



FALL 2022 PRODUCTION FORECAST

House Finance Committee

Presented by Travis Peltier
Division of Oil & Gas
Alaska Department of Natural Resources
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AGENDA

- **Introduction**
- **Background:**
 - FY 2022 in Review
 - DNR Production Forecasting Approach
- **Fall 2022 Forecast Results**
- **Summary**

List of Acronyms:

FY: Fiscal Year (July 1 of the previous year to June 30 of the listed year.)

DNR: Alaska Department of Natural Resources

FY 2022 IN REVIEW

FY 2022 SUMMARY: NORTH SLOPE

Highlights (FY 2022 vs FY 2021)

- All Production Areas are generally expected to see a year-on-year decline
- Compared to FY 2021, in FY 2022 North Slope production decreased by ~2% (~9,570 bopd)
- **Decreases**
 - Alpine: Natural decline from flush production after extended shut-ins from 2020. Limited development drilling in FY 2022
 - Kuparuk and Kuparuk Satellites: Natural decline due to cessation of NGL imports and associated EOR, as the OPL was converted to fuel gas in early FY 2022
 - Offshore: Natural reservoir decline
- **Increases**
 - NPRA: GMT2 pad brought online, performing well
 - PBU Satellites: 10% production growth due to consistent drilling efforts
 - Point Thomson: 8% growth from improved facility reliability

List of Acronyms:

NGL: Natural Gas Liquids

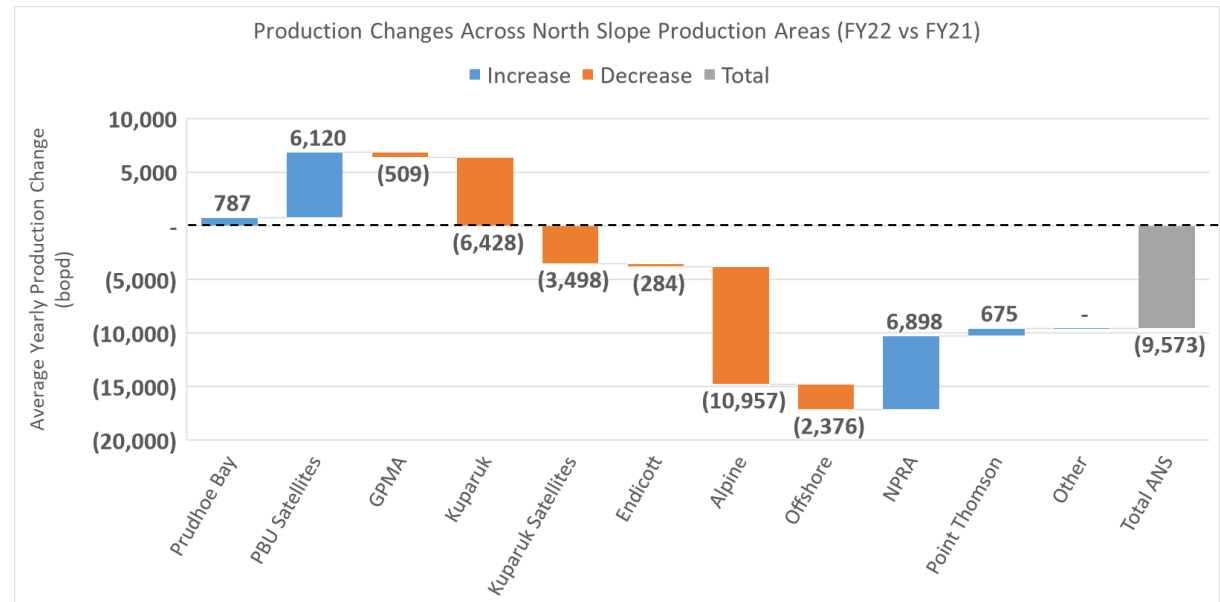
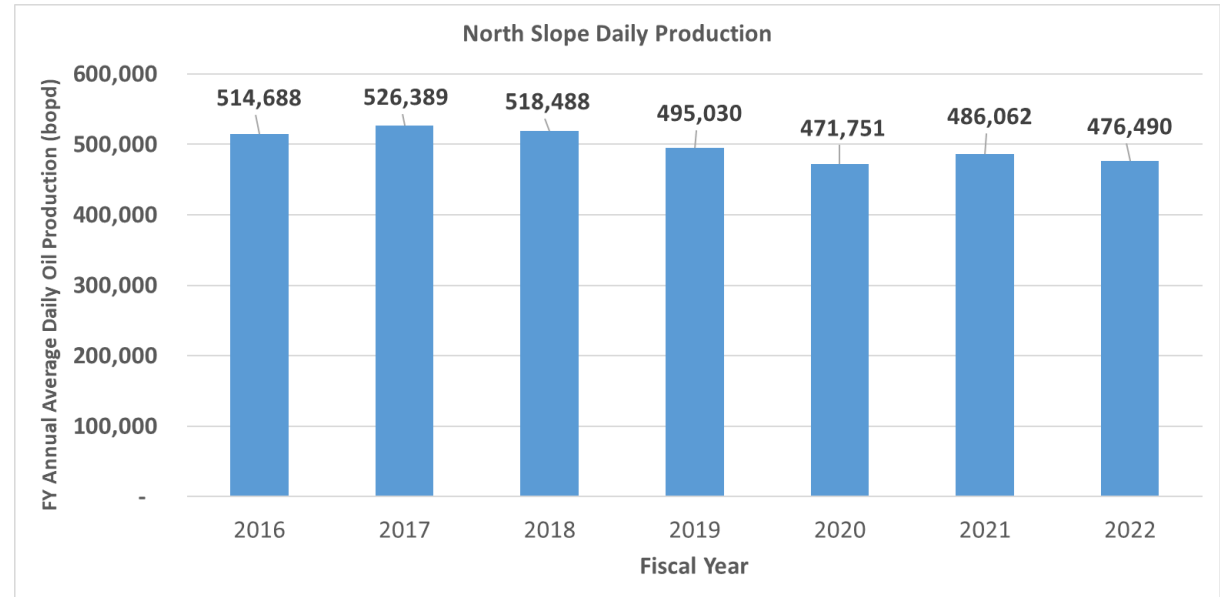
EOR: Enhanced Oil Recovery

GMT2: Greater Moose's Tooth Pad #2

NPRA: National Petroleum Reserve in Alaska

OPL: Oliktok Pipeline (runs from the Prudhoe Bay Unit to the Kuparuk River Unit.)

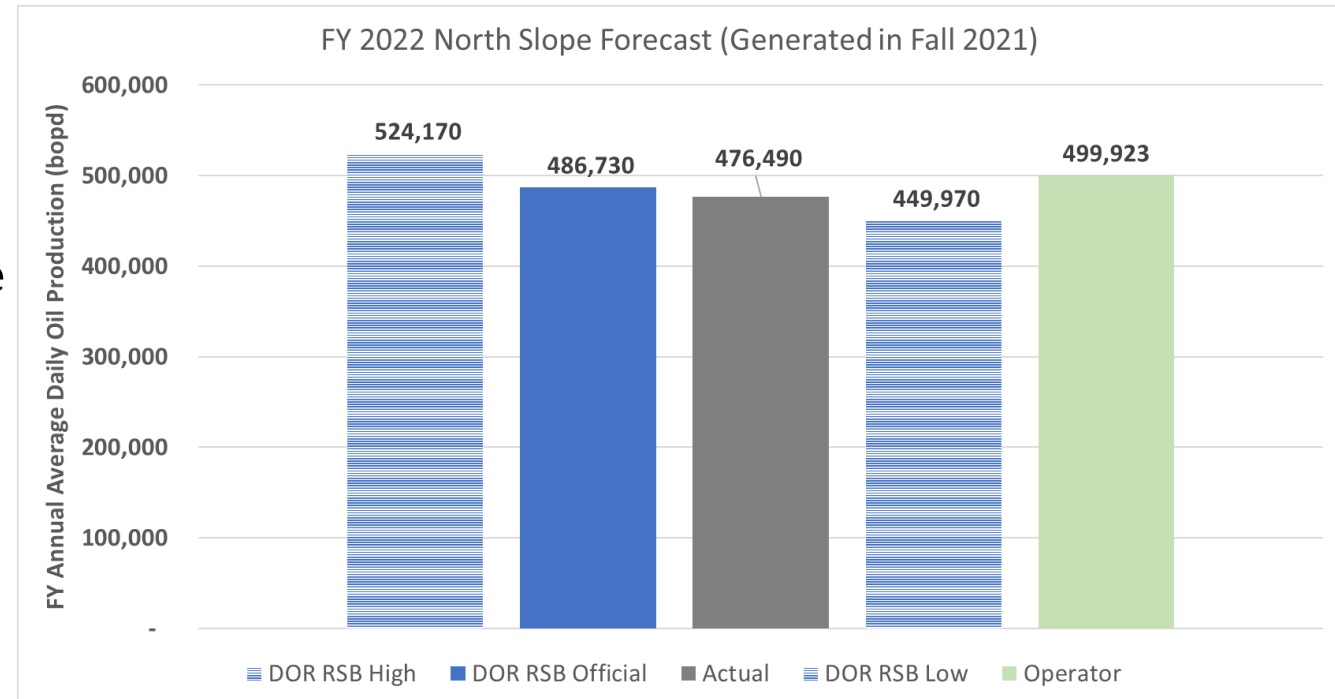
PBU: Prudhoe Bay Unit



FY 2022 AS FORECASTED BY DNR IN FALL 2021: HOW DID WE DO?

- **Actual FY 2022 production came in within DNR's forecasted range.**
- **DNR mean forecast was ~2% higher than actual FY 2022 production**
- **Factors to watch for that are currently shaping the forecast horizon**
 - Strong ESG influences continue to challenge capital allocation decisions in the Arctic, especially for early-stage oil projects under development/evaluation
 - Industry interest continues in Nanushuk leases and projects on State and Federal lands

North Slope Outlook for FY 2022 (July 2021 through June 2022)
Actual production falls within DNR's forecast range



List of Acronyms:

ESG: Environmental, Social, and Governance

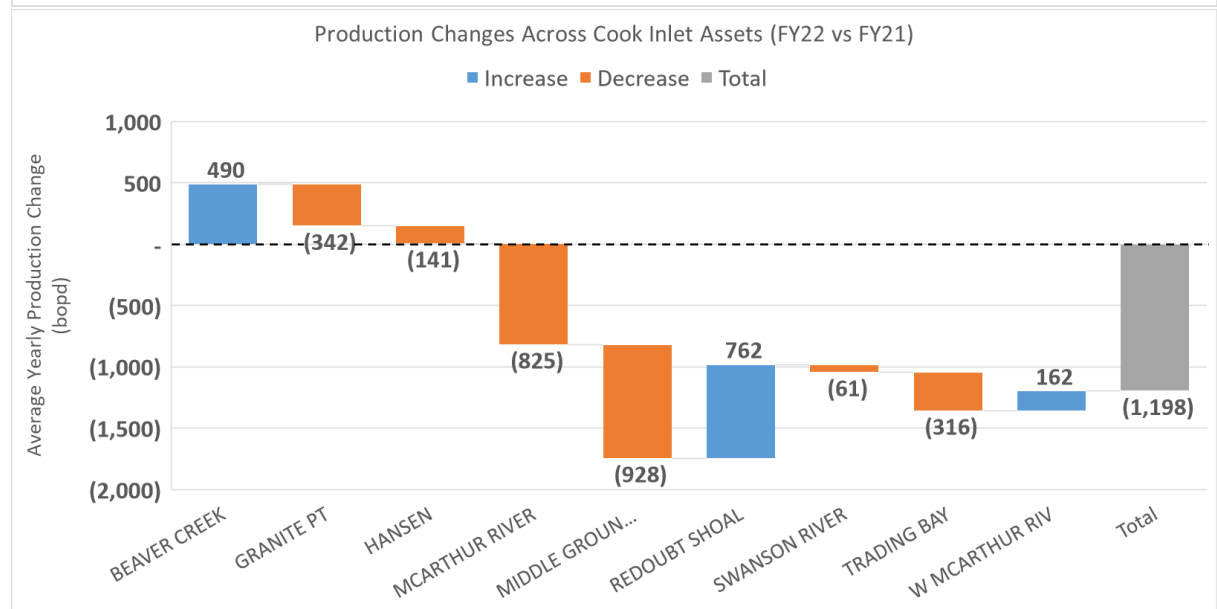
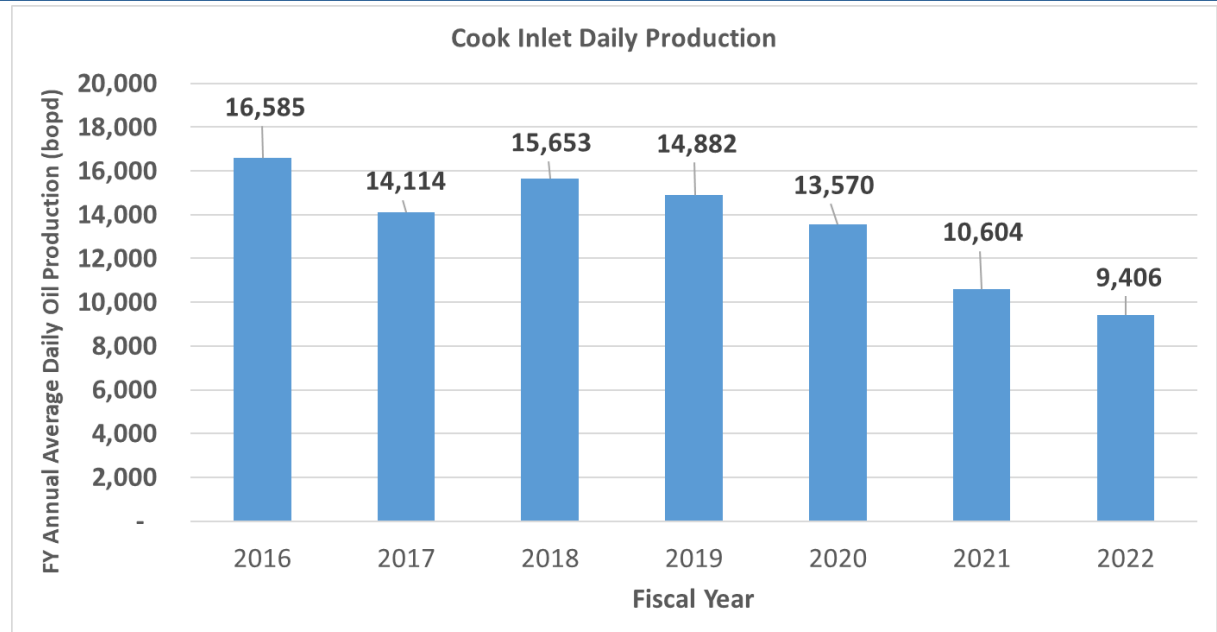
DOR: Alaska Department of Revenue

RSB: Revenue Sources Book

FY 2022 SUMMARY: COOK INLET

Highlights (FY 2022 vs FY 2021)

- All fields are generally expected to see a year-on-year decline
- Compared to FY 2021, in FY 2022 Cook Inlet production decreased by ~11% (~1200 bopd)
- Oil from the Cook Inlet basin critical to the supply of in-state refineries
- **Decreases**
 - Middle Ground Shoal: Field taken offline due to fuel gas pipeline leak discovered in April 2021. Production is currently suspended
- **Increases**
 - Beaver Creek increase due to rate-adding well work
 - Redoubt Shoal and West McArthur River fields brought back online in September and October 2021 respectively after being offline since May 2020



STATUS UPDATE OF KEY FUTURE PROJECTS: NORTH SLOPE

	Status: January 2022	Status: January 2023	Production Rate Estimates
Pikka	-Ongoing FEED; start of production (Phase 1: 2025; Phase 2 FID expected by ~2024/2025); Santos/Oil Search Merger completed.	Project Final Investment Decision (FID) approved in August 2022 for Pikka Phase 1. Project first oil anticipated in 2026.	Peak design capacity rate, Phase 1: 80,000 BOPD.
Willow	Addressing AK District Court remand; likely to target a new BLM Record of Decision anticipated by YE 2022. Construction expected to start Q1 2023. First oil post 2025/2026.	Awaiting BLM Record of Decision (ROD) on SEIS. Final Investment Decision (FID) cannot be made before the ROD is made. First oil expected 6 years after FID, if approved.	Peak rate: ~180,000 BOP.
CRU Narwhal CD8	Narwhal reservoir first oil Dec 2021. Produced ~1600 BOPD. Drilling expected from CD4 to total ~12 wells. Full dev't requires a new pad (CD8) and drilling an additional 20 to 40 wells starting in ~2028 from CD8.	Sustained Unit Production from CD8 could commence as early as 2028, pending stakeholder alignment, permitting, internal studies and alignment. This conceptual first oil date remains consistent with the 23rd POD submitted in 2021.	Peak DNR estimates >32,000 BOPD.
MPU Raven Pad	Long-Range Activities of Milne Point Unit (MPU) 40 th POD discuss future drilling opportunities in undeveloped acreage in the northwest of the unit.	November 2022 Hilcorp formally applied for approval to construct a new drilling and production pad (R Pad) on ADL 025509 within the Milne Point Unit.	Peak DNR estimates ~10,000 BOPD. Analogous to the 2018 M Pad development at MPU.
KRU Nuna-Torok	2021 Kuparuk River Unit (KRU) Plan of Development (POD) appraisal activity for two existing wells and seismic data processing.	2022 KRU POD states rotary drilling is planned in Q3 of 2022 with an additional injector/producer pair for additional Torok reservoir appraisal to inform future developments.	Peak rate up to 25,000 BOPD.

List of Acronyms:

POD: Plan of Development
FEED: Front End Engineering Design
FID: Final Investment Decision

BLM: US Department of Interior Bureau of Land Management
ROD: Record of Decision
SEIS: Supplemental Environmental Impact Statement

CRU: Colville River Unit
MPU: Milne Point Unit
KRU: Kuparuk River Unit

YE: Year End
Q: Quarter

DNR FALL 2022 PRODUCTION FORECASTING APPROACH

Recap: Minor changes in methodology from last year's forecast. Changes are:

- 1) To more explicitly capture drilling activity into Under Development and Under Evaluation, and**
- 2) To have DOR and DNR forecasts be the same in the first 5 months of the forecast period due to treatment of actual production. [Fall 2022 Forecast]**

DNR FORECAST PROCESS: PROJECTS/POOLS INCLUDED IN FORECAST

- **DOG performed ground-up Decline Curve forecasts for all producing pools (Public).**
 - Forecast of Current Production uses AOGCC publicly available data
 - ~37 pools (ANS and CI) , producing as of 6/30/2022
- **DOG engaged with operators through DOR-arranged in-person and written interviews**
- **17 projects under development/under evaluation were considered/researched/reviewed (Confidential)**
 - Forecast for these projects use confidential information from operators
 - Future production from these projects were adjusted and risked for scope of contribution, chance of occurrence and start date
- **Minor modifications in forecast approach between Fall 2021 and Fall 2022 forecasts**
 1. To more explicitly capture drilling activity into Under Development and Under Evaluation, and
 2. To have DOR and DNR forecasts be the same in the first 5 months of the forecast period due to treatment of actual production.

List of Acronyms:

DOG: Alaska Division of Oil and Gas, within the Alaska Department of Natural Resources

AOGCC: Alaska Oil and Gas Conservation Commission

ANS: Alaska North Slope

CI: Cook Inlet

CATEGORIES OF PRODUCTION: ONGOING/CURRENT VS FUTURE PRODUCTION

Ongoing/Current production

- **Current Production (CP)**

- Features and considerations:
 - Well and facility uptime
 - Operator spending to maintain base production
 - Reservoir management

Future production

- **Projects Under Development (UD) and Under Evaluation (UE):**

- Rate contribution:
 - Uncertainty in future well performance
 - Uncertainty in project scope
- Project occurrence and timing:
 - Uncertainty in timing (incl. outright project cancellation/deferral)
 - Commerciality risk (economic, regulatory etc)

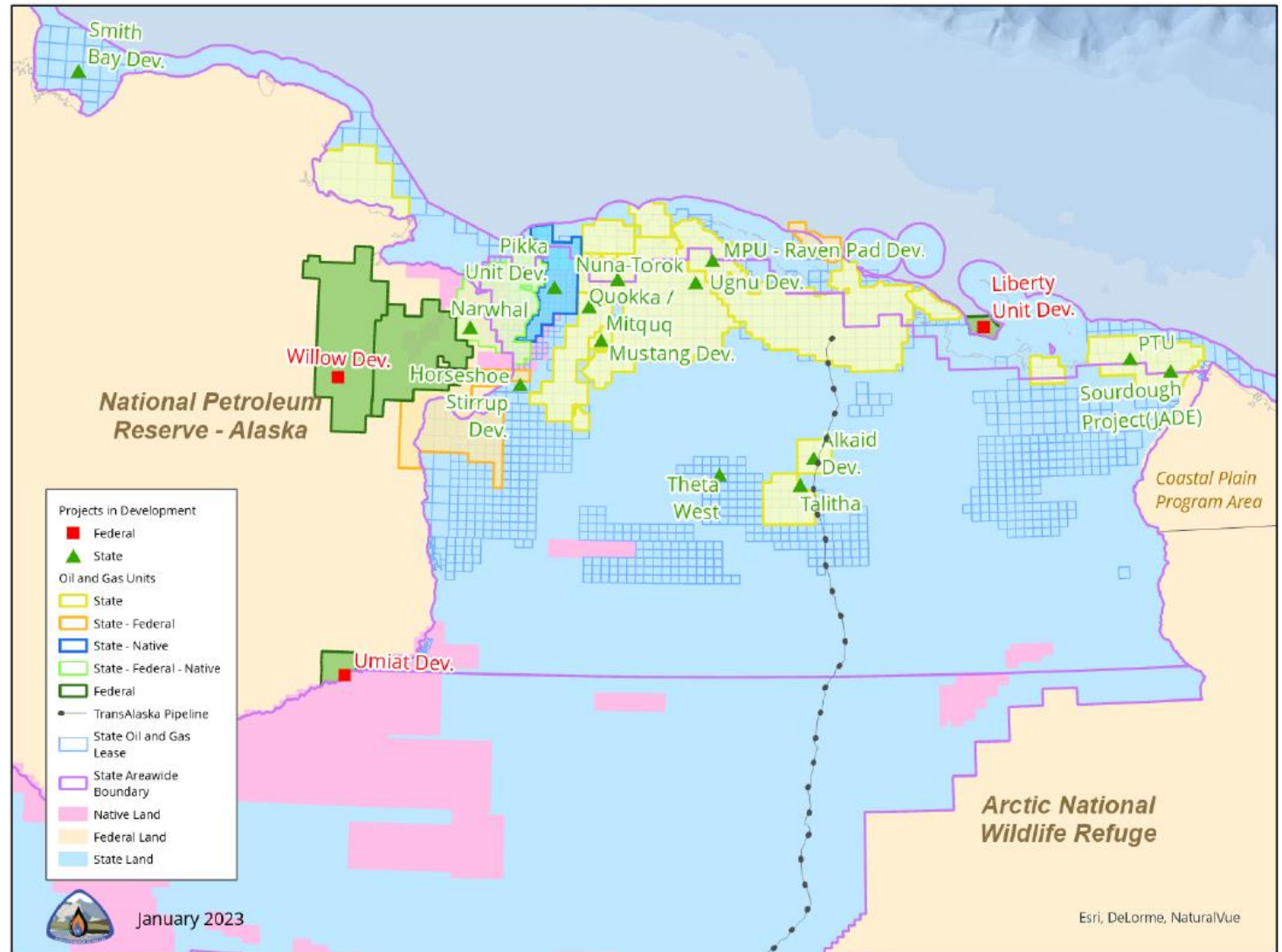
MAJOR PROJECTS [UNDER EVALUATION/DEVELOPMENT] CONSIDERED IN FALL 2022 FORECAST

Generalized characteristics

- Projects that were not online as at end of FY2022 (data cut-off date of 6/2022)
- Higher risk factors than currently producing fields
- Known discoveries with identifiable operators
- Require major investments

North Slope Major Projects List (West to East)

- | | |
|---------------------|---------------------|
| ▪ Smith Bay | ▪ Ugnu |
| ▪ Willow | ▪ MPU – Raven Pad |
| ▪ Umiat | ▪ Theta West |
| ▪ CRU Narwhal CD8 | ▪ Talitha |
| ▪ Horseshoe Stirrup | ▪ Alkaid |
| ▪ Pikka Unit | ▪ Liberty Unit |
| ▪ Quokka/Mitquq | ▪ PTU Expansion |
| ▪ Mustang | ▪ Sourdough Project |
| ▪ Nuna-Torok | |

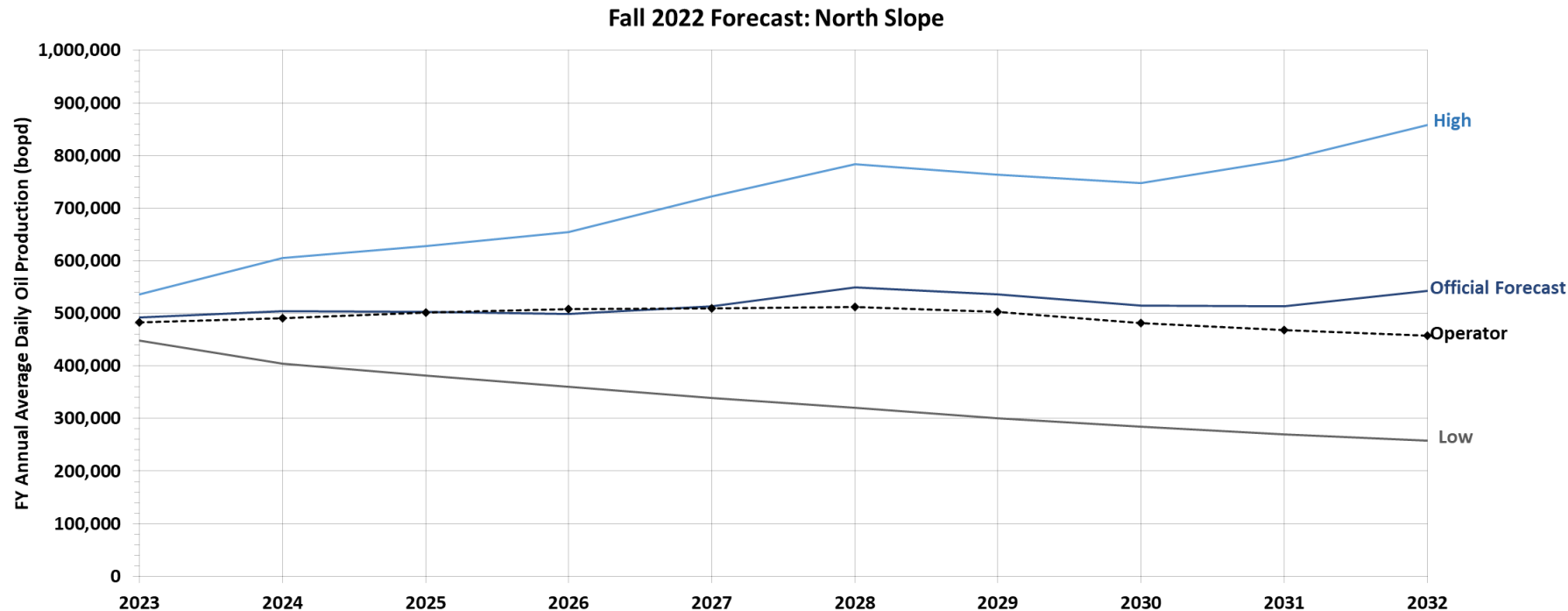


List of Acronyms:

PTU: Point Thomson Unit

FALL 2022 PRODUCTION FORECAST RESULTS

FALL 2022: NORTH SLOPE ANNUALIZED FORECAST



Comparison of DNR vs Operator Forecasts across the same group of fields.

Operator's numbers in charts exclude not-yet producing fields, while Official Forecast includes production from future projects.

- Short Term:
 - DNR forecasts FY2023 annualized average daily statewide production at 501 MBOPD, and North Slope production at 492 MBOPD, with a range of 448 MBOPD and 535 MBOPD
- Long term:
 - Long term forecast reliability is gauged by general ballpark comparison between DNR and operators' aggregate forecasts. Operators' long-term outlook falls within DNR's long term forecast range
 - Specific differences are expected and do highlight DNR's ground-up uncertainty analysis on all included projects
- Outlook on production assumes that operators' plans and other project drivers stay unchanged

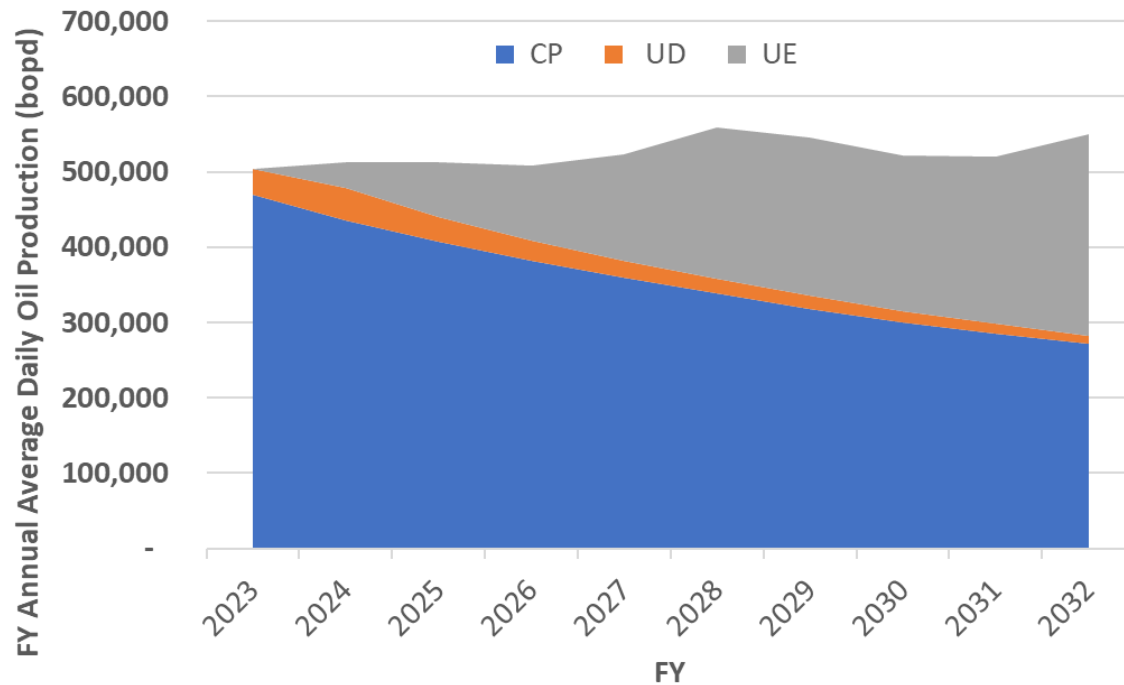
List of Acronyms:

MBOPD: thousand barrels of oil per day

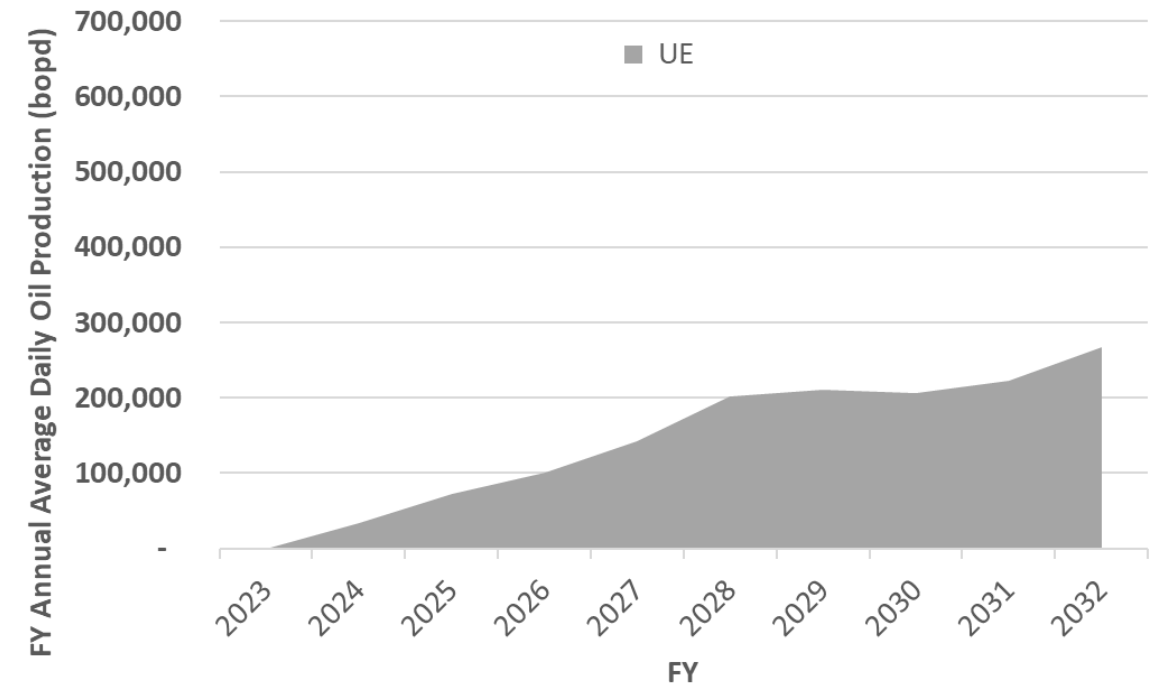
MMBOPD*: million barrels of oil per day (*note that this acronym is not used in this presentation and shown here for illustrative purposes only)

ALASKA STATEWIDE OIL PRODUCTION FORECAST – FALL 2022 EXPECTED CASE AND CATEGORIES OF PRODUCTION

AK Fall 2022 Production Forecast (Expected Case):
Production Categories



AK Fall 2022 Production Forecast (Expected Case):
UE Only



- *Current Production (CP) remains backbone of state production in near and medium term*
- *Under Development (UD) segment represents production expected from wells drilled in FY2023*
- *Under Evaluation (UE) begins to play a more significant role in production in the next 5-10 years*
- *Production outlook depends on several factors including operators' plans, oil price, fiscal system*

FALL 2022 PRODUCTION FORECAST - SUMMARY

- DNR Forecast continues to use the best information available to DNR/DOR, to generate production outlook for oil fields within the state, with a focus on generating accurate near-term, and realistic long-term, forecasts.
- Fall 2022 Forecast is a static view on production; DNR's outlook is updated annually (Fall and Spring) to incorporate latest operator plans and the State's official updated price outlook.
- DNR's Fall 2022 outlook shows mean annual production of approximately 500 MBOPD across much of the outlook period, based on the current snap-shot of operators' plans.
- Production from projects under evaluation reflects uncertainty in operators' plans towards return to pre-pandemic activity levels, specific project uncertainties, as well as project scope and timing risks.

THANK YOU

Thank you on behalf of the DOG Fall 2022

Production Forecasting Core Team:

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Travis Peltier**

