which would be a tax increase of about $162 million for each $1 change in the tax credit. He qualified that this would vary depending on oil price and company, but that a tax increase of $162 million is the equivalent of multiple rigs running on the North Slope for a year, so it would be a material impact on industry's ability to fund activity.

REPRESENTATIVE RASMUSSEN asked how much impact on production would a tax increase of $150 million cause.

MR. BILBAO answered he cannot state specifically what it would be for that amount, but he can say that going from a 1 percent decline to a 6 percent decline would mean about 25,000 fewer barrels a day going down TAPS each year, which then compounds itself. He said 25,000 barrels a day less per year is the equivalent of one or two new oil fields coming online in a year.

2:48:38 PM

SCOTT DIGERT, Resource Development Area Manager, Greater Prudhoe Bay, BP Alaska, Alaska, displayed slide 6 and said that in 2017 BP Alaska celebrated the 40th anniversary of Prudhoe Bay's startup, which was significant because the field was designed to operate for 30 years. Now, 40 years later, he continued, 12.7 billion barrels have been produced, a third more than the original estimate of 9.6 billion recoverable barrels. Referring to the PBS40 Prudhoe Bay Seismic Survey, he said "PBS40" was shortened from "PBS40More" and the aspiration now is how to sustain Prudhoe Bay for another 40 years and how to provide the continuing level of investment, technology, innovation, and hard work that has gotten BP Alaska to where it is today.

MR. DIGERT moved to slide 7 and said the jagged grey dashed line delineates the Prudhoe Bay Unit boundary. Two surveys have been done, he noted. The 2015 seismic survey was conducted offshore with boats and shallow water techniques and the land survey used a new technique called Independent Source and Sweep (ISS), which enabled a lot more area to be covered with the same number of vibrator units running at the same time. The ISS technique worked so well, he stated, that in 2019 the technology was used to do the PBS40 survey on the rest of Prudhoe Bay. The 450 square miles completed this winter would previously have taken two to three seasons to shoot, he explained, but with the new ISS technology it only took one season and provided a 10-fold increase in the data density. So, ISS is better and larger at the same time, he added.

MR. DIGERT reported that BP Alaska is now going back into its computing system and joining the 2015 and 2019 surveys. He said that for the first time in Prudhoe Bay's history, the company has one survey using equivalent technology over the entire field. This is significant, he elaborated, because it is the basis used to target new wells and is about refining the targeting to smaller and smaller targets to find the right places to drill. He recalled that the initial wells drilled in Prudhoe encountered a nearly 400-foot oil column so targeting wasn't difficult – another well was just drilled 1,500 feet away from the last well and oil would be there. Now, he said, it is down to columns that are 15-20 feet thick and having to go into very small faulted compartments that may not have already been swept by oil or water. Right now, he explained, Prudhoe is mostly filled with gas, has a lot of water, and has a little bit of oil left, so getting back to these oil pockets that BP Alaska is drilling for requires better and better resolution and that is what this survey is meant to do.

2:52:32 PM

MR. DIGERT discussed the schematic on slide 8 depicting how the survey was executed. He said the survey started on the west side of the unit and worked across to the east. He brought attention to the area labeled "Ice Check" and explained that equipment is moved ahead of the survey units to look at the ice thickness on lakes and rivers to determine if the ice will safely hold the 90,000-pound vibrators and if hazards like snowdrifts and steep banks have been correctly located. In every unit is a sophisticated GPS system that has all of the hazards marked automatically so it is known when a unit is entering a hazard zone or a safe zone, he said. Behind the ice check equipment, he continued, geophones are put down (green area labeled "Layout"), to receive the signal from the vibrators and the information is actually recorded on the geophones in the blue area labeled "Active." Following that is the red line labeled "Vibes," which is where the vibrators are actually operating, he said.

MR. DIGERT elaborated that about a dozen tracked vehicle vibrators are used, each with a big plate in the middle that presses down under the snow and acts like a speaker, with a sweep from 3 hertz to about 105 hertz over 30 seconds, which is equivalent in a sonic register to the very low base end of a home stereo. This wave of low base rumble, he explained, is picked up as it passes down through the ground and every time it transitions from one kind of rock strata to another it causes a reflection that is picked up by the geophones. When done enough times, he said, it results in a very detailed 3-D image of what is down below. The vibration cannot be heard or felt, even when standing right next to the vibrator, he added. Each time after the plate goes down and comes back up, he said, the rig moves 100 feet ahead and does it again. Work is conducted about five miles ahead of the vibrators and the geophones are picked up about five miles behind the units, he continued. Once the geophones are picked up, the information is downloaded, the process is moved to the next row up ahead, and information is acquired again. He pointed out that the pink area on the far left of the schematic is the completed area and the area to the far right has yet to be swept.

2:55:36 PM

MR. DIGERT displayed slide 9 and noted that the top left picture is the ice check machine, which is a Tucker Snowcat pulling a ground-penetrating radar unit. He said the ice thickness

information is recorded, and lake ice needs to be at least 55 inches thick for the vibrator units. The middle picture, he explained, is of a wireless receiver that records to memory. This geophone/microphone unit is laid on the snow and includes a battery, receiver pack, and recording unit, he elaborated. Twenty days later it is picked up, the information downloaded, the data cleared, and then it is deployed again. The right picture, he said, is of a vibrator unit on wheels rather than on tracks, which saves almost 35,000 pounds of weight.

MR. DIGERT turned to slide 10 and concluded his portion of BP Alaska's presentation. He summarized by highlighting that the [2019 PBS40] seismic survey: covered 450 square miles; was accomplished in one season (three months); was finished on 4/17/19; acquired 561,000 sources; had 78,00 receiver locations; acquired 7.5 billion traces, a trace being one source to one microphone; and the units were driven the equivalent of twice around the world at the same latitude. He said super-computers located in Houston, Texas, will now process the more than 52 terabytes of information. The information is expected to be up on BP Alaska's office computers by mid-summer, he continued, and he expects to start generating targets by the end of the year. If successful, this will feed the next decade or so of drilling at Prudhoe Bay, he stated.

REPRESENTATIVE HANNAN asked how long the vibration cycle is once the plate touches the ground.

MR. DIGERT replied it takes 35 seconds to do one sweep and then the unit is moved another 120 feet and it is done again.

2:58:54 PM

J. BENJAMIN JOHNSON, President/CEO/Director, BlueCrest Energy Inc., provided a PowerPoint presentation titled "BlueCrest Cosmopolitan Overview," dated 5/1/19. He began by pointing out that the major oil companies have tremendous assets and huge staffs, while BlueCrest is a tiny company. He said BlueCrest and other small companies coming to Alaska have brought state-of-the-art technology. Turning to a map of Cook Inlet Basin on slide 2, he noted that BlueCrest's Cosmopolitan Field is the southern-most field in Alaska.

MR. Johnson moved to slide 3 and stated that the Cosmopolitan Unit is located offshore, has had 11 wells drilled, and a 3-D seismic survey and analysis have been done. He said BlueCrest knows that about one-half billion barrels of oil and about one-

quarter of a trillion cubic feet of gas are in the ground there, but it is unknown how much of that the company will be able to get out of the ground and when.

CO-CHAIR TARR requested Mr. Johnson to point out the location of the onshore surface lease.

MR. JOHNSON replied it is about seven miles north of downtown Anchor Point on the edge of Cook Inlet.

3:00:51 PM

MR. JOHNSON displayed slide 4 and resumed his presentation. He explained that this oil and gas discovery is located three miles offshore. However, he continued, BlueCrest did not want to put in an offshore oil platform to develop the reservoir, so an extended-reach drilling (ERD) rig is being used to drill the wells from onshore and there is no chance of an offshore oil spill with this method. He noted that BlueCrest's ERD rig is currently the most powerful drilling rig in Alaska, but it will be surpassed when ConocoPhillips gets its new ERD rig going. He stated that the Cosmopolitan gas supply is dry, no liquids are produced with the gas, and the plan is to develop this gas with a subsea option.

MR. JOHNSON said the picture on slide 5 is of BlueCrest's onshore facility. He explained the picture looks to the west [across Cook Inlet] and the subsea reservoirs are delineated on the picture. He noted slide 6 depicts the onshore facility's layout and said the facility will handle as much production as will ever be needed there.

MR. JOHNSON projected slide 7 and stated that to his knowledge BlueCrest is the first in the world to drill down and then up by using extended reach drilling, as depicted by the black line on the schematic which represents a recently drilled well called the H12. In the H12, he said, BlueCrest drilled over 31,000 feet of total measured depth, a massive project. He moved to slide 8 and explained the schematic is a 3-D seismic subsurface rendering of two of the many different sands [in the Cosmopolitan structure], the top one being a gas sand and the bottom one an oil sand. He drew attention to the well paths going into the sands. Moving to slide 9, a schematic of current Cosmopolitan well paths, he said these "fishbone" wells have yet to be seen anywhere else in the world – the wells are drilled down and then up and each rib is the equivalent of one well drilled from the surface onshore

3:03:47 PM

CO-CHAIR TARR inquired whether BlueCrest or someone else developed this fishbone technology.

MR. JOHNSON responded that BlueCrest developed this technology itself, using its great technical staff and consultants, many of whom work with people on the North Slope.

3:04:06 PM

MR. JOHNSON moved to the schematic on slide 10 and continued his presentation. He stated that BlueCrest has proven it can drill fishbone wells and is now working on the next generation. He said BlueCrest is currently permitting its next well, which will be three fishbone wells out of one main wellbore to the surface. He pointed out that this reduces the cost of the well and tremendously speeds up the time to production.

MR. JOHNSON said the production graph on slide 11 shows where things currently are. He explained that new wells come on but decline quickly at first and then level out, and more wells are drilled, and they decline. Right now, he said, BlueCrest is producing 1,800-2,000 barrels a day of oil and about 7 million cubic feet a day of gas. He noted that each 1 million cubic feet a day of gas is equivalent in royalty to the state of about 100 barrels of oil. But, he added, this is just the start.

MR. JOHNSON turned to slide 12 and reported that BlueCrest has about 20 more wells it can drill and develop [in Cosmopolitan]. The key here is stability, he stressed, BlueCrest chose to come to Alaska because of the state's extremely positive tax credit program. The company invested roughly $150-200 million before getting the first drop of oil, he said, but at that point the tax credit program suddenly changed. BlueCrest was able to adapt to that, he continued, but then it didn't receive the money it was owed for the tax credits, which made another challenge. BlueCrest is working through that and will get this development done, he stated. However, he related, BlueCrest is a little company and must therefore deal with investors every month when it comes to needing more money for this or that. These investors invest all over the world, he advised, and it is absolutely a competition between what he is vouching for in Alaska and other places around the world. He said he therefore encourages committee members to please provide a stable environment, wherever it is. He offered his opinion that right

now it works, and companies are investing in today's environment. He pointed out that even a little change is a little leak in the dam and causes investors to worry that the policy is going to be changed going forward.

3:07:23 PM

REPRESENTATIVE RASMUSSEN offered her appreciation to all the presenters. She agreed that a change viewed as small by the state would increase the costs to investors and be viewed as a substantial change. She offered her hope that the state will be able to keep continued stability for oil and gas.

MR. JOHNSON responded that changing [the tax regime] in any way is important because that signals instability and uncertainty for the future. He again encouraged it be kept constant.

3:08:09 PM

REPRESENTATIVE HANNAN related that members receive a lot of political pressure, especially in the current situation, to resolve the state's fiscal dilemma. The two things that get talked about the most often, she said, are repealing the oil tax credits and the other is instituting an income tax. She noted that members hear from industry about the tax credits, but not about an income tax. She inquired whether Mr. Johnson is in a position where he could answer with his personal opinion.

MR. JOHNSON replied he cannot answer personally and is not prepared today to talk about an income tax. However, he added, an income tax is another tax and an increased cost to industry as well as to people.

REPRESENTATIVE HANNAN asked whether BlueCrest is a corporation or a limited liability company (LLC).

MR. JOHNSON responded that BlueCrest is a corporation.

MR. JOHNSON, in response to Co-Chair Tarr, confirmed BlueCrest is privately held by investors and is not publicly traded.

3:09:20 PM

REPRESENTATIVE TALERICO noted he always checks on the safety records of the companies in Alaska because it is important to always send employees home in the same condition that they came

to work in. He expressed his appreciation for the safety records of the companies in Alaska.

MR. JOHNSON concurred that protecting employees, as well as the environment, are the most important things and that profits are secondary. He said this has worked and BlueCrest has a very good safety record.

3:11:17 PM

ADJOURNMENT

There being no further business before the committee, the House Resources Standing Committee meeting was adjourned at 3:11 p.m.