ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE
April 26, 2024
3:31 p.m.

MEMBERS PRESENT

Senator Click Bishop, Co-Chair
Senator Cathy Giessel, Co-Chair
Senator Bill Wielechowski, Vice Chair
Senator Scott Kawasaki
Senator James Kaufman
Senator Forrest Dunbar
Senator Matt Claman

MEMBERS ABSENT

All members present

COMMITTEE CALENDAR

PRESENTATION: ASSESSMENT OF UNDISCOVERED OIL & GAS RESOURCES

- HEARD

SENATE BILL NO. 194
"An Act relating to temporarily reduced royalty on oil and gas from pools without previous commercial sales in the Cook Inlet sedimentary basin; and providing for an effective date."

- HEARD AND HELD

SENATE BILL NO. 217
"An Act relating to the taxation of independent power producers; and increasing the efficiency of integrated transmission system charges and use for the benefit of ratepayers."

- SCHEDULED BUT NOT HEARD -

PREVIOUS COMMITTEE ACTION

BILL: SB 194
SHORT TITLE: REDUCE ROYALTY ON COOK INLET OIL & GAS
SPONSOR(s): RULES BY REQUEST OF THE GOVERNOR

01/18/24 (S) READ THE FIRST TIME - REFERRALS

01/18/24	(S)	RES, FIN
02/23/24	(S)	RES AT 3:30 PM BUTROVICH 205
02/23/24	(S)	Heard & Held
02/23/24	(S)	MINUTE(RES)
03/20/24	(S)	RES AT 3:30 PM BUTROVICH 205
03/20/24	(S)	Heard & Held
03/20/24	(S)	MINUTE(RES)
04/26/24	(S)	RES AT 3:30 PM BUTROVICH 205

WITNESS REGISTER

JARD GOOLEY, Research Geologist
USGS Alaska Science Center
Anchorage, Alaska
POSITION STATEMENT: Presented an Assessment of Undiscovered Oil & Gas Resources.

DEREK NOTTINGHAM, Director
Division of Oil and Gas (DOG)
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: Co-presented an overview of SB 194.

JOHNNY MEZA, Commercial Manager
Division of Oil and Gas
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: Co-presented an overview of SB 194.

JOHN CROWTHER, Deputy Commissioner
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: Co-presented an overview of SB 194.

ACTION NARRATIVE

3:31:49 PM
CO-CHAIR CATHY GIESSEL called the Senate Resources Standing Committee meeting to order at 3:31 p.m. Present at the call to order were Senators Wielechowski, Kaufman, Dunbar, Co-Chair Bishop, and Co-Chair Giessel. Senators Kawasaki and Claman arrived thereafter.

PRESENTATION: ASSESSMENT OF UNDISCOVERED OIL & GAS RESOURCES

3:33:11 PM

CO-CHAIR GIESSEL announced the consideration of a presentation from the United States Geological Survey (USGS) on their Assessment of Undiscovered Oil & Gas Resources.

3:34:45 PM
JARD GOOLEY, Research Geologist, USGS Alaska Science Center, Anchorage, Alaska, presented an Assessment of Undiscovered Oil & Gas Resources. He acknowledged that much of the content was presented in 2011 after the assessment was completed and said that today's presentation would offer additional insight.

3:35:34 PM
MR. GOOLEY advanced to slide 2 and provided an overview of the U.S. Geological Survey (USGS):

[Original punctuation provided.]

The U.S. Geological Survey (USGS)

The USGS is the science arm of the Department of the Interior.

We aim to lead the Nation in 21st-century integrated research, assessments, and prediction of natural processes and resources to meet challenges with actionable information.

- Energy & Minerals
- Natural Hazards
- Computation and Mapping
- Water
- Ecosystems

The Alaska Basins and Petroleum System Project seeks to further our knowledge of energy resources and support decision makers considering future development.

MR. GOOLEY said the project is part of the Energy & Minerals mission.

3:36:15 PM
MR. GOOLEY advanced to slide 3 and discussed the Alaska Basins and Petroleum Systems Project:

[Original punctuation provided.]

Alaska Basins and Petroleum Systems Project (FY2023-2027)

Overall Project Objectives

- Conduct research that increases our understanding of the geological framework of Alaska sedimentary basins and their significance to energy resources.
- Conduct assessments of undiscovered oil and natural gas resources.
- Investigate relationships between natural carbon burial in petroleum source rocks and peak global greenhouse climate conditions.
- Deliver energy resource information to land and resource managers, policy makers, and the public.

Presentation Outline

- Summary of 2011 Cook Inlet assessment results
- Methods used by the 2011 assessors
- Results by 2011 Assessment Unit and Land Ownership
- Future anticipated USGS energy resource assessments in Alaska

3:37:24 PM
SENATOR KAWASAKI joined the meeting.

3:37:40 PM
MR. GOOLEY advanced to slide 4 and provided a list of recent Alaska Energy Resource Assessments:

[Original punctuation provided.]

USGS Alaska Energy Resource Assessments (2003-Present)
Recent Alaska Energy Resource Assessments:
2021 - Gas: Western North Slope
2020 - Oil & Gas: Central North Slope
2018 - Oil & Gas: Susitna Basin, southern Alaska
2018 - Gas Hydrates: North Slope
2017 - Oil & Gas: National Petroleum Reserve-Alaska
2015 - Unconventional Gas: Upper Cook Inlet Basin
2012 - Oil & Gas: Shale source rocks, North Slope Arctic Alaska
2011 - Oil & Gas: Cook Inlet Region Fact Sheet

2010 – Oil & Gas: National Petroleum Reserve-Alaska
2008 – Gas Hydrates, North Slope
2008 – Oil & Gas: Circum-Arctic Resource Appraisal
2006 – Coalbed Methane: Northern Alaska
2005 – Oil & Gas: Central North Slope
2003 – Gas: Yukon Flats

MR. GOOLEY noted that blue highlighting indicates Cook Inlet regional factsheet. Yellow indicates assessments that focused on the North Slope. He explained that U.S. secretarial order 3352, in 2017, directed the Department of the Interior to focus on resources in Arctic Alaska. He said that this order was rescinded in 2021 and the project currently focuses on Arctic, Interior, and Cook Inlet regions.

3:39:03 PM
MR. GOOLEY advanced to slide 5 and provided a summary of 2011 Cook Inlet Region assessment results:

[Original punctuation provided.]

2011 Cook Inlet Region Assessment Results
In 2011 the USGS estimated undiscovered, technically recoverable resources in onshore & State waters of Cook Inlet

Estimate range (min to max) and mean volumes:

- Oil: Range of 108 to 1,359 million barrels; mean 599 million barrels
- Gas: Range of 4,976 to 39,737 billion cubic feet; mean 19,037 billion cubic feet
- Natural Gas Liquids: Range of 6 to 121 million barrels; mean of 46 million barrels

Technically recoverable resources are those resources that can be discovered and produced using current technology.

Min represents a 95 percent chance of at least the amount shown.

Max represents a 5 percent chance of at least the amount shown.

3:40:51 PM
CO-CHAIR BISHOP asked if he could speak to whether these resources are "economically recoverable."

3:40:59 PM
MR. GOOLEY replied that this is addressed in a future slide.

3:41:21 PM
SENATOR WIELECHOWSKI asked if the technology has changed in a meaningful way, making oil and gas more - or less - recoverable.

3:41:30 PM
SENATOR CLAMAN joined the meeting.

3:41:47 PM
MR. GOOLEY replied that USGS has not focused on Cook Inlet, and he is uncertain about the technology used there; however, he commented that any new development indicates progress. He stated that a new assessment would need to consider what is recoverable in 2024.

3:42:24 PM
SENATOR WIELECHOWSKI asked if, based on his current knowledge, Mr. Gooley believes it is likely that the amount of recoverable oil and gas is higher than the data included on slide 4.

3:42:39 PM
MR. GOOLEY replied that he cannot say whether future assessments would indicate a higher or lower amount. He commented that determining these numbers is a long process and indicated that additional assessments could provide this information. He reiterated that oil and gas technology is always progressing and implied that this is an indication of increased recoverable oil and gas potential.

3:43:28 PM
SENATOR WIELECHOWSKI asked how it is possible to have less technologically available oil and gas if technology is always improving.

3:43:39 PM
MR. GOOLEY clarified that an assessment done today would mean new staff members, new knowledge, and new data, which might change the understanding of the resources - and the broad range of USGS estimates. He reiterated that he could not say whether it would be more or less.

3:44:16 PM
MR. GOOLEY advanced to slide 6 and explained that this provides context for data on the previous slides. He spoke to a graph

depicting gas production (including reinjection) in Cook Inlet through time. He noted that the horizontal axis depicts the years 2000 through 2021, while the vertical axis depicts annual production (billion cubic feet per year). He explained that the assessment in 2011 was the result of public concern regarding a possible near-term gas shortage.

3:45:07 PM
MR. GOOLEY advanced to slide 7:

[Original punctuation provided.]

> **Context 2: USGS estimates are *Technically Recoverable***
>
> Some of the undiscovered oil and gas resources assessed by the USGS may not be accessible nor economically viable
>
> For example, on this map from Hartz and others (2009), green shading shows areas with restrictions to exploration access

MR. GOOLEY directed attention to the figure on Slide 7 to demonstrate how certain areas may not be accessible (e.g. wildlife refuges) while others may not be economically viable (e.g. small pools).

3:45:53 PM
MR. GOOLEY advanced to slide 8 and explained the timeline graphic depicting the current USGS assessment workflow. He explained that assessments are typically the result of stakeholder demand. He briefly described the assessment process. He explained that data is gathered in order to compile a geologic model for a particular area, which provides an understanding of the current and historical conditions of the petroleum system. He noted that this is done in collaboration with state agencies and other groups and is followed by a delineation of the assessment unit boundaries. He briefly described the geology review meetings that provide peer review to vet the work that USGS is doing. Next, the oil and gas production data are analyzed. This is followed by two USGS-only meetings on assessment (resource estimates are determined and applied) and allocation (resource distribution based on land ownership and assessed area). The meeting findings are not made available to the public until the final fact sheets are published.

3:48:16 PM
MR. GOOLEY advanced to slide 9 and provided a snapshot of the resource assessment methodology. He said the National Oil and Gas Assessment team provides documents to show how resource numbers are calculated for both conventional and continuous assessments. He emphasized that this is subject to rigorous review by non-Federal panels.

3:49:02 PM
MR. GOOLEY advanced to slide 10:

[Original punctuation provided.]

Updates in 2011 from previous 1995 USGS Assessment

Collaborators and Contributors for 2011 Cook Inlet Geologic Model:

State of Alaska, Department of Natural Resources (DNR), Division of Geological & Geophysical Surveys (DGGS) and Division of Oil & Gas (DOG)

- New geophysical data (seismic, gravity, magnetic surveys)
- New geologic maps of the Cook Inlet Region
- Subsurface mapping and modeling
- Studies of reservoir and source rocks exposed at the surface
- Modeling of the timing of oil generation

3:50:05 PM
MR. GOOLEY advanced to slide 11:

[Original punctuation provided.]

Cook Inlet Region Geography - Oil and Gas

Cumulative production at the end of 2010, according to Alaska Oil and Gas Conservation Commission (AOGCC):

- Oil, approx. 1.3 billion barrels (In 2023 approx. 1.4 BBO)
- Gas, >7.8 trillion cubic feet (In 2023 approx. 12 TCFG)

MR. GOOLEY briefly described the accompanying map depicting Cook Inlet region geography and indicating areas of oil and gas accumulation.

3:51:01 PM
MR. GOOLEY advanced to slide 12 and spoke to a geological map in the Cook Inlet region:

[Original punctuation provided.]

Cook Inlet Regional Geology - Deep Basin

- Tan & Yellow Units: Tertiary and Quaternary (66 to 0 million years old) non-marine sedimentary rocks. Up to >25,000 ft (8 km) thick.
- Green Units: Jurassic and Cretaceous (200 to 66 million years old) marine sedimentary rocks. Up tp > 30,000 ft (9 km) thick. Below are about 10,000 to 20,000 ft (3 to 6 km) of volcanic rocks.
- Most structures (folds and faults) occurred after the middle Miocene (approx. 12 to 0 million years ago)

MR. GOOLEY briefly explained the two panels containing cross sections and how they relate to the map on slide 12.

3:52:41 PM
MR. GOOLEY advanced to slide 13:

[Original punctuation provided.]

Cook Inlet Rock Units & Petroleum Production

"Microbial" or "biogenic" gas is created at shallow depths when microscopic organisms eat organic matter.

"Thermogenic" oil and gas is created at greater depths when earth's heat breaks down or "cracks" organic material.

MR. GOOLEY directed attention to the graphic on slide 13 and stated that the salient information is found in the columns labeled "petroleum production" (i.e. where oil and gas is now) and "petroleum source rocks" (i.e. where oil and gas came from). He pointed out that some oil and thermogenic gas migrated from deep to shallow depths, while microbial gas remained at a shallow depth.

3:54:19 PM

MR. GOOLEY advanced to slide 14:

[Original punctuation provided.]

Cook Inlet 2011 Assessment Units (AU)

Assessment unit: a mappable volume of rock with common geologic traits

- AU boundaries are based on geologic criteria, except for the southern limit that corresponds to State-Federal water boundary.
- Each AU is evaluated independently, and the resource estimate applies to the entire volume.

Cook Inlet Assessment Units:

- Cook Inlet Coalbed Gas AU
- Tertiary Sandstone Oil and Gas AU
- Tuxedni-Naknek Continuous Gas AU
- Mesozoic Sandstone Oil and Gas AU

MR. GOOLEY directed attention to the map displaying all assessment units. He indicated that each assessment unit would be discussed further later in the presentation.

3:55:08 PM
MR. GOOLEY advanced to slide 15 and explained a graphic demonstrating conventional versus continuous gas accumulations. These processes have different impacts on estimates. With respect to conventional gas accumulations, he pointed out that gas is lighter than oil and both are lighter than water. This causes the gas and oil to migrate toward the surface. He briefly described the process associated with continuous accumulation, pointing out that this gas is trapped in place and therefore cannot migrate.

3:56:43 PM
MR. GOOLEY said that slides 16 and 17 should be switched. He advanced to slide 17:

[Original punctuation provided.]

Tertiary Sandstone Oil and Gas AU

- "Conventional" type oil and gas accumulations

- As of 2011, there were about 30 known accumulations and 1200 well penetrations.
- Source of thermogenic oil is the Middle Jurassic Tuxedni Group
- Gas is mostly microbial (shallow sourced) from nonmarine coals within this unit
- Reservoirs are mainly paleo-river deposits of sandstone and conglomerate
- All discovered accumulation were in "structural" traps (folds and faults)
- Undiscovered accumulations are probably structural and stratigraphic (wedging of reservoir thickness)

3:57:50 PM
MR. GOOLEY returned to slide 16 and described the map that demonstrates land ownership.

[Original punctuation provided.]

Tertiary Sandstone Oil and Gas AU

Mean undiscovered oil: 372 MMBO
Mean undiscovered gas: 12,178 BCFG

Area approx. 21,800 km2 (approx. 8,417 mi2)
- Federal, 21 percent
- Private/municipal, 13 percent
- Native, 8 percent
- State onshore, 27 percent
- State offshore, 31 percent

MR. GOOLEY added that 8,417 square miles is the converted unit. The bulk of undiscovered gas.

3:58:50 PM
MR. GOOLEY advanced to slide 18:

[Original punctuation provided.]

Mesozoic Sandstone Oil and Gas AU

- "Conventional" type oil and gas accumulations
- Few wells have been drilled deep enough to target the Mesozoic Sandstone AU

- 1 significant oil accumulation discovered from M-28 well, McArthur River field, 1990-1999
- Oil seeps (indicators of a working petroleum system) are found onshore southwest of the basin. Oil shows are found in wells on Kenai Peninsula and Federal offshore waters
- Source of oil and gas is from the Middle Jurassic Tuxedni Group
- Reservoirs may be Mesozoic sandstone and fractured volcanic rocks
- Undiscovered accumulations are probably structural and stratigraphic traps
- Mostly unexplored

4:00:05 PM
MR. GOOLEY advanced to slide 19:

[Original punctuation provided.]

Mesozoic Sandstone Oil and Gas AU

- Mean undiscovered oil: 227 MMBO
- Mean undiscovered gas: 1,548 BCFG
- Area approx. 20,100 km2
    - Federal, 21 percent
    - Private/municipal, 11 percent
    - Native, 10 percent
    - State onshore, 26 percent
    - State offshore, 31 percent

4:00:47 PM
MR. GOOLEY advanced to slide 20:

[Original punctuation provided.]

Tuxedni-Naknek Continuous Gas AU

- Play concept proposed by the USGS (2011)
- "Continuous" type accumulation of gas
- Speculative & no accumulations have been discovered
- Inferred resource is thermogenic (deep) gas derived from source rocks in Middle Jurassic Tuxedni Group

- Reservoirs hypothesized to be low-permeability sandstone at depths of 20,000 ft (6,000 m) or more
- Entirely unexplored (no known well penetrations)

4:01:34 PM
MR. GOOLEY advanced to slide 21:

[Original punctuation provided.]

Tuxedni-Naknek Continuous Gas AU

Mean undiscovered gas: 637 BCFG

Area approx. 900 km2
- Federal, 1 percent
- Private/municipal, 20 percent
- Native, 5 percent
- State onshore, 2 percent
- State offshore, 72 percent

4:02:04 PM
MR. GOOLEY advanced to slide 22:

[Original punctuation provided.]

Cook Inlet Coalbed Gas AU

- Play concept proposed by the USGS (2011)
- "Continuous" type accumulation of gas
- No discovered commercial accumulations
- About 20-25 wells drilled specifically in search of coalbed gas, 1994-2005, all unsuccessful
- Microbial (shallow) gas sourced from, and trapped in, thick coal beds; mostly in Beluga and Tyonek Formations
- Excluded is an area where the principal coal-bearing units are buried deeper than 6000 feet
- Mostly unexplored

MR. GOOLEY added that coal buried deeper than 6,000 feet becomes fractured and can no longer retain gas.

4:03:09 PM
MR. GOOLEY advanced to slide 23:

[Original punctuation provided.]

Cook Inlet Coalbed Gas AU

Mean undiscovered gas: 4,674 BCFG

Area approx. 34,300 km2

- Federal, 14 percent
- Private/municipal, 8 percent
- Native, 8 percent
- State onshore, 56 percent
- State offshore, 14 percent

4:03:43 PM
MR. GOOLEY advanced to slide 24:

Principal Assessment Related Products

2011:
Stanley et al. (2011)
USGS Fact Sheet 2011-3068

- 2 Page Fact Sheet

2012:
Rouse and Houseknecht (2012)
USGS Scientific Report 2012-5145

- Coal-Bed Gas Geologic Model

2014:
LePain et al. (2014) - DGGS/USGS/DOG
AAPG Memoir 104 Chapter 2

- Detailed Cook Inlet Geologic Framework

2015:
Schenk et al. (2015)
USGS Digital Data Series DDS-69-AA

- Chapter 1: Tight Gas Geologic Model
- Chapter 2: Input Data for 2011 Assessment
- Chapter 3: GIS Project

4:04:50 PM
MR. GOOLEY advanced to slide 25:

[Original punctuation provided.]

New Data Since the 2011 Cook Inlet Assessment

New data since the 2011 Assessment include:

- Oil and Gas well production data
- Publicly available subsurface datasets: well and seismic data (see right)
- Licensable seismic data
- Geologic Mapping
- Petrographic and provenance data (reservoir quality)
- Geochronology (age dating of rocks)

4:05:42 PM
MR. GOOLEY advanced to slide 26 and described USGS' proposed work:

[Original punctuation provided.]

USGS Proposed Work

Alaska Basin and Petroleum Project Proposed Tasks:

- Staff assigned to build new Cook Inlet geologic model
- Compilation of new datasets has commenced
- Collaborations with Alaska DGGS and DOG
- Proposed *updated assessment* of Cook Inlet Oil & Gas Resources (2025 Target)
- May include CO2 and Energy Storage Assessment

MR. GOOLEY explained that, according to the proposal, if the geologic model yields new information, a new assessment would be done. The target for the project is 2025, though the exact date is unknown.

4:06:41 PM
CO-CHAIR BISHOP commented that he has read that oil and gas companies are using artificial intelligence (AI) technologies and asked how much AI technology will enter into the assessment work going forward.

4:07:12 PM

MR. GOOLEY replied that AI and machine learning are being implemented by USGS. He explained that the assessments are done using a vetted, peer-reviewed process that is implemented at a national level; therefore, the use of AI would need to be implemented at the national level as a part of this process. He added that USGS does utilize AI and machine learning for some scientific processes. He said that he cannot confirm that AI and/or machine learning would be implemented by 2025.

4:08:06 PM
MR. GOOLEY continued his discussion of slide 26. He said Cook Inlet is a potential basin for carbon sequestration and an assessment of CO2 and energy storage could be done in tandem with the Cook Inlet assessment.

4:08:34 PM
MR. GOOLEY advanced to slide 27 and summarized the outlook for USGS and potential oil and gas discoveries:

[Original punctuation provided.]

Summary

- In 2011, the USGS completed an assessment of the *estimated* volumes of undiscovered, technically recoverable oil and gas resources in conventional and continuous accumulations in Cook Inlet.
- The assessment used a geology-based methodology and results from scientific research by the USGS and the State of Alaska DGGS and DOG.
- In the Cook Inlet Region, the USGS estimated mean undiscovered volumes of nearly 600 million barrels of oil, about 19 trillion cubic feet of gas, and about 46 million barrels of natural gas liquids. The assessment included a range of minimum to maximum estimates.
- The USGS has begun a renewed task to update the geologic model for the Cook Inlet, starting with the data collection and acquisition phase.

4:09:24 PM
MR. GOOLEY directed attention to the contact information on slide 28.

4:09:34 PM
SENATOR WIELECHOWSKI inquired about the confidence interval for the accuracy of the 19 trillion cubic feet of gas estimate.

4:09:51 PM
MR. GOOLEY returned to slide 9 and explained USGS assessment methodology. He said that the result is a forecasted mix that captures the uncertainty. He explained that there are many statistical parameters and the "mean" is a single parameter of the statistical picture. He added that this method is not unique to USGS.

4:11:33 PM
SENATOR WIELECHOWSKI repeated his question. He asked if the confidence interval was 95 percent.

4:11:42 PM
MR. GOOLEY replied yes. He explained the 95 percent confidence interval and emphasized the importance of considering each aspect of the data.

4:12:35 PM
SENATOR WIELECHOWSKI asked when the new model is expected.

4:12:42 PM
MR. GOOLEY replied that he cannot provide an exact date as the process is time consuming and depends on directives from management. He briefly explained the process and the current phase of the model.

4:13:20 PM
SENATOR WIELECHOWSKI indicated that the legislature will be making decisions impacting Cook Inlet and asked for a rough estimate.

4:13:33 PM
MR. GOOLEY replied that the goal is 2025. He indicated that stakeholder demand would help move the assessment process forward.

4:13:57 PM
CO-CHAIR GIESSEL asked how stakeholders can express this concern.

4:14:04 PM
MR. GOOLEY replied that today's hearing is one way to voice that concern. Additionally, individuals can contact USGS and express their concern.

4:14:14 PM

SENATOR WIELECHOWSKI pointed out that Cook Inlet was recently in danger of running out of gas in subzero weather. He expressed a strong need for this information. He emphasized that the legislature is making major policy decisions and expressed appreciation for any data received as quickly as possible. He asked if previous assessments have proven accurate over time.

4:14:44 PM
MR. GOOLEY replied that USGS often performs multiple assessments for a single location and the data can differ by assessment. He indicated two factors that can impact this, new data and technologically recoverable resources. He said that it is difficult to determine the accuracy of an assessment because the available information is continually changing.

4:15:44 PM
SENATOR WIELECHOWSKI opined that it is important to know what is economically recoverable. He asked about the price of gas in 2011 when the assessment was done compared to the current price of gas. He shared his understanding that this has increased substantially and surmised that this has resulted in greater economic recoverability. He asked if USGS plans to include economically recoverable data in the new assessment.

4:16:24 PM
MR. GOOLEY replied that the price has certainly changed, though he does not have the exact data. He acknowledged the point being made. He stated that USGS does not perform economic analysis; rather, USGS assesses the volume that is present utilizing scientific methods.

4:17:06 PM
SENATOR DUNBAR referred to slide 11 and asked whether trillion or billion is more commonly used.

4:17:38 PM
MR. GOOLEY replied that in this instance trillion could be used for simplification. He explained that billion may be used for accuracy when representing smaller amounts. He added that the data on slide 11 is the sum of smaller amounts (billions) and several larger amounts (trillions).

4:18:07 PM
SENATOR DUNBAR stated that USGS collects similar data across the US and wondered if there are any comparable fields in other parts of the country that are being harvested at a higher rate. He acknowledged that USGS does not provide economic assessments;

however, he said this would give a sense of whether Cook Inlet is being appropriately invested in, in terms of gas extraction.

4:18:58 PM
MR. GOOLEY agreed that USGS works throughout the U.S. and some teams perform international assessments. He offered to provide the requested information to the committee. He explained that this is a specific type of basin and there are others that are geologically similar. He said that these fields are often used as analogues when creating the assessments.

4:19:49 PM
SENATOR DUNBAR opined that, when creating policy, it would be helpful to understand which basins are analogous - and to consider those economic systems. He acknowledged that each field is unique, and Alaska has a small market. He indicated that considering the details for each location would provide useful information.

4:20:36 PM
CO-CHAIR GIESSEL said that the state is in the middle of policymaking and depends on accurate information. She expressed appreciation for the presentation highlighting how the assessment was made.

SB 194-REDUCE ROYALTY ON COOK INLET OIL & GAS

4:21:18 PM
CO-CHAIR GIESSEL announced the consideration of SENATE BILL NO. 194 "An Act relating to temporarily reduced royalty on oil and gas from pools without previous commercial sales in the Cook Inlet sedimentary basin; and providing for an effective date."

4:22:22 PM
DEREK NOTTINGHAM, Director, Division of Oil and Gas (DOG), Department of Natural Resources (DNR), Anchorage, Alaska, Co-presented an overview of SB 194. He advanced to slide 2 and highlighted goals of SB 194:

[Original punctuation provided.]

GOALS OF SB 194

- Railbelt utilities are facing gas supply shortfalls and the quickest way to fill those gaps is by producing more gas from Cook Inlet – the only solution in the immediate term

- SB 194 aims to increase available gas supply in the Cook Inlet to meet expected shortfalls
- Bill will encourage investment in projects with known, undeveloped gas accumulations by improving producers' rate of return and payback time

4:23:56 PM
MR. NOTTINGHAM advanced to slide 3 and reviewed the purpose of SB 194:

[Original punctuation provided.]

SB 194: WHAT THE BILL DOES

- Grants a reduced royalty of five percent for the first ten years of production from pools in Cook Inlet that have not previously been produced for commercial sale
- Includes known resources that are not yet in production and resources that could be discovered through further exploration
- Applies to any state land in Cook Inlet, whether or not in existing fields, units, or leases
- Does not reduce royalties for pools presently in commercial production

4:24:32 PM
MR. NOTTINGHAM advanced to slide 4:

[Original punctuation provided.]

SB 194 SUMMARY

Section 1: Amends AS 38.05.180(f)(5). The original statute granted a five-percent royalty rate for oil or gas for the first ten years but was limited to six Cook Inlet fields discovered in the 1960s and provided a deadline of January 1, 2004, for start of production (in AS 38.05.180(dd)).

"[T]he lessee of all or part of an oil or gas pool in the Cook Inlet sedimentary basin that, subject to determination by the commissioner, has not previously produced for commercial sale oil or gas shall pay a royalty of five percent on oil or gas produced for

sale from that pool for 10 years following the date on which the production for commercial sale commences;"

This change modifies the program to:

- Include new production in Cook Inlet, regardless of discovery date
- Remove limits on eligible volumes of oil or gas during the ten-year period of reduced royalty
- Require the Department of Natural Resources (DNR) commissioner to determine eligibility, rather than being automatic
- Limit eligible production to ten years at the reduced royalty rate

Section 2: Repeals AS 31.05.030(i) and AS 38.05.180(dd) to conform with the amended AS 38.05.180(f)(5).

Section 3: The legislation takes effect immediately under AS 01.10.070(c)

4:26:10 PM
CO-CHAIR GIESSEL asked for confirmation that SB 194 does not have a requirement for firm gas sales to any utilities or consumers.

4:26:21 PM
MR. NOTTINGHAM confirmed that this is correct.

4:26:28 PM
MR. NOTTINGHAM advanced to slide 5 and explained qualifying production:

[Original punctuation provided.]

SB 194 QUALIFYING PRODUCTION

Qualifying production:
"[H]as not previously produced for commercial sale oil or gas" means production from wells or sidetracks drilled after the bill effective date that would not have otherwise been recovered from existing wells:

Examples of qualifying production:

- A newly-drilled well or sidetrack from the edge of an existing or previously-producing development
- A new well or sidetrack from an unproduced accumulation of oil and gas

"[S]ubject to determination by the commissioner" means:

- DNR considers if the source of oil and gas has produced in the past, proximity to existing wells, drainage area of existing wells, and timeframe for recovery from existing wells

Determination process

- The lessee or lessees must jointly or separately apply for reduction in royalty for one or more wells
- Data will be supplied with the application, and DNR may request further data and interpretations
- A well or accumulation may be determined to receive reduced royalties before a well is drilled

MR. NOTTINGHAM said that the final royalty provision is distinct in that it provides the applicant with some certainty before an investment is made.

4:28:53 PM
SENATOR DUNBAR referred to slide 3, which states that SB 194, "Does not reduce royalties for pools presently in commercial production." He shared his understanding that companies plan to drill on a particular schedule. He asked how to ensure that the royalty reduction does not apply to wells that were already set to be drilled along this schedule. He asked if DNR has the data for which wells are scheduled (and where). He said that the intention is to stimulate new production - not subsidize production that was already planned. He emphasized that some wells are planned a decade into the future. He questioned how the state would be able to determine whether a well for which a subsidy has been requested was not already part of a five-year drilling plan.

4:30:31 PM
MR. NOTTINGHAM replied that DOG believes it can review individual applications to make this determination. In addition, DNR can guide this process through regulations to ensure that

only the correct programs are subsidized. He said that DNR does receive the data for future wells and there are currently wells that would likely meet the threshold indicated. He expressed willingness to work with the committee - and to work to create regulations that would ensure the legislature's wishes are met.

4:31:38 PM
SENATOR DUNBAR clarified that his earlier comments it applied to all companies. He reiterated that the intention is not to subsidize wells that are already planned.

4:32:10 PM
JOHNNY MEZA, Commercial Manager, Division of Oil and Gas, Department of Natural Resources (DNR), Anchorage, Alaska, advanced to slide 6 and explained the status quo versus royalty reduction:

[Original punctuation provided.]

STATUS QUO VS. ROYALTY REDUCTION

Status quo

- Future Proved Developed (PD) and Proved Undeveloped (PUD) gas production will not be enough to satisfy the demand by the Railbelt consumers (approx. 70 Bcf/year)
- Although there are known, but undeveloped gas resources, these have not been sanctioned by operators under the current royalty rates
- Under the current royalty rates, expected total revenues to the State from current and expected development are $652 million for the period 2025-2035

Royalty reduction under SB 194

- If the royalty reduction leads to new investments in gas projects, then future gas production will likely meet Railbelt demand for at least the next ten years—leading to estimated total revenues to the State of $788 million for the period 2025-2035
- If the royalty reduction is not successful in adding significant new gas production (i.e., no new gas in addition to the PD and PUD gas forecast), then the State could forgo approx. $26 million over the period 2025-2035

4:34:33 PM
MR. MEZA advanced to slide 7 and spoke to two graphs that demonstrate economic modeling:

[Original punctuation provided.]

SB 194: ECONOMIC MODELING

- We assume that a quarter of the gas wells to be drilled in the future under the proved undeveloped tranche (PUD) would qualify as "new production" under SB 194.
- For the period FY 2025 – FY 2035, the impact of SB 194 on revenues to the State is -$26 million if the known but undeveloped gas resources do not come online.
- If they do, the impact becomes +$136 million.
- State revenues include royalty (State ownership), production tax, and property tax (State ownership).

MR. MEZA explained that the graph on the left depicts the impact of SB 194 on Cook Inlet gas production. He briefly discussed the data shown on the graph. He then turned his attention to the graph on the right and explained that this depicts the corresponding impact of SB 194 on state revenues. He briefly discussed the data shown.

4:36:05 PM
SENATOR DUNBAR asked if the companies have confirmed that these royalty increases would lead to the desired increase in gas production. He said that he has yet to hear this from the companies, despite having inquired on several occasions.

4:37:11 PM
JOHN CROWTHER, Deputy Commissioner, Department of Natural Resources (DNR), Anchorage, Alaska, replied that DNR cannot speak for the companies. He explained that DNR can speak to its understanding of project economics combined with representations that the companies have made publicly. He said that the Cosmopolitan Unit (BlueCrest) has said that obtaining financing is the biggest challenge. BlueCrest has also indicated that royalty is a challenge, as well as access to lending and capital. He stated that SB 194 does not offer direct lending to companies; however, it does address return and payback schedules to make projects more attractive to financiers. He clarified

that DNR believes SB 194 addresses the challenges indicated by BlueCrest; however, DNR cannot say with certainty that BlueCrest would sanction by a particular date. He asserted that SB 194 makes financing these projects a more mathematically and economically attractive proposition for any lender. He said that the Kitchen Lights Unit (Deutsche Oel & Gas) has indicated similar challenges. Therefore, DNR believes that SB 194 would induce activity in the both the Cosmopolitan Unit and the Kitchen Lights Unit.

4:38:41 PM
SENATOR DUNBAR said that the presentation given by HEX Cook Inlet, LLC (HEX) broke down costs and challenges and indicated that the overriding royalty interests (ORRI) were two to three times more than the royalties.

4:39:03 PM
SENATOR WIELECHOWSKI asked if Mr. Crowther would agree that an oil (or gas) company that takes out a lease in the state of Alaska has a legal obligation to produce oil (or gas) when they can make a reasonable profit. He asked if this is a fair statement of the law.

4:39:31 PM
MR. CROWTHER replied that he believes this is a general fair statement of the law.

4:39:38 PM
SENATOR WIELECHOWSKI asked what DNR considers a reasonable rate of return for Cook Inlet.

CO-CHAIR GEISSEL wondered if this is a question for Mr. Stickel.

SENATOR WIELECHOWSKI emphasized that DNR is responsible for managing the leases and repeated the question.

4:40:05 PM
MR. CROWTHER deferred the question.

SENATOR WIELECHOWSKI said that a range would be fine.

4:40:27 PM
MR. MEZA replied that DNR models considered that the rates of return must be commensurate with the risk of developing these types of resources. He emphasized that there is tremendous uncertainty in drilling these wells. There is also market

uncertainty that must be considered. He said that, in this case, a reasonable rate of return would be 15-20 percent.

4:41:14 PM
SENATOR WIELECHOWSKI surmised that companies deciding to move forward would consider the rate of return under the current royalties and tax structure and compare this to what the rate of return would be if royalties were reduced from 12.5 percent to 5 percent. He asked if this is a fair analysis of how the process should be done.

4:41:38 PM
MR. MEZA replied that when DNR conducts an economic analysis in an attempt to construct a fair representation of those investment decisions, a forward-looking analysis is done. He explained that previous profits generated from existing production do not affect an investment decision that would occur in the future. He added that this inherently contains a degree of uncertainty.

4:42:22 PM
SENATOR WIELECHOWSKI shared that hypothetical fields can be considered to determine these rates of return based on current royalties and reduced royalties. He said that this would be helpful and asked if this has been done. He added that it is unclear what DNR has based the numbers on.

4:43:01 PM
MR. MEZA replied that DNR has done this analysis and offered to provide this to the committee. He added that a future slide addresses some of these hypothetical situations.

4:43:24 PM
SENATOR WIELECHOWSKI asked if it is fair to assume that the rates of return are less than 15-20 percent - and SB 194 would bring this number into the 15-20 percent range.

4:43:51 PM
MR. CROWTHER replied that, there are two more dynamics to consider. He acknowledged that the internal rate of return is a critical metric. He explained that the uncertainty dynamic and payback time must also be considered. He directed attention to the next slide, which touches on these dynamics all working in context with the delivered cost of supply.

4:44:51 PM

SENATOR WIELECHOWSKI commented that the committee has seen this analysis many times over the years. He said that they are public stewards of state dollars and resources. He emphasized that he is willing to cut royalties down to zero if this is necessary to make it economically viable for the companies. However, he emphasized the need for evidence showing that cutting royalties is necessary for projects to be economically viable. He stated that he is not interested in giving state dollars and resources away for free to projects that do not economically need it. He stated that he needs to see the numbers in order to support SB 194. He pointed out that companies are currently able to seek royalty relief. He acknowledged that this does not apply to new fields and wondered if the simplest solution would be to include new fields in the existing royalty relief statute.

4:45:47 PM
MR. CROWTHER replied that he does not believe DNR would oppose expanding its authority under the existing royalty relief statute. He said that DNR believes the approach contained in SB 194 is direct, immediately applicable, and would be put into action quickly. He emphasized that the timeframe is critical.

4:46:09 PM
CO-CHAIR BISHOP directed attention to the chart on the left side of slide 7 ("Estimated Impact of SB 194 on Gas"). He shared his interpretation that, if this was law, there would be a 6.5-year window with production at 70bcf/year. He commented that this would hopefully bridge to when liquified natural gas (LNG) is available. He turned his attention to the chart on the right ("Estimated impact of SB 194 on State Revenue") and shared his understanding that this indicates doing nothing, which would result in a 3.5-year window and production under 70bcf/year. He indicated that the latter would leave the state in a bind.

4:47:18 PM
MR. CROWTHER replied that this is generally correct. He clarified that the graph on the right is about revenues (status quo versus SB 194), while the slide on the left shows the status quo volumes delivered next to additional volumes.

4:47:34 PM
CO-CHAIR BISHOP surmised that the graph on the left could be extrapolated out to 3.5 years and the state would still be left in a pinch.

MR. CROWTHER agreed.

4:47:53 PM
MR. MEZA advanced to slide 8 and discussed gas cost of supply:

[Original punctuation provided.]

GAS COST OF SUPPLY

Estimated impact of SB 194 on the cost of supply for a hypothetical known but undeveloped gas resource

Scenario:

- Investment: $350 million
- Development time: 3 years
- Cumulative production: 250 bcf
- Operating expenditures: $0.5/mcf

- The cost of gas supply is the minimum price that investors would require to fund this investment.
- This assumes investors require:
  - a payback time of 4 years, and
  - a minimum annual real return of 15 percent.

MR. MEZA directed attention to the graph on slide 8 illustrating the cost of supply for a large gas project and the impact of royalty reduction. He explained that this shows how much ORRI payments represent for this hypothetical project. He pointed out that the data also includes production tax, property tax, royalty payments, operating expense, and capital expense. He said that this slide attempts to show that, by reducing the royalty, SB 194 would reduce the cost of supply. He reiterated that this is a hypothetical example that could represent a large gas development in Cook Inlet.

4:50:44 PM
SENATOR CLAMAN said that Hilcorp previously indicated that royalty relief would not impact its production model going forward. He opined that this does not make sense. He said that he is trying to understand this in the context of the data DNR has presented. He shared his understanding that if the cost of production decreased, this would increase the likelihood of production. He said that he has also heard concerns related to the rigs required for drilling. He surmised that BlueCrest needs an additional drilling rig and wondered whether this is what is keeping BlueCrest from drilling. He asked how this issue - which is not impacted by royalties, but instead is a question of

economic viability related to a lack of necessary equipment - might be addressed.

4:52:53 PM
MR. NOTTINGHAM replied that DNR's understanding is that the BlueCrest Cosmopolitan project will not require a new jack-up rig. Instead, part of the investment would include a rig on the platform that would allow BlueCrest to drill the wells independent of the Cook Inlet rig situation. He clarified that this decision has not yet been made. He agreed that there is a limited number of drilling rigs in Cook Inlet. He surmised that a company such as Hilcorp likely does not receive enough incentive from SB 194; however, other companies (BlueCrest and others) would likely be adequately incentivized. He shared his understanding that Hilcorp has a mature asset base and surmised that Hilcorp would not be impacted by a royalty incentive of this kind. Conversely, smaller producers that do not have mature assets may - with some incentive - be able to drill better wells with higher pressure and bigger reserves.

4:54:53 PM
SENATOR DUNBAR commented that these companies are rational actors and opined that companies would change their comments based on whether SB 194 was likely to pass. He suggested that DNR consider what companies said several years ago rather than what they are saying now. He shared his interpretation of the graph on slide 8 and noted that SB 194 is expected to bring 90bcf by 2029. He asked how to build against the risk that the state does not reach 90bcf by 2029 - or, how can the state ensure that 90bcf is reached by 2029 in spite of the expected declines and falling revenue caused by royalty relief.

4:56:29 PM
MR. CROWTHER replied that this is the intent of SB 194. He said that the royalty modifications would materially make these projects more attractive, leading to sanction and increased volume. He stated that the intent of SB 194 is to maximize the recovery of Cook Inlet's resources for Alaskans' use and extend the runway. He emphasized that this does not mean that a comprehensive energy plan is not needed in the future. Rather, SB 194 would make the most of the Cook Inlet resources for as long as possible. He added that continued, active management by DNR is necessary to ensure that obligations under plans of development are followed through on. He indicated that DNR anticipates a highly competitive environment and therefore expects to see immediate actions by the producers responding. He acknowledged that if this is not seen in the next year, the

state would not be on course to 90bcf by 2029. He asserted that action on SB 194 during the current legislative session is the way to avoid this scenario.

4:58:00 PM
SENATOR KAUFMAN commented that oil carries more dollar value; however, gas is the more strategic concern. He asked if there is any way to bias SB 194 toward gas production and wondered if there is anything being left on the table by not focusing more on gas production.

4:58:52 PM
MR. CROWTHER replied that the oil production in Cook Inlet is critical to the commodity market and the needs of Alaskans. He agreed that the focus of SB 194 is to boost gas security and energy security through the natural gas availability. He pointed out that HB 223 has a lower royalty rate for oil - and lowers the rate for gas further. He opined that it makes sense to incentivize all hydrocarbon subsurface development and exploration. He referred to several gas-only development possibilities and expressed a willingness to work with the committee on this. He noted that this would further strengthen access to gas development.

4:59:55 PM
SENATOR WIELECHOWSKI asked if the incremental gas shown in the grey bars on slide 7 is predominately from the Kitchen Lights and Cosmopolitan Units.

5:00:09 PM
MR. MEZA replied yes. He explained that DNR generated these analyses using public information from Cosmopolitan and Kitchen Lights Units.

CO-CHAIR GIESSEL requested additional financial data.

5:00:50 PM
CO-CHAIR GIESSEL held SB 194 in committee.
5:01:56 PM
There being no further business to come before the committee, Co-Chair Giessel adjourned the Senate Resources Standing Committee meeting at 5:01 p.m.