ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE
January 26, 2018
3:30 p.m.

MEMBERS PRESENT

Senator Cathy Giessel, Chair
Senator John Coghill, Vice Chair
Senator Natasha Von Imhof
Senator Bert Stedman
Senator Kevin Meyer
Senator Click Bishop

MEMBERS ABSENT

Senator Bill Wielechowski

COMMITTEE CALENDAR

OVERVIEW: OIL AND GAS PRODUCTION FORECAST

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

PAUL DECKER, Petroleum Geologist and Manager
Resource Evaluation Section
Division of Oil and Gas
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: Presented overview of the oil and gas production forecast.

ED KING, Special Assistant to the Commissioner
Department of Natural Resources (DNR)
Juneau, Alaska
POSITION STATEMENT: Presented overview of the oil and gas production forecast.

ACTION NARRATIVE

3:30:15 PM
CHAIR CATHY GIESSEL called the Senate Resources Standing Committee meeting to order at 3:30 p.m. Present at the call to order were Senators Stedman, Bishop, Coghill, Von Imhof, Meyer, and Chair Giessel. Senator Wielechowski was excused.

3:31:20 PM
Overview: Oil and Gas Production Forecast

CHAIR GIESSEL announced today's only order of business was the overview of oil and gas production forecasting by the Department of Natural Resources.

PAUL DECKER, Petroleum Geologist and Manager, Resource Evaluation Section, Division of Oil and Gas, Department of Natural Resources (DNR), Anchorage, Alaska, introduced himself.

ED KING, Special Assistant to the Commissioner, Department of Natural Resources (DNR), Juneau, Alaska, introduced himself and said he would be available for questions.

3:32:12 PM
MR. DECKER outlined his presentation: The purpose is to describe the DNR Fall 2017 production forecast for this fiscal year. He would provide an overview and highlight production by comparing the Fall 2017 forecast to actual production and talk about the reasons for some of the production growth since 2015, a good news message. He would also make a comparison back to the Fall 2016 forecast and explore the reasons for some of the differences. He would go into this year's forecast objectives and review the methodology in following three tranches of production: currently producing (CP), under development (UD), and under evaluation (UE), and review some of the adjustments made to the methodology over the last year to better meet the needs of the Legislature and the Department of Revenue (DOR). He would review some of the results, both near term and longer term and review their forecast relative to recent production.

3:33:17 PM
MR. DECKER said everything in the forecast is probabilistic and is presented in a range. Happily, production is square in the mid-range, and overall the average for FY18 is expected to come in at 550,100 barrels per day. The current departure from the actual forecast is less than 1 percent.

3:35:05 PM
MR. KING said that 550,000-barrel number is total production including the North Slope and Cook Inlet. The North Slope number is more like 533,000 barrels.

3:35:23 PM
MR. DECKER said some of the reasons for the recent growth in production is from new projects coming on and efficiencies in some older large fields. The Kuparuk Unit drill site (DS)-2S (Sharks Tooth) has made a significant contribution as did the Colville River CD-5. The Prudhoe Bay Unit has increased efficiency overall which has resulted in holding production flat, for example: non-drilling rig workovers and bringing back wells on the inactive list. The reservoir models continue to be refined, which helps identify targets for additional workovers or sidetracks and things like that in the subsurface, and the facilities modeling has come a long way in planning and maintenance and the turn-around events.

3:37:34 PM
Future projects coming in: the 1H-News Project at the northeast West Sak in the Kuparuk River Unit is already online and the GMT-1 Lookout Discovery in NPR-A is going to come on later in 2018. Hilcorp will be drilling a substantial number of wells in the Kuparuk and Shrader Bluff formations from their new Milne Point Moose Pad. Further out, the Pikka Horseshoe trend started development in the north part and is expected to come on line in 2023, and the GMT-2 (further out in NPR-A from GMT-1) another Jurassic sands Spark Rendezvous accumulation, and the Willow accumulation from the Nanushuk formation are unfolding.

3:38:45 PM
MR. DECKER said some old discoveries are moving forward, like Liberty that has been on the books for a couple decades.

Why the difference in the outlook for this year's forecast versus last year's? Mr. Decker said this year they are considerably more optimistic. What is up in 2016 that is no longer true? Not just the forecasters, but the industry in general, was pretty gloomy about trends on the North Slope, he said. Everyone was struggling with the price falling. So, companies decreased their commitments of capital expenditures, which resulted in 80 percent of the forecasted pools in Alaska had no plans for new drilling in 2017. All those things contributed to an increasing decline story as opposed to the leveling off that they see now.

MR. DECKER said some of the adjustments in this year's forecast have been made because of the shortcomings in their forecast last year and explained that in the past they were very focused on correcting an over-optimistic bias in the long term. This year, realizing just how important the short-term, month-to-month seasonal fluctuation numbers are to the legislature and the Department of Revenue (DOR) introduced seasonal adjustments and monthly predictions into their forecast.

3:40:40 PM
CHAIR GIESSEL said some of the data that was used in the previous methodology used some confidential information from the companies and asked if they are still doing that.

MR. DECKER answered yes. They continue to have those kinds of meetings and will likely continue them into the future.

SENATOR STEDMAN said he understood that a couple times a year industry gives them an idea of what they expect capex and opex to be, so that data can be updated. He asked if this confidential data is included in those discussions or is this another data source outside of what they have normally talked about before.

MR. DECKER replied that this data has been included in the forecasting process for some time, not directly, but informing the overall forecast.

MR. KING added that capex and opex information is collected by the DOR to forecast their tax revenues, but DNR generates its revenues off royalties, which is gross figure, so they don't pay as much attention to capex and opex. Data is given to DOR as taxpayer confidential information and that information is shared with DNR after DNR has signed confidentiality agreements. That information is included as under-evaluation (UE) or under-development (UD) layers of the forecast.

3:43:04 PM
The other half of the forecast, what is normally called the base forecast (currently producing tranche) is all done with Alaska Oil and Gas Conservation Commission (AOGCC) data. In the past, that was done with confidential DOR data and held confidential, which limited DNR's ability to disaggregate those numbers. Using publicly-available data for the base forecast, they can now speak much more confidently and deeply about some of those fields and their production levels.

SENATOR STEDMAN remarked that the process is similar to what has been used historically.

MR. KING agreed and added that DNR is using the same data-set, but the difference is in how the modeling is done. In the past, "discrete models" were used and now they are using "stochastic models."

3:44:18 PM
MR. DECKER launched into more of the nuts and bolts and outcomes of the 2017 forecast. The objective was to provide a 10-year official production forecast for the Revenue Sources Book instead of five years, a significant change.

They also tried to increase focus on near-term accuracy by using monthly calculations of production that show very strong seasonality, whereas previously they were looking at straight-line annual trends. More emphasis is now placed on evaluating currently producing fields as the better predictor of the future rather than the long-term over-all trend of things.

MR. DECKER said slide 8 shows how the three tranches of production fall into the forecast. They have different timing criteria as well as different levels of confidence in how the prediction is going to work as expected.

-Currently producing (CP): decline analysis from public data
-Under development(UD): incremental oil from years 2-5 of the forecast - a high chance of success projects
-Under evaluation (UE): likely to occur in years 2-10 of the forecast

He explained that the UE projects don't necessarily have to be scheduled and part of an annual budget; they are all subject to the same kind of probabilistic stochastic treatments.

3:47:54 PM
He said slide 9 compared from the Fall 2016 versus Fall 2017 forecast. He explained that the Fall 2016 forecast was called "the pot of gold," in keeping with the idea that it was a little bit vague and hard to pin down but what they hoped would happen. This year they subjected all the projects to the same level of analysis: monthly rates with seasonal fluctuations versus the annualized rates and an emphasis on the near term but not taking their eyes off the ball for a realistic long-range outlook as

well. Three elements of risk were used in evaluating UE projects this year:

-chance of occurrence of the project within the forecast window
-first oil start-up date: when actual production starts
-probabilistic range in the expected profile of the development if it does come on line

3:49:58 PM

Slide 10 depicted what uncertainty looks like in each tranche and how it is handled:

-CP projects: a relatively small uncertainty range, especially becomes of the older fields have well-established behavior. They do decline curve analysis projects and using special software that has been developed at their request by Schlumberger to help get a quantitative estimate of the probabilistic range from P90-mean-P10 cases
-UD projects: they acknowledge there is more uncertainty than CP but it's a high likelihood that they will happen. They assign a 95 percent chance for each. The magnitude of production: samples from a range of possible production profiles and do a Monte Carlo stochastic roll-up comes out with the mean and the ranges.
-UE projects: least certain, financial risk, occurrence risk, the price forecast is unsure

3:51:56 PM

Near term focus in 2017

By weighting the decline curve analysis towards 2-5 years results in a probabilistic range from P90-P10 of what production in each of those pools should look like in the future. Another change is giving full credit to all the planned projects in the UD category. Previously, the thought was that the decline curve analysis of the historical production inherently factors in some level of base drilling or work-over activity, which is true, but they discovered they were underestimating last year UD production by discounting as much as they did. They find that this makes for a more accurate near-term production empirically. Leaving the UD projects in there helps make up for the rate increases that are also inherent in the historical data that come from non-drilling rate-adding jobs (the non-rig workovers, the facilities streamlining, and other operational efficiencies that are being squeezed out of the fields).

3:53:35 PM
SENATOR STEDMAN asked him to talk a little bit about how they plan on dealing with 1002 potential and the impact it may have on Point Thomson.

MR. DECKER replied they do not include ANWR for forecasting purposes, even in UE projects that haven't resulted in any discovery of oil. They also exclude it based on expectation of production within 10 years, all primarily because it hasn't yielded any discovery to evaluate.

SENATOR STEDMAN said there are expectations of seismic work, leases, and litigation, and asked if there is any information on that type of time horizon.

3:55:40 PM
MR. DECKER said he understood the desire to know more about how ANWR will play out, but he didn't have a good way to address all those things.

MR. KING said it is difficult to make predictions far out in the future that have any value. That is why their forecasts are re-evaluated every year. Historically, the DOR did attempt at include fields that were yet to be found, and those forecasts compared to what actually happened were overly optimistic. They tried to not completely throw out the production from those fields that aren’t well delineated or lack information, but to honor the amount of information they don't have by applying a "chance factor," a range of uncertainty around production rate and when it might occur. Instead of saying a unit or field is going to come on at 100,000 barrels/day 10 years from now, they now say: include 5,000 barrels based on what they know now. The model gets reassessed and updated as they continue to move. If the project continues to stay on schedule, more contributions are accounted in the forecast.

MR. DECKER added the DOR's commercial division has undertaken modeling of potential production and revenues from the ANWR 1002 Area and that should be available on their website. It is quite separate from the forecasting.

3:58:17 PM
The 2017 forecast results from the mid-1980s were on slide 12 depicting production peaking at over 2 million barrels/day off the North Slope largely and declining ever since with the exception of the early 2000s, because of the Alpine/Colville River discovery coming on line.

Slide 13 highlighted the last three years of actual production (black line) and added a mean forecast (blue line) going 10 years out. "Whiskers" represent the range of uncertainty growing longer in the out years of the forecast reflecting less certainty. He noted the "seamless" join between the history and forecast, because last year's forecast didn't have that. The decline was 1.5-2 percent overall.

4:00:12 PM
Slide 14 mapped the medium to long-range UE projects. He said the future originates sort of in the central part of the western North Slope and goes west into the middle of NPR-A and those will probably roll out as a series of developments rather than all at one time. Smith Bay is some ways out. It is challenged on location, infrastructure, and technical knowledge. It's too early to know how it will perform, but it is in the forecast.

SENATOR VON IMHOF said an issue that is becoming more prevalent is roads connecting these wells in all seasons. When producers can't access their wells for even an additional month, it has a ripple effect over time in their ability to produce oil. She asked his department's opinion on promoting year-round road-building and asked what has to be done to get permits and permission to do that.

MR. DECKER said he was here to speak about the forecast and couldn't speak for the commissioner, but the DNR actively supports the Arctic Strategic Transportation and Resource Project (ASTAR) project connecting communities.

MR. KING said they are working on the ASTAR, which was funded last year to connect communities throughout the North Slope. As a by-product, they expect those roads to also open some of the access to resources.

SENATOR VON IMHOF said she would like to learn more about the step-by-step process in getting ASTAR from concept to completion: what the roadblocks are and potential growth from there.

MR. KING said they would take that into consideration as they prepare materials for the committee.

4:05:08 PM
SENATOR BISHOP commented that 425 miles of road had to be built to get to Prudhoe Bay. So, we could do this.

MR. KING said as projects come on line and start to decline, others come on line and replace them. That is what creates the appearance of a smooth-lined forecast, which is the most likely scenario.

CHAIR GIESSEL asked where Smith Bay falls in prospectivity.

MR. KING answered that Smith Bay would normally not be included because it's start of production was beyond five years, but now that they are looking beyond into the 10-year window, Smith Bay is in that window if it stays on track. So, the contribution from Smith Bay is small today, but as they move forward and get more information, that should increase.

4:07:55 PM
MR. DECKER offered slide 15, a portfolio roll-up of UE projects plus the 1-H News project, which is now producing. He cautioned that this is their best estimate of how the overall portfolio should perform from 10 years out into the future; no one profile is the most likely outcome for any particular project. The profile is the product of the risking principles they started using.

4:11:53 PM
CHAIR GIESSEL asked if the potential capital expenditures that would happen with the UE projects were included as they calculated revenues in the Revenue Sources Book.

MR. DECKER answered no, but DOR would take care of that.

SENATOR MEYER thanked them for the presentation. He asked if Pikka and Willow are about the same size.

MR. DECKER replied that Pikka is estimated at 500-1.2 billion barrels of oil recovery and Willow may be 300 million barrels. There may be other reasons the profiles are different, though.

MR. KING added that the clearest distinction is in the number of exploration wells in those areas: Pikka has 16 exploration wells and Willow has one. So, a lot more is known about the resource at Pikka versus the other. Some of the public announcements are pegging them both at 100,000 barrels/day range, but that doesn't include number of wells, production rate, how the rate can be kept, and how fast it will decline. Just looking at a peak rate isn't a good indication of how much oil is really going to be produced. There is a lot more uncertainty around timing, as

well. Pikka is almost through the Environmental Impact Statement (EIS) process; Willow is a lot earlier in that process. But ConocoPhillips did announce in the Petroleum News about their exploration activities proving up Willow. So, next year they may know more.

4:15:08 PM
SENATOR MEYER asked how many wells are being drilled this winter.

MR. DECKER said there is one at Badami. He hadn't heard about Liberty having any drilling.

SENATOR MEYER said Hilcorp hopes to drill at Liberty, which is offshore.

MR. DECKER said that Eni is drilling a 35,000 foot well offshore of Nikiatchuq. ConocoPhillips has announced at least five penetrations at Willow and one at Stoney Hill. It is also drilling Putu 1 and 1A in what is formerly known as the Tofkat Unit. Those are all part of the Nanushuk Pikka-Horseshoe trend. The Willow trend is separate, but similar, which could turn out larger with additional exploration wells and tests being conducted there.

4:16:54 PM
SENATOR MEYER asked, with the announcement of opening more land in NPR-A, if he anticipated more lease sales happening soon.

MR. DECKER answered yes; if a lot of lands that are currently off limits to leasing become available, he would expect to see future lease sales there and significant participation in extending that acreage position into lands that are currently unleasable. ConocoPhillips, and to a lesser degree some others, have picked up a large swath of acreage over to the eastern boundary of unleasable acreage and he didn't know why they would stop there.

SENATOR MEYER said Caelus had mentioned needing $70 oil before they could actually produce it.

MR. DECKER responded that is very likely Nuna. He said the Nuna project had received royalty modification investments from DNR in the past and that may be required in the future.

SENATOR BISHOP commented that he was under the impression this was the busiest exploration season on the North Slope in the

last 20 years, and the 2004 Revenue Sources Book estimated that production in 2014 was supposed to be 942,000 barrels/day.

4:19:44 PM
CHAIR GIESSEL, finding no further comments, adjourned the Senate Resources Committee meeting at 4:19 p.m.