



COOK INLET GAS MARKET BRIEFING FOR THE SENATE FINANCE COMMITTEE

Division of Oil & Gas, Alaska Department of Natural Resources

March 18, 2022



AGENDA

- **Southcentral Gas Demand**
- **Cook Inlet Field Overview**
- **History of Cook Inlet Tax Credit Program**
- **Exploration and Development in Cook Inlet**
- **Future Production and Gas Reserves**



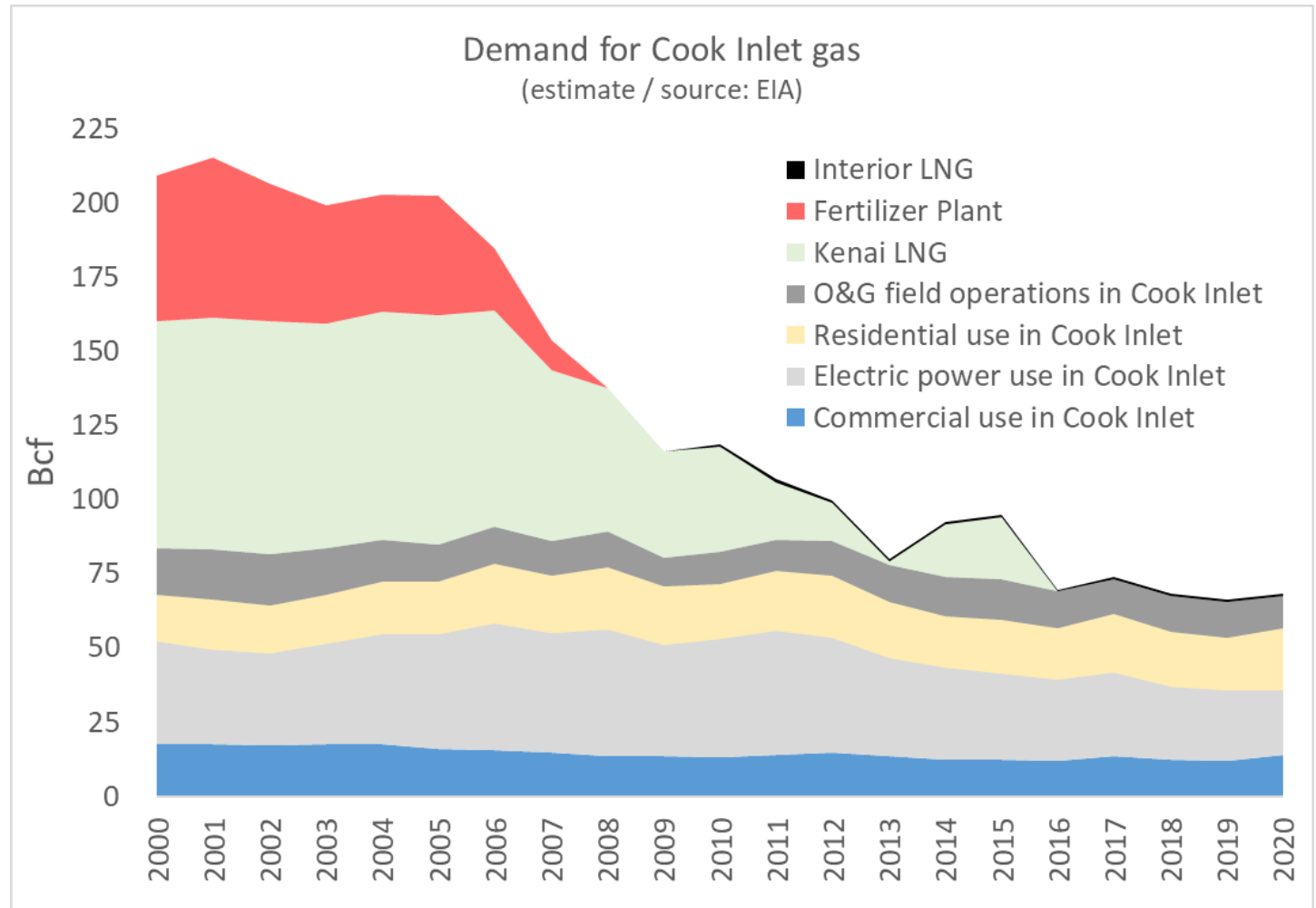
SOUTHCENTRAL GAS DEMAND: DEMAND BY USER TYPE

Kenai LNG Plant

- Nikiski liquified natural gas (LNG) facility is operated by, Trans-Foreland Pipeline Co. LLC – which is a sub of Marathon Oil
- Last exported LNG was 2015
- Department of Energy (DOE) authorization for exporting LNG expired in 2018
- Dec 2020 Federal Energy Regulatory Commission (FERC) approved LNG Imports to this facility an annual capacity up to 1.8 billion cubic feet (bcf) per year.

Nutrien Fertilizer Plant

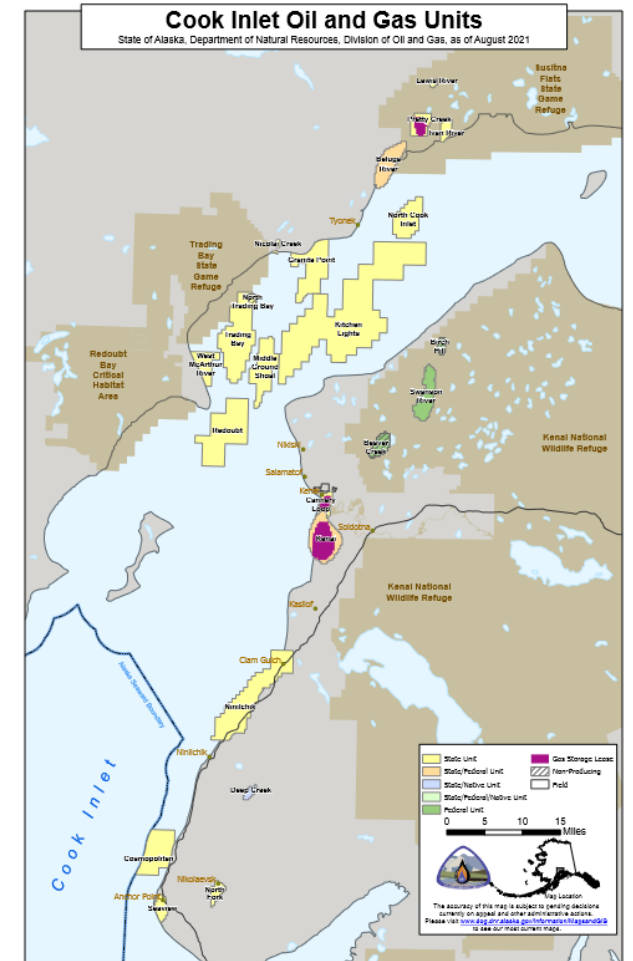
- 2nd largest ammonia/urea plant in U.S.
- Shut down and mothballed in 2007, however Nutrien maintains permits
- Gas prices relative to Lower 48 makes economics difficult
- Potential source for blue hydrogen/blue ammonia



COOK INLET FIELDS OVERVIEW: PRODUCTION BY FIELD

Field	Operator and lessees	'21 Gas Production	'21 Oil Production
KENAI LOOP	AIX Energy LLC	1.56 Bcf	
NICOLAI CREEK	Amaroq Resources, LLC	0.14 Bcf	
HANSEN	Bluecrest Alaska Operating LLC	0.95 Bcf	912 bpd
REDOUBT SHOAL	Cook Inlet Energy, LLC.	0.02 Bcf	254 bpd
W MCARTHUR RIVER	Cook Inlet Energy, LLC.	0.00 Bcf	59 bpd
KITCHEN LIGHTS	Furie Operating Alaska, LLC; Cornucopia Oil & Gas Company; A. L. Berry; Danny Davis; Taylor Minerals, LLC; Corsair Oil & Gas	4.77 Bcf	
BEAVER CREEK	Hilcorp Alaska, LLC	3.66 Bcf	407 bpd
BELUGA RIVER	Hilcorp Alaska, LLC; Chugach Electric Association	8.62 Bcf	
DEEP CREEK	Hilcorp Alaska, LLC	1.34 Bcf	
GRANITE PT	Hilcorp Alaska, LLC	1.32 Bcf	2,679 bpd
IVAN RIVER	Hilcorp Alaska, LLC	3.28 Bcf	
KENAI	Hilcorp Alaska, LLC	14.14 Bcf	
KENAI C.L.U.	Hilcorp Alaska, LLC	1.70 Bcf	
LEWIS RIVER	Hilcorp Alaska, LLC	0.39 Bcf	
MCARTHUR RIVER	Hilcorp Alaska, LLC	8.59 Bcf	3,131 bpd
MIDDLE GROUND SHOAL	Hilcorp Alaska, LLC	0.02 Bcf	313 bpd
NIKOLAEVSK	Hilcorp Alaska, LLC	0.11 Bcf	
NINILCHIK	Hilcorp Alaska, LLC	11.14 Bcf	
NORTH COOK INLET	Hilcorp Alaska, LLC	7.10 Bcf	
SEAVIEW	Hilcorp Alaska, LLC	0.12 Bcf	
SWANSON RIVER	Hilcorp Alaska, LLC	6.04 Bcf	774 bpd
TRADING BAY	Hilcorp Alaska, LLC	0.54 Bcf	787 bpd
NORTH FORK	Vision Operating, LLC	1.12 Bcf	

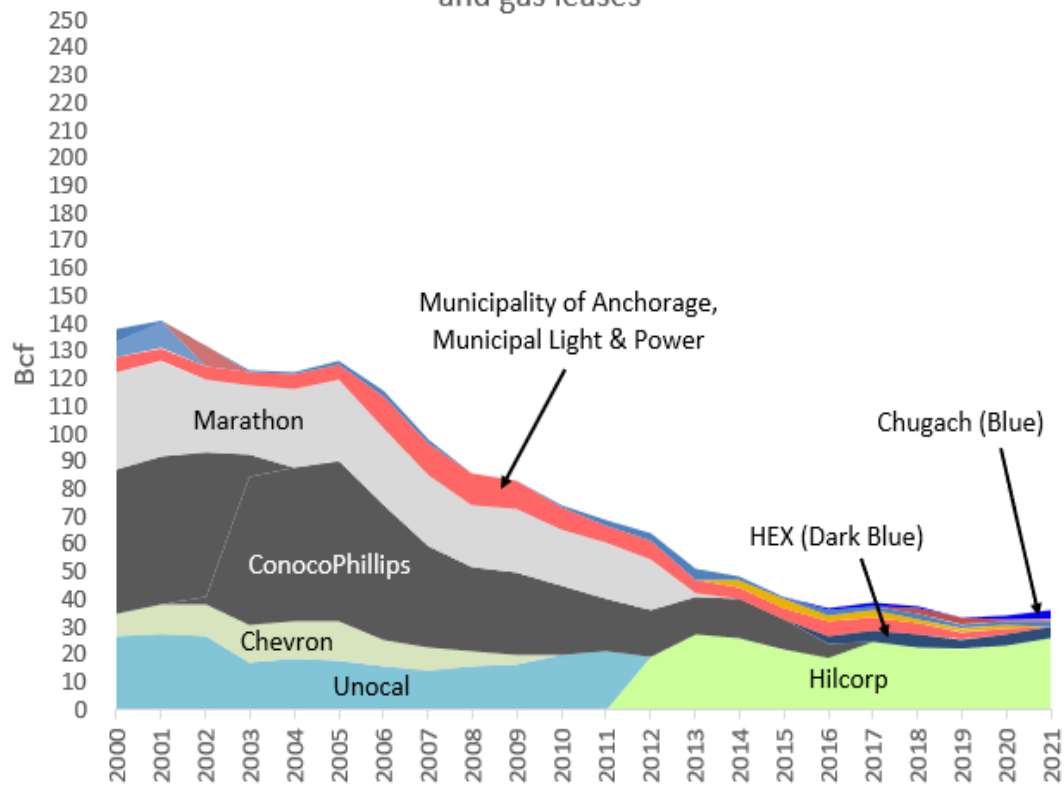
Bcf = billion cubic feet bpd = barrels per day



<https://dog.dnr.alaska.gov/Information/MapsAndGis>

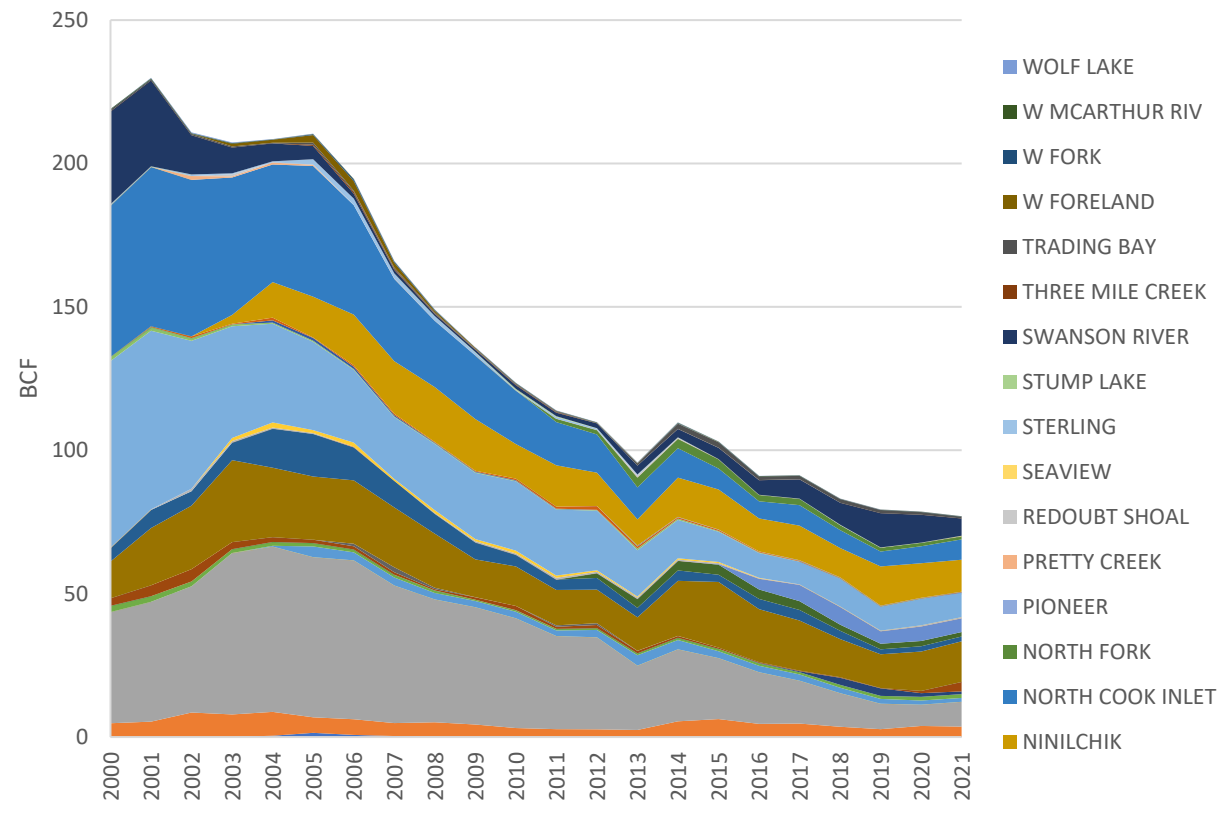
COOK INLET FIELDS OVERVIEW: GAS PRODUCTION HISTORY

Production of Cook Inlet gas by lessee from state-owned oil and gas leases



Note: State Lands Only

Cook Inlet Gas Production – Gross (BCF per year)



Note: State + Federal + Private Lands

HISTORY OF COOK INLET TAX CREDIT PROGRAM: DESIGN AND PURPOSE

The purpose of the Cook Inlet Tax credits is to “entice companies ‘to invest more money in Alaska and drill more wells’ so that the possibility of both discovery and production could be ‘substantially’ increased.”

Minutes, Senate Finance Committee, May 13, 2003, summarizing comments from Sen. Wagoner regarding AS 43.55.025(a) tax credits contained in SB 185

Primary Cook Inlet Credits

AS 43.55.023(l) *

Well Lease Expenditure Credit

- In effect from 2010 – 2017 for Cook Inlet
- Credit equal to 40% of well or seismic cost (decreased to 20% in 2017)
- Not available for North Slope

AS 43.55.025(a) *

Alternative credit for exploration

- In effect from 2003 – 2016 for Cook Inlet (2010 for Jack-Up Rig Credit)
- Credit equal to 30% or 40% of well or seismic cost (increased from 20% in 2008)
- Distance restrictions from existing wells or units to qualify

Other Major Tax Credits

AS 43.55.023(a)

Qualified Capital Expenditure Credit

- In effect from 2006 – 2017 for Cook Inlet
- Credit equal to 10% - 20% of capital expenditures

AS 43.55.023(b)

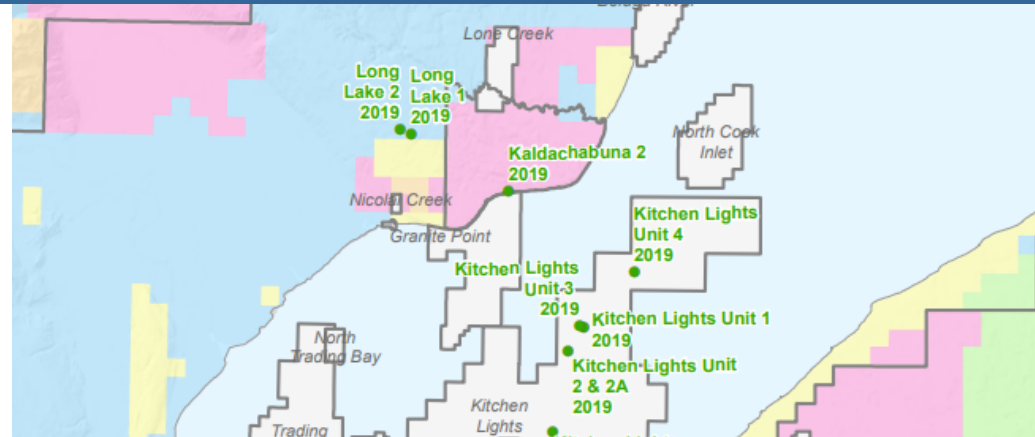
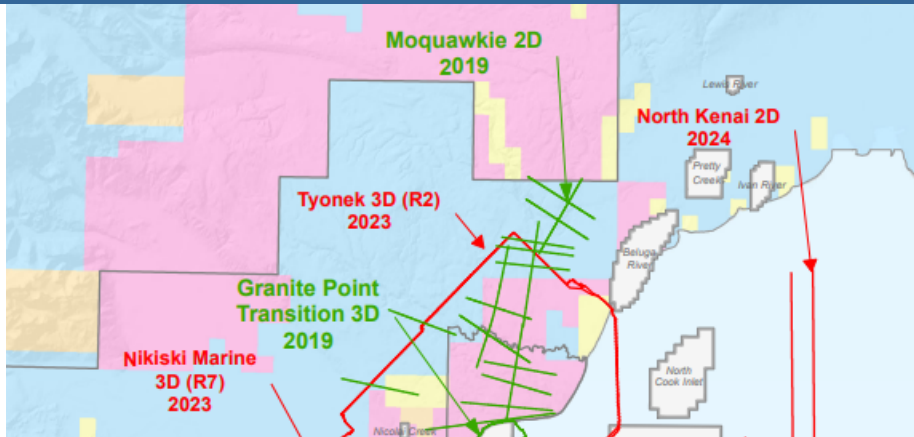
Carried Forward Annual Loss Credit

- In effect from 2006 – 2017 for Cook Inlet
- Credit equal to 25% of annual loss (increased in 2007)

Additional Considerations

- Credits could be certificated, and either traded or repurchased by the State
- * These credits have a DNR data submittal requirements

DATA RELEASE THROUGH THE TAX CREDITS PROGRAM



Seismic Data Release Status

Seismic survey, showing data coverage:

2D survey	3D survey	Release Status
		Survey released and available at Geological Materials Center
		Statutory confidentiality period expired; survey eligible for and in preparation for release (see notes 2, 3, and 4)
		Other survey with tax credit certificate, statutory confidentiality period still in effect; survey not yet eligible for and prepared for release (see notes 2, 3, 4, and 5)

- Notes:**
- This map is intended as a current snapshot of information that can be disclosed publicly regarding tax credit seismic surveys.
 - Representation on this map does not guarantee public release and is subject to statutory requirements in effect at the time of acquisition and application for tax credit.
 - Release is subject to public notice and permission of private oil and gas mineral estate owner where applicable. Some surveys require clipping to mineral ownership boundaries; actual map extents of released datasets may differ from those shown here.
 - Year label on "Released" surveys denote actual release year. Year label on "Eligible" and "Issued" denote the year in which the data is eligible for release and distribution under AS 43.55.025(f)(2)(c), most tax credit seismic projects are held confidential for 10 years from completion of initial seismic processing.
 - Map does not include surveys whose initial seismic processing was completed less than 10 years ago but prior to legislative adoption of the disclosure clause of AS 43.55.025(f)(5). Seismic surveys acquired with credits under AS 43.55.023 are not subject to disclosure under AS 43.55.025(f)(5), and cannot be represented here until their confidentiality period has expired.
 - Additional qualifying surveys will be added to this map as new tax credit certificates are issued or as changes in confidentiality status allows.

Map updated: February 2022

Well Data Release Status

Well bottom hole location

Well	Has VSP Checkshot	Release Status
		Well released and available at Geological Materials Center
		Statutory confidentiality period expired; well data eligible for and in preparation for release (see notes 2, 3, and 4)
		Wells with issued tax credit certificate, statutory confidentiality period still in effect; well not yet eligible for and prepared for release (see notes 2, 3, 4, and 5)

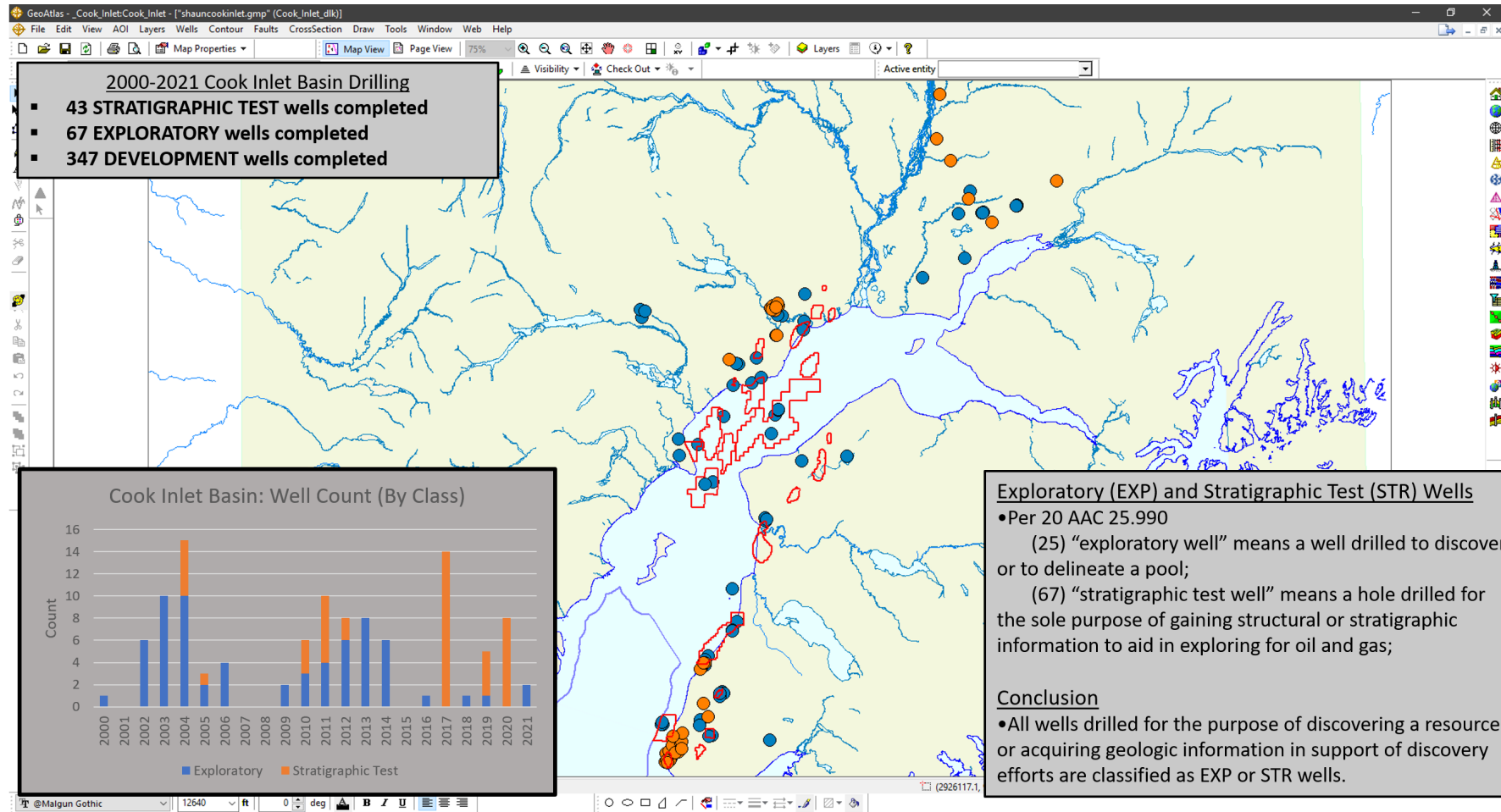
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 - Map does not include wells completed, suspected, or abandoned less than 10 years ago but prior to legislative adoption of the disclosure clause of AS 43.55.025(f)(5). Wells acquired with credits under AS 43.55.023 are not subject to disclosure under .025(f)(5), and cannot be represented here until their confidentiality period has expired.
 - Additional qualifying wells will be added to this map as new tax credit certificates are issued or as changes in confidentiality status allows.

Map updated: December 2020

- DNR releases well & seismic data collected under the Tax credit program (past the statutory holding period) for a nominal charge
- For the State:
 - Increases State knowledge
 - Utility in managing State lands
 - Purposed to incentivize new and additional investment
- For Industry/Research:
 - Lower barrier to entry
 - Further published research/training
 - Development of new technologies

Source: [DOG-DNR](#)

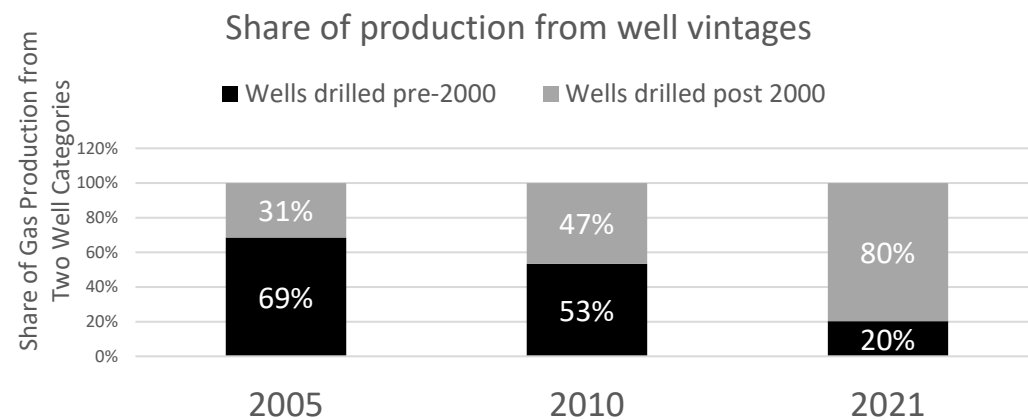
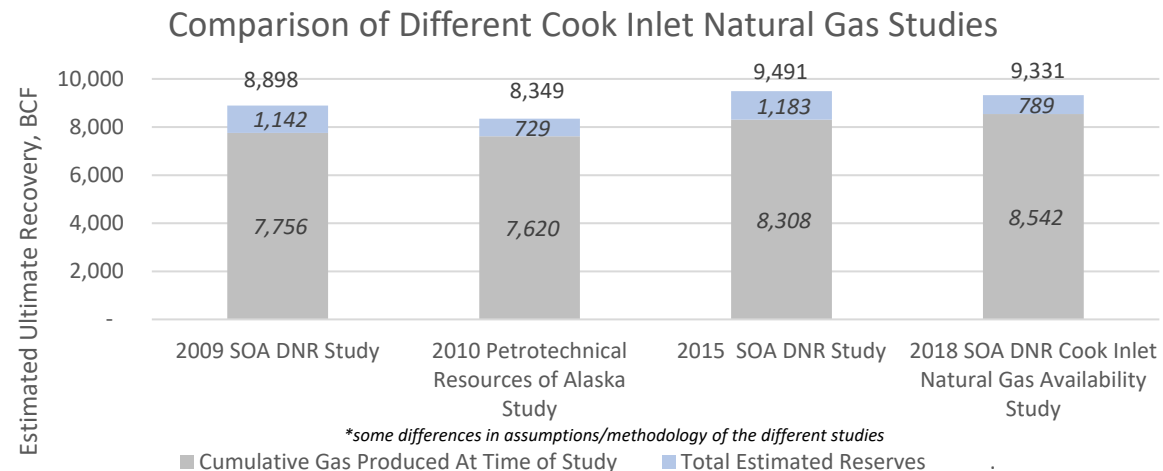
EXPLORATION & DEVELOPMENT IN COOK INLET: 2000 THROUGH 2021



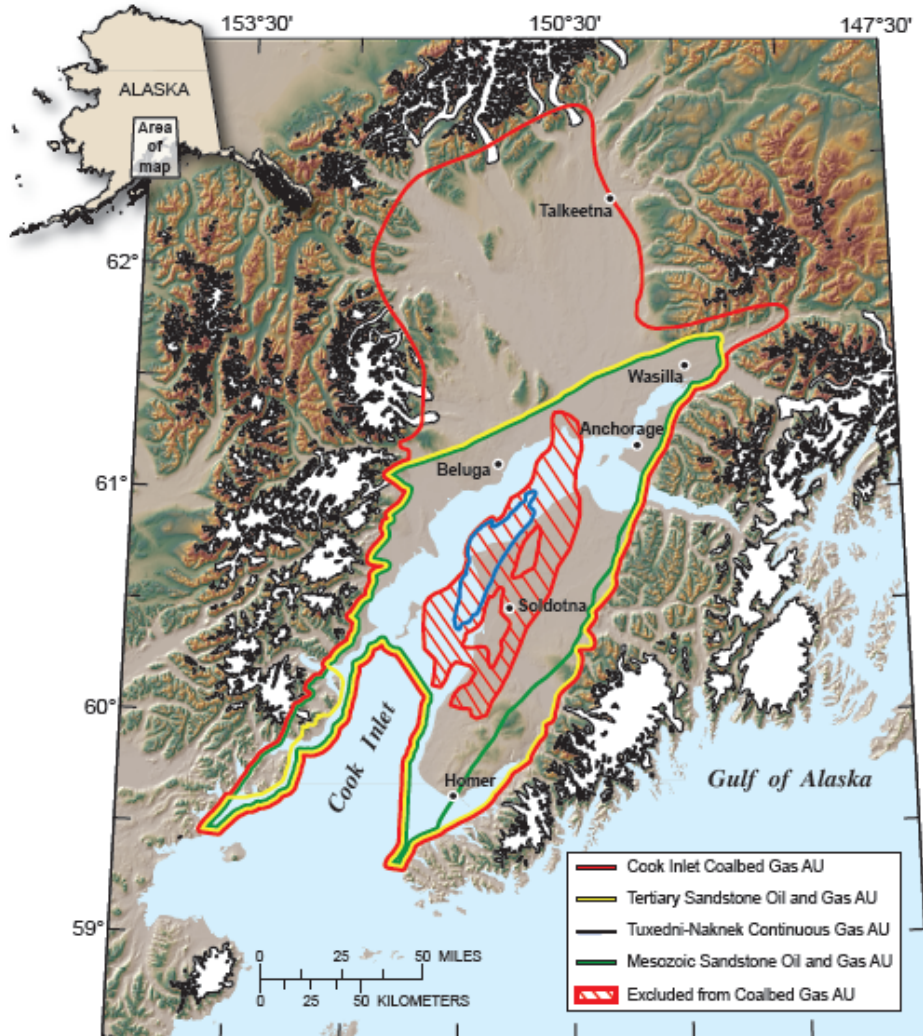
Recent Cook Inlet exploration activity comprises seismic, aerial surveys and drilling of exploratory and stratigraphic test wells

EXPLORATION & DEVELOPMENT IN COOK INLET: COOK INLET FUTURE PRODUCTION

- Past studies over the last decade show remaining reserves in the 700Bcf to 1Tcf range, suggesting some level of reserve replacement sustaining production in the basin
- DNR DOG currently undertaking another review on CI Production outlook to include the following considerations:
 - Production through 2021
 - Potential future production from online fields
 - Potential future production from new drills included in operators' plans
- The CI Basin depends on successful exploration:
 - The CI Basin has been producing for over 60 years
 - Continuous exploration has led to 13 new Units coming online, and over 450 wellbores drilled since year 2000
 - Of the ~200 MMCF/D of produced gas in 2021, ~80% came from wells drilled less than 20 years ago
 - Exploration/delineation within and outside the units is crucial to continued security of gas supply for the basin



EXPLORATION & DEVELOPMENT IN COOK INLET: COOK INLET UNDISCOVERED RESOURCE



- **Undiscovered, Technically Recoverable Oil & Gas (USGS, 2011):**
 - mean conventional oil 599 MMBO
 - mean conventional gas 13.7 TCF
 - mean unconventional gas 5.3 TCF
- **Undiscovered, Technically Recoverable Gas:**
 - 1.2 TCF additional mean resource assessed in Southern Cook Inlet OCS (BOEM, 2011)
- In general, access to additional area provides opportunities for locating and commercializing currently undiscovered resources.



SB 62

GAS ONLY LEASES; RENEWABLE ENERGY GRANT FUND

Division of Oil & Gas, Alaska Department of Natural Resources

March 18, 2022



SB 62

- Allow the Division of Oil & Gas to lease and capture revenue from State-owned resources underlying lands restricted from surface use.
 - Would only allow for drilling and development from nearby unrestricted land.
 - Would not grant any right to use the restricted surface of the leased land.
 - Maintains existing surface protection for Kachemak Bay.
- Increased revenue and railbelt energy security potential:
 - Lease sale bids, annual rental payments.
 - Royalties *if* exploration occurs and discoveries are made.
 - New wells and exploration contribute to a reliable *domestic* source of energy.

West

DRILLING FROM ONSHORE

Offshore

Onshore

East

Cook Inlet

Water well - 100'

Kenai Bluff Level (~145' elevation)

Surface Gravel / Proglacial Deposits

Freshwater Aquifers

-1000'

-3000'

-5000'

-7000'

Gas Reservoirs

Oil Reservoirs

Water-Bearing Reservoirs

Structure Cross-section

Cook Inlet

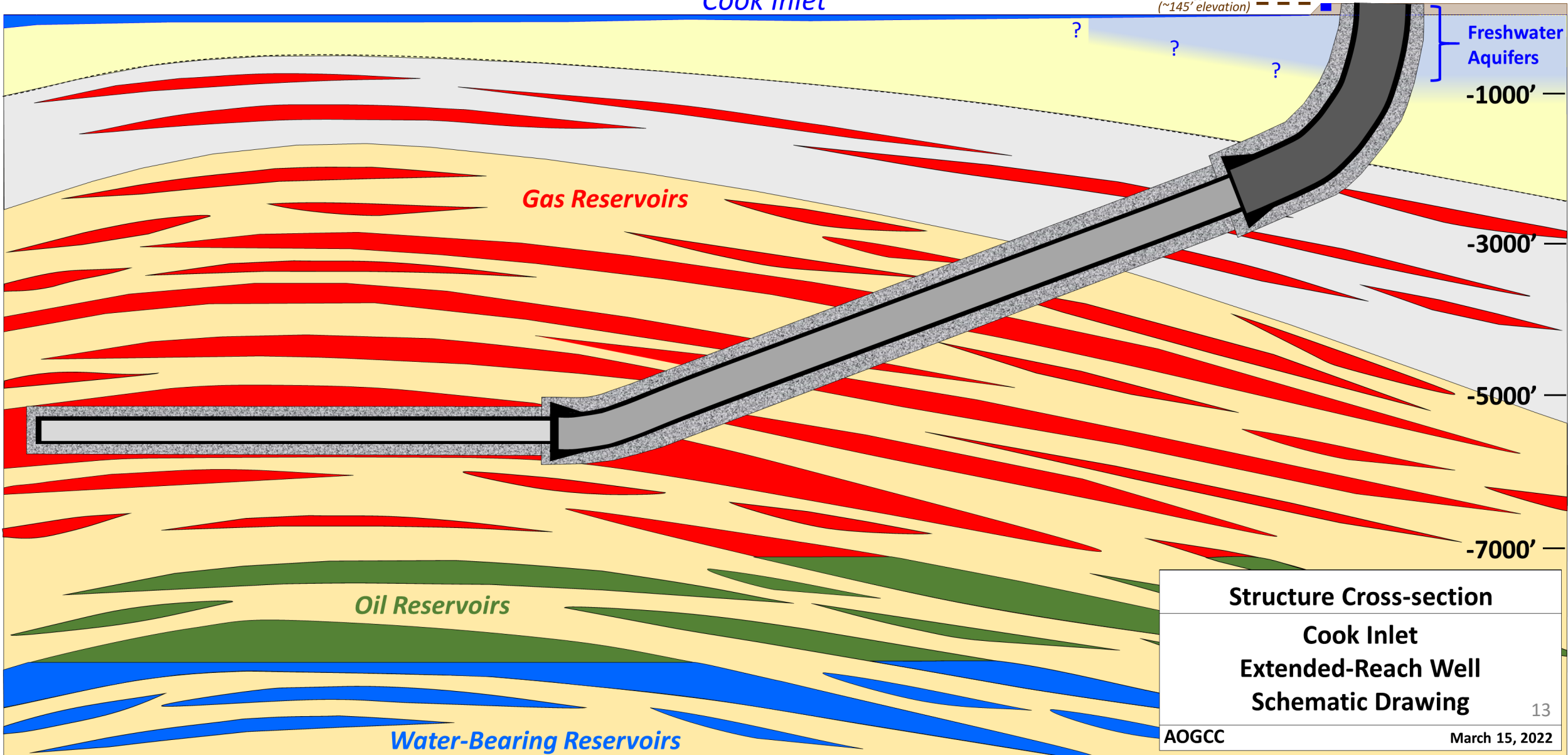
Extended-Reach Well

Schematic Drawing

13

AOGCC

March 15, 2022



AOGCC & CORRELATIVE RIGHTS

Tools Available to the AOGCC to Protect Correlative Rights

- **Property Line Offset Requirements:** Gas wells cannot be drilled within 1,500 feet of a property line without an AOGCC order.
- **Escrow Accounts:** The AOGCC can order an operator to establish an escrow account to hold revenue allocated to a property within the development area that the operator doesn't currently have a lease for.
- **Compulsory Unitization:** The AOGCC can compel unitization for the purposes of preventing waste, maximizing ultimate recovery, and protecting correlative rights.

THANK YOU

COOK INLET UPDATE:

JHONNY MEZA, PASCAL UMEKWE, JOHN BURDICK,
HEATHER HEUSSER, SHAUN PETERSON, & RYAN FITZPATRICK

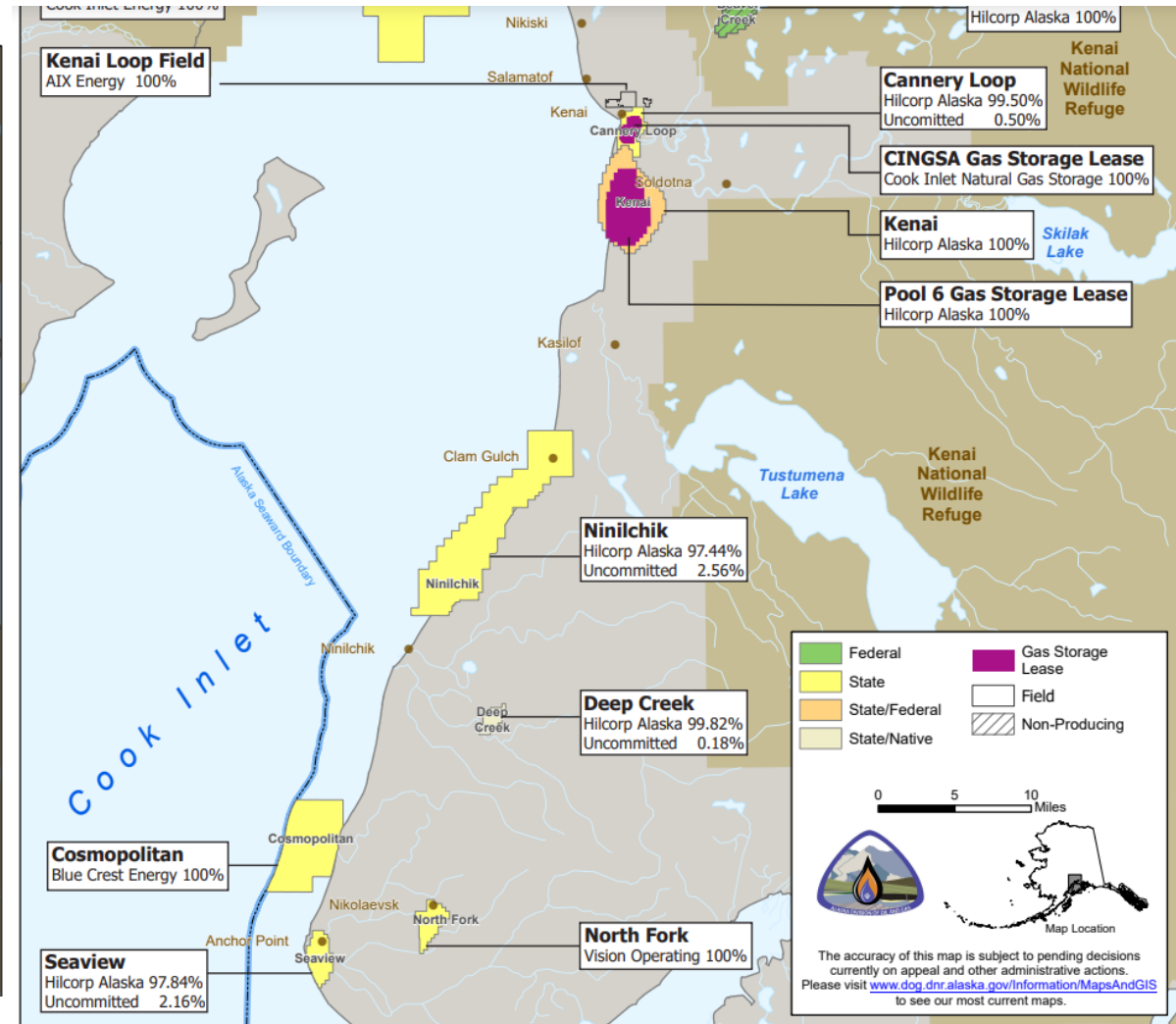
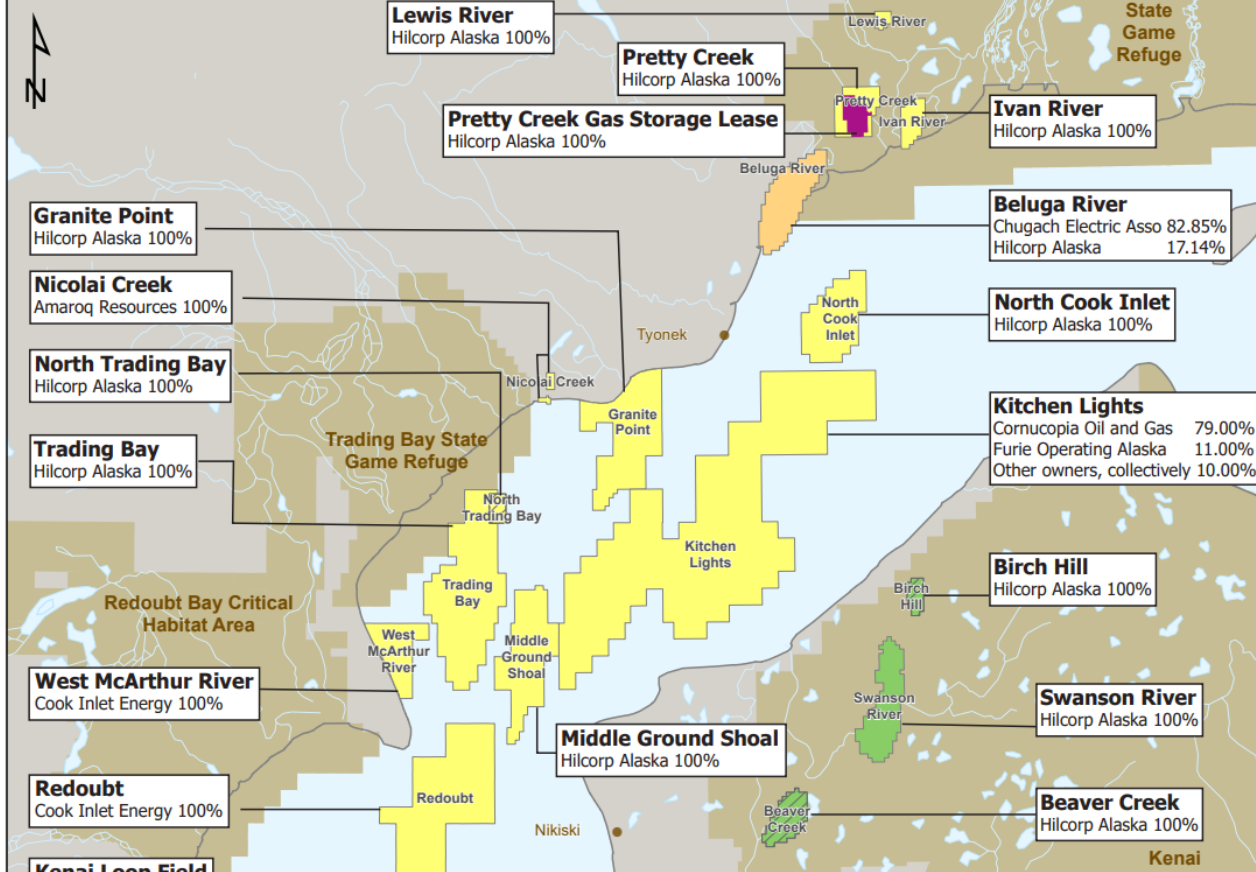
DIVISION OF OIL AND GAS
DEPARTMENT OF NATURAL RESOURCES

COOK INLET GAS MARKET - APPENDICES

COOK INLET FIELDS OVERVIEW: FIELD OWNERSHIP

Working Interest Ownership of Cook Inlet Units

State of Alaska, Department of Natural Resources, Division of Oil and Gas, as of Sept 2021

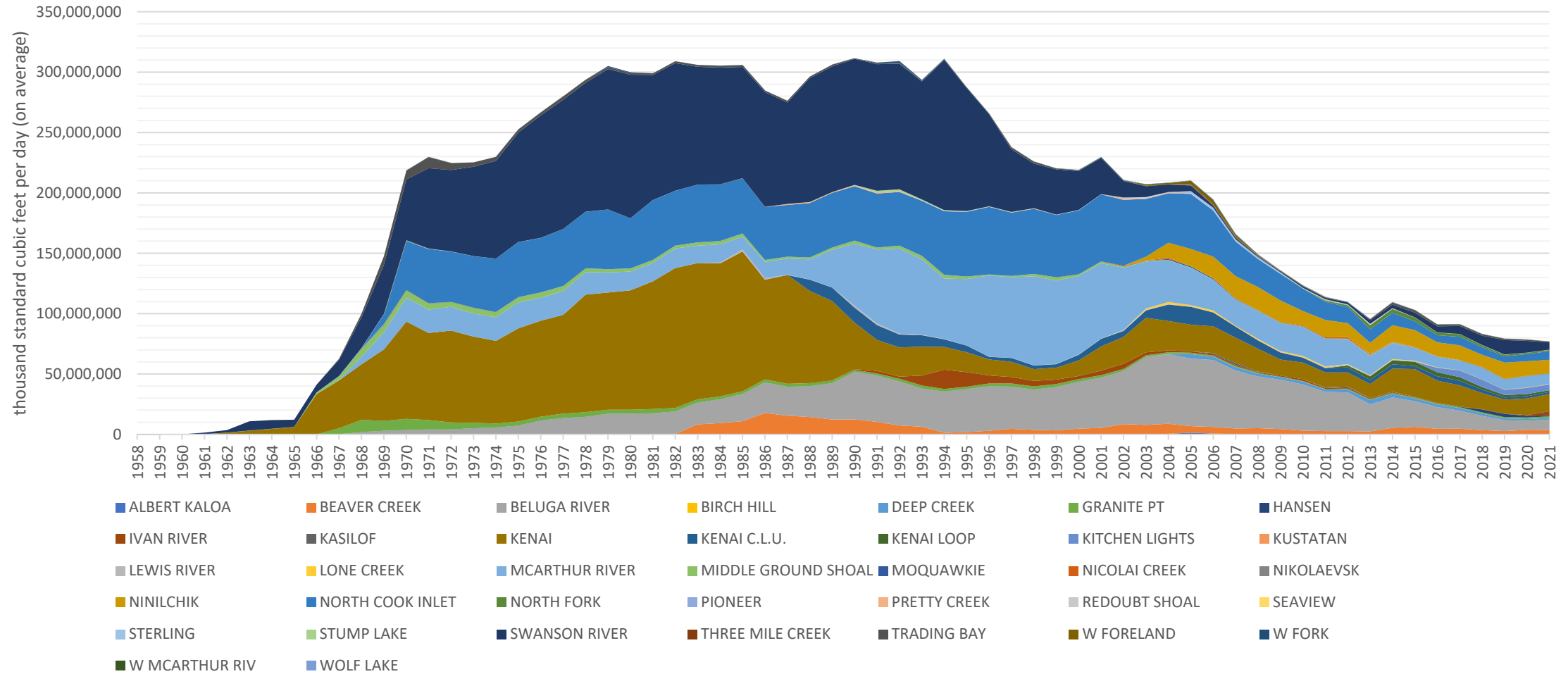


Source: DNR

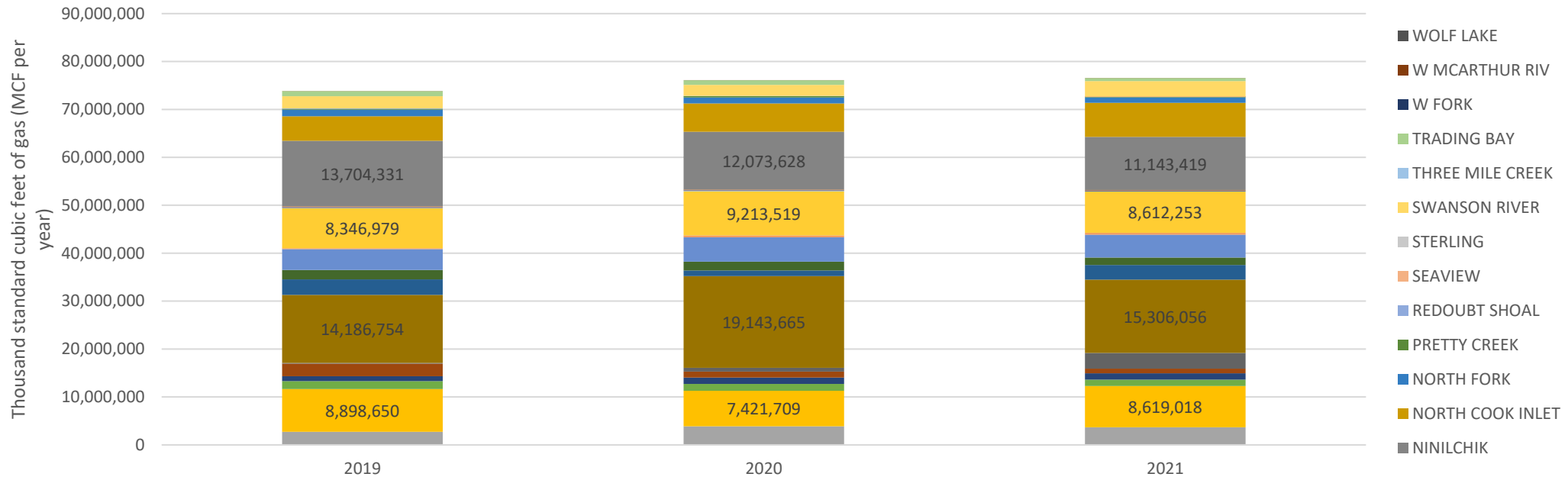
March 18, 2022

DNR Presentation to Senate Finance Committee

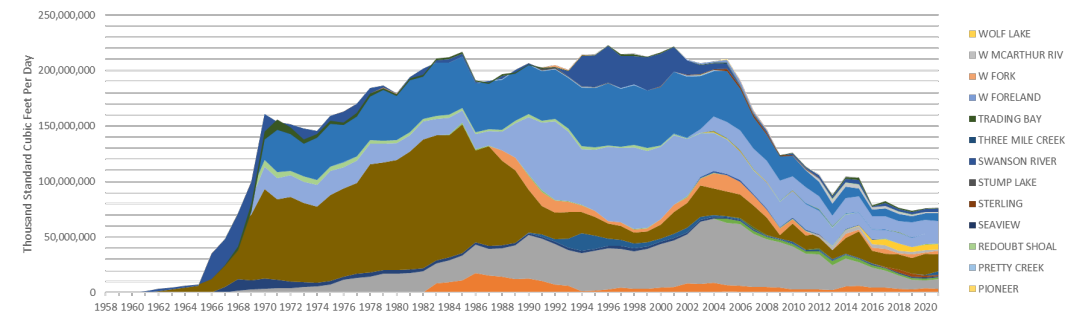
COOK INLET FIELDS OVERVIEW: GROSS GAS PRODUCTION



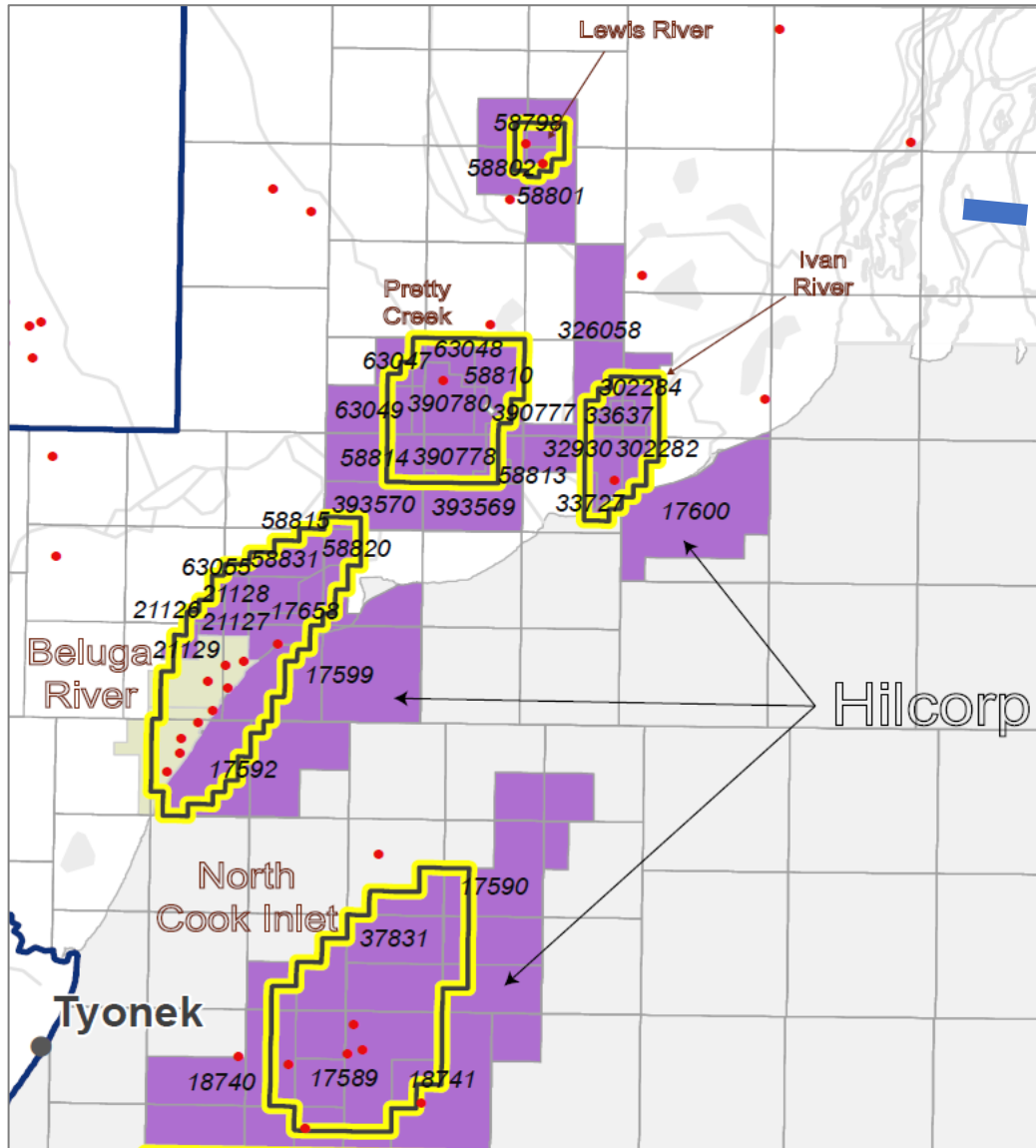
COOK INLET FIELDS OVERVIEW: GAS PRODUCTION DECOMPOSITION



- Gas Supply comes from multiple assets, with different levels of contribution
- Major contributors to South Central Gas Supply (1958 through 2021)
 - Kenai (~29%)
 - North Cook Inlet (22%)
 - McArthur River (18%)



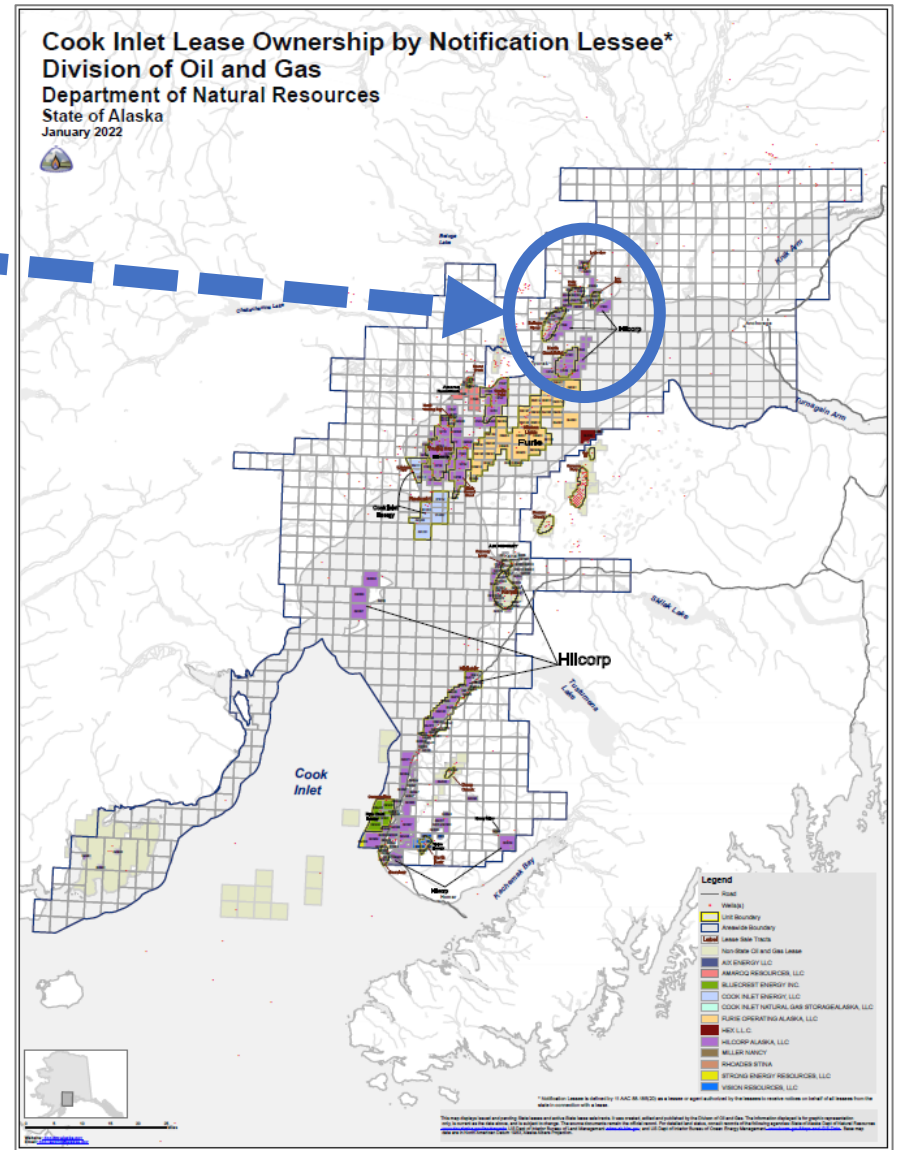
CURRENT OIL AND GAS UNITS AND LEASES



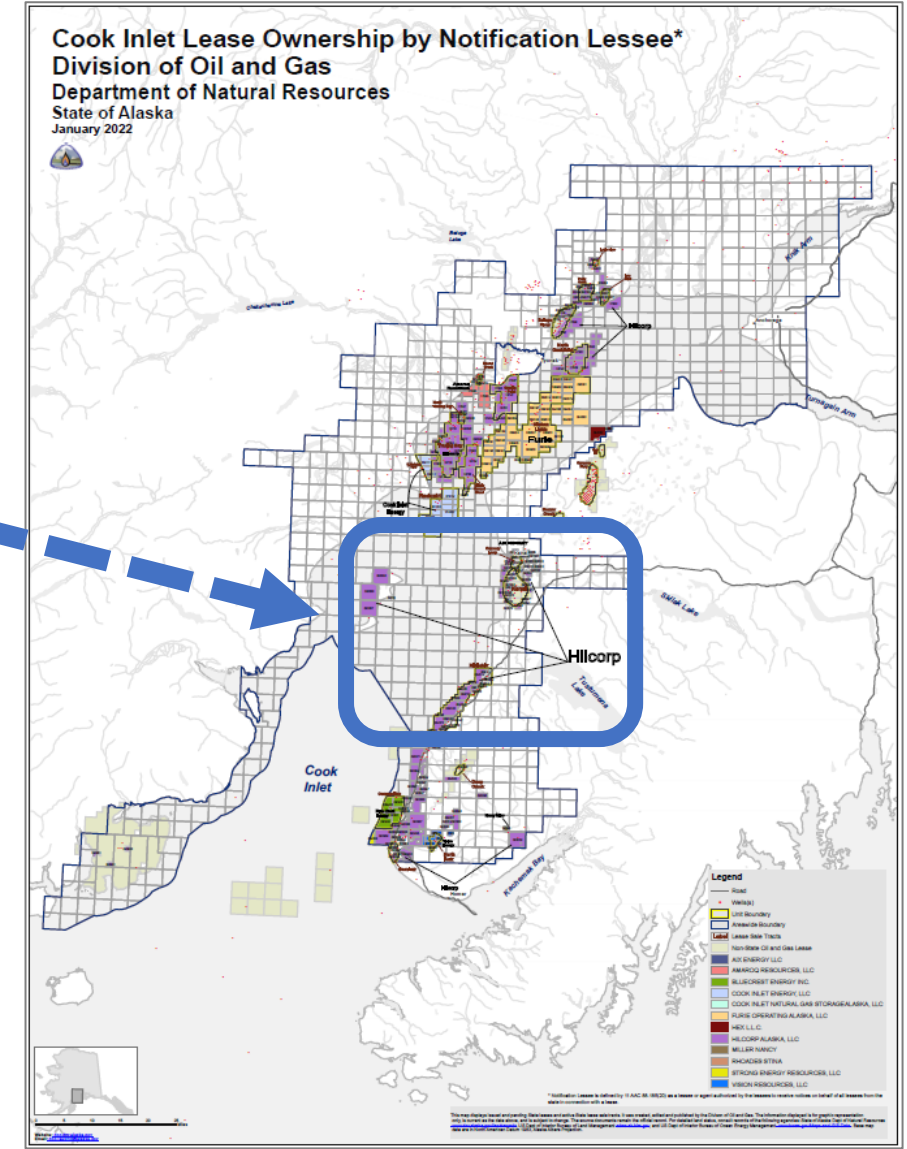
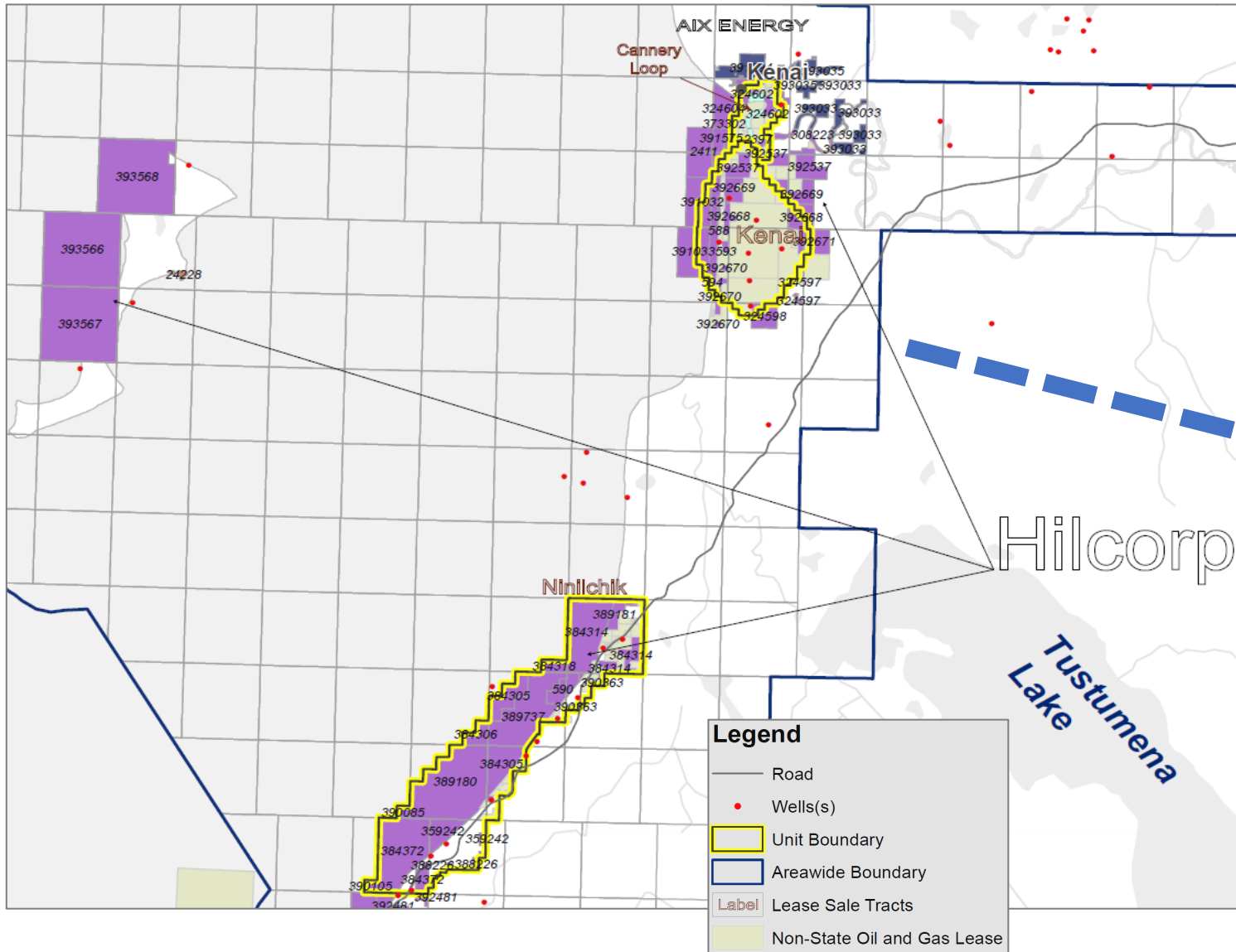
Hilcorp

Legend

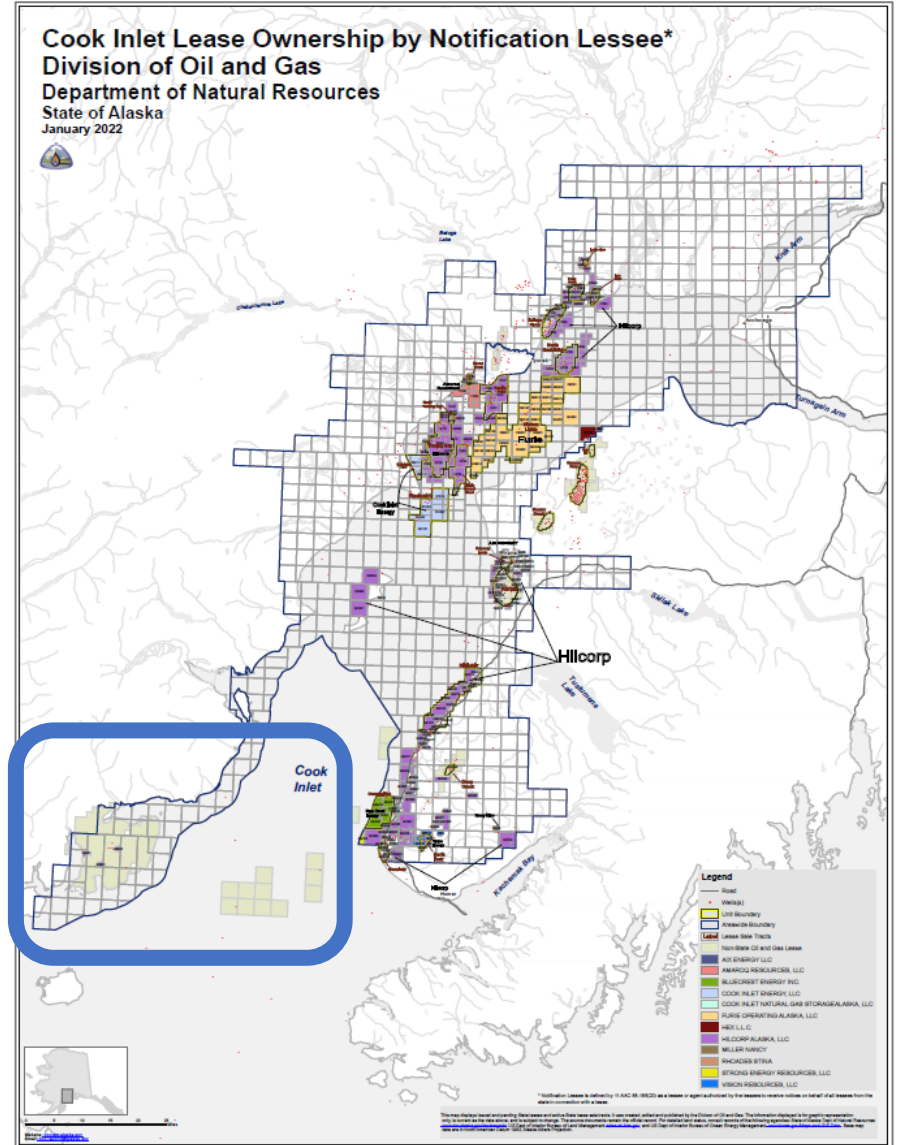
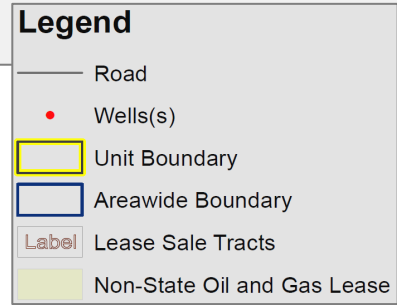
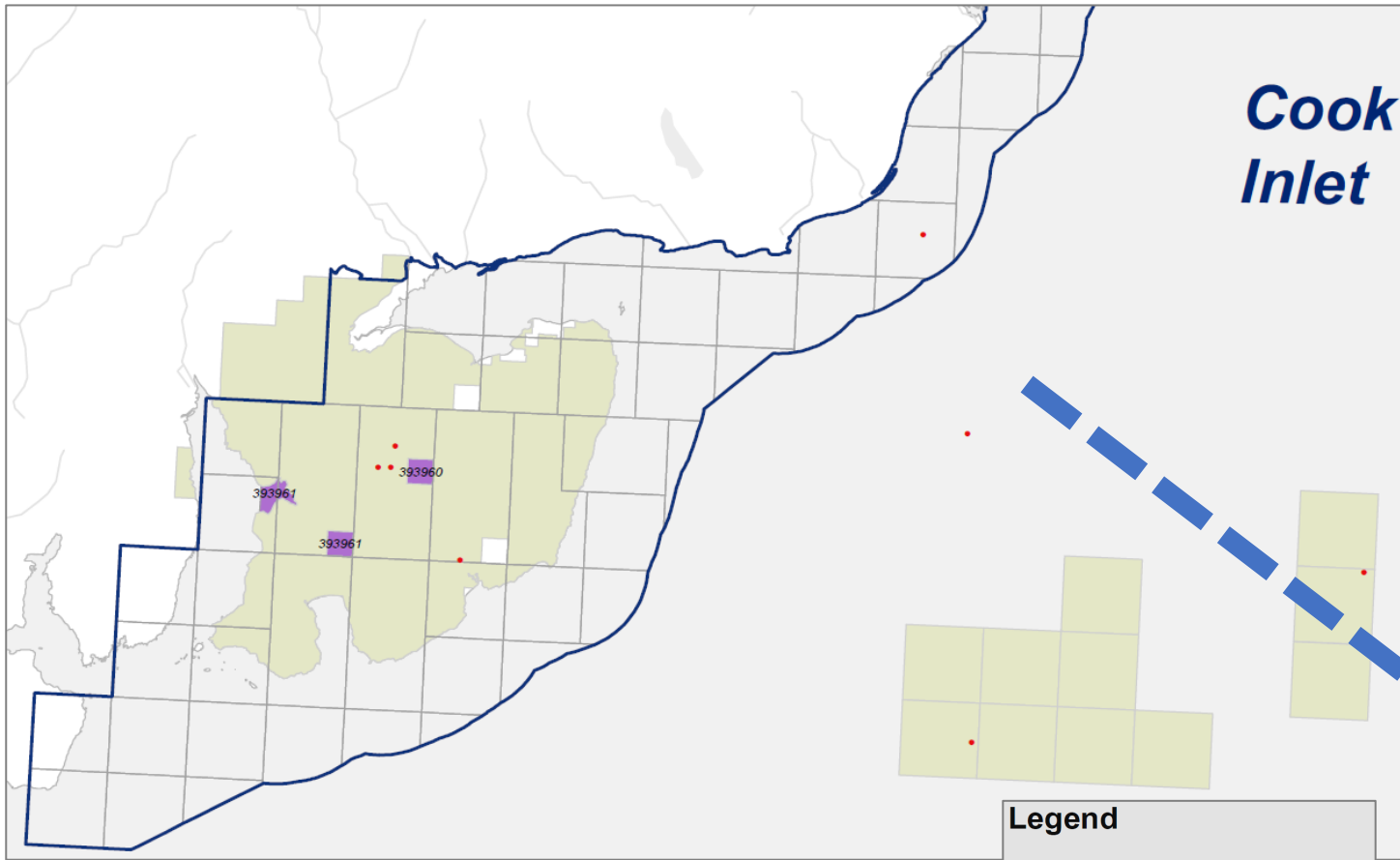
- Road
- Wells(s)
- ▭ Unit Boundary
- ▭ Areawide Boundary
- Label Lease Sale Tracts
- ▭ Non-State Oil and Gas Lease



CURRENT OIL AND GAS UNITS AND LEASES

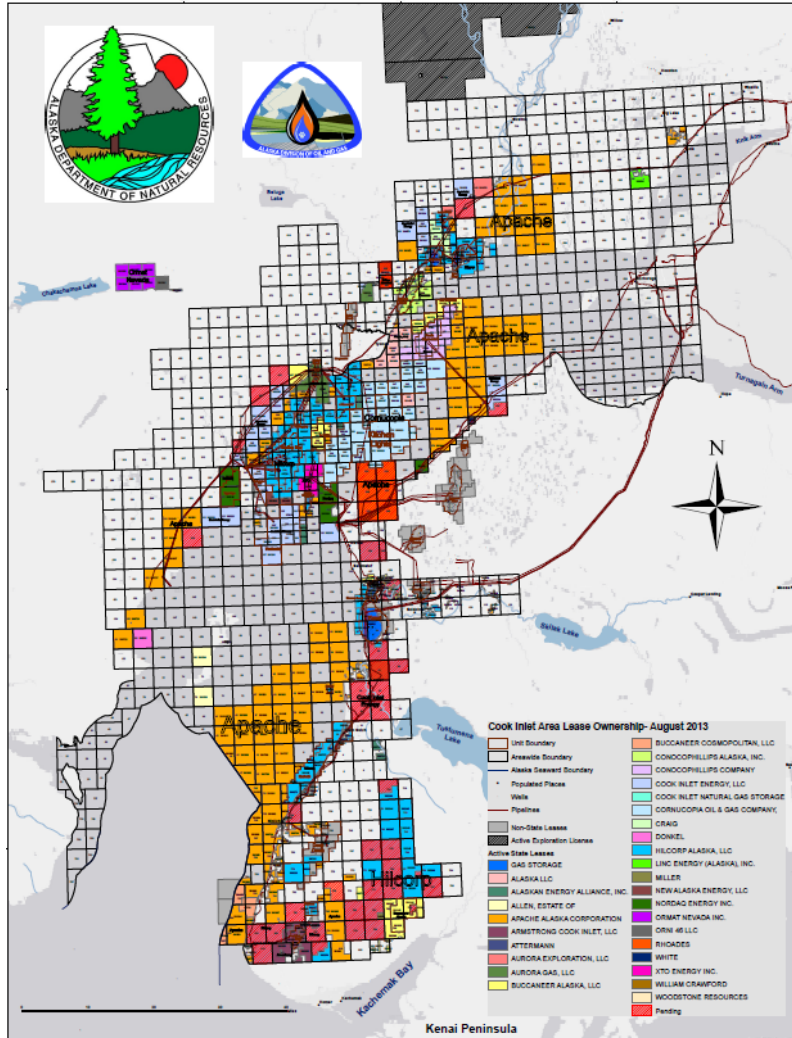


CURRENT OIL AND GAS UNITS AND LEASES

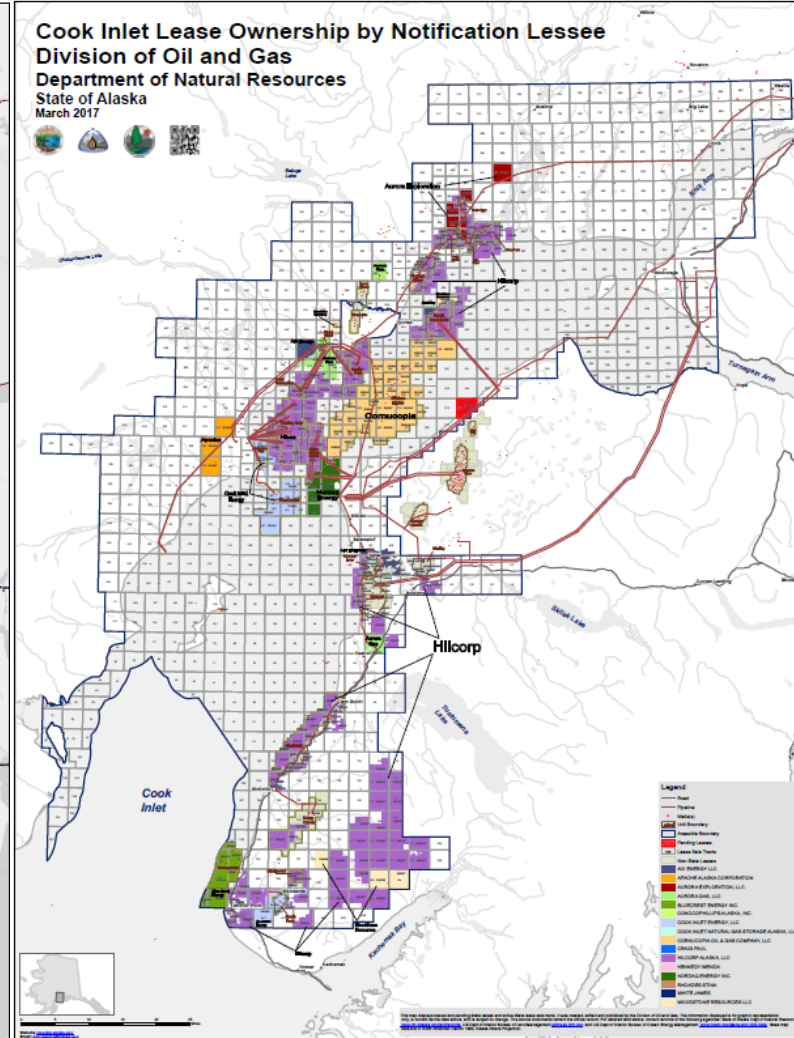


OWNERSHIP OF STATE OIL AND GAS LEASES: SNAPSHOTS 2013-2022

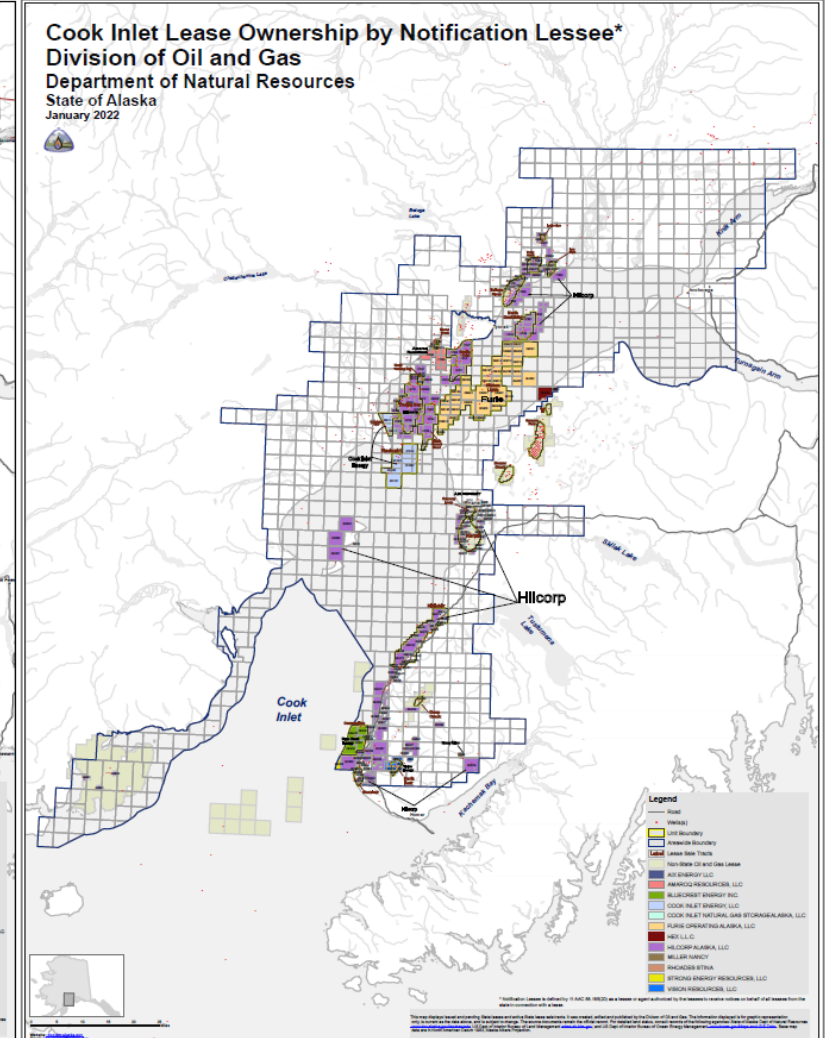
2013



2017

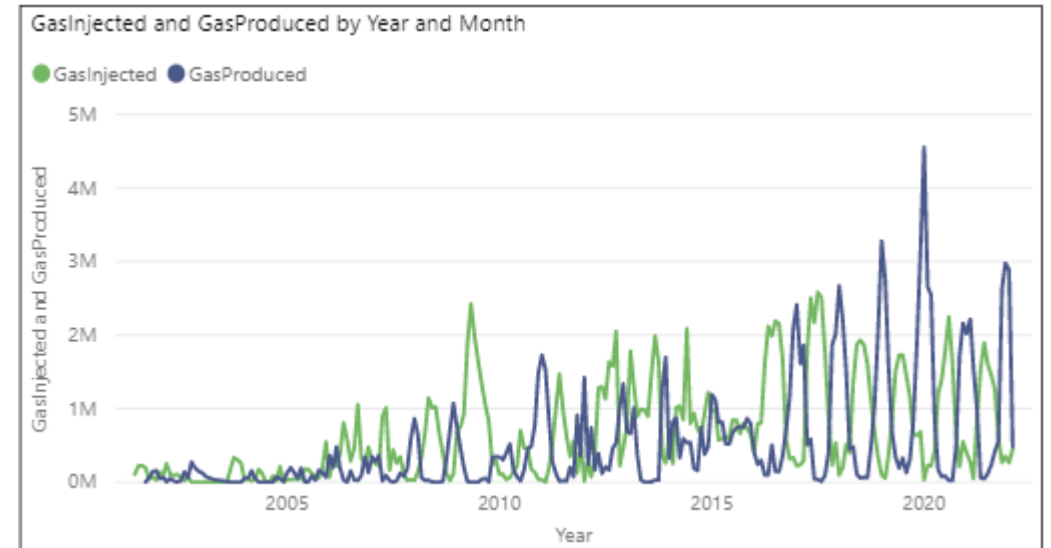


2022



ROLE OF COOK INLET GAS STORAGE ASSETS IN LEVELIZING GAS SUPPLY

- Storage Leases play an important role in levelizing gas supply from the Cook Inlet Basin
- Recent Utilization of gas storage leases enable the handling of monthly gas supply swings of up to 4.5Bcf (e.g Jan 2020)
- SOA has over 75 Bcf of storage capacity
- Gas currently in storage?
 - Over 36 Bcf total estimated to be in storage as of YE 2021
- What storage asset is most utilized?
 - Kenai and CINGSA make up ~89% of state storage capacity



LEASING: TERMS AND CONDITIONS OF OIL AND GAS LEASES

- AS 38.05.180(f)(1)-(3) provides the DNR Commissioner with the authority to issue oil and gas leases on state land as follows:
 - ✓ To the successful bidders determined by competitive bidding.
 - ✓ Choosing at least one of 6 leasing methods (cash bonus, royalty rate, net profit share can be the bid variables)

	Minimum bid per acre	Royalty rate	Primary term	Rental rate (\$ per acre)									
				year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	year 10
2010	\$10	12.5%	7 yrs.	\$1	\$1.5	\$2	\$2.5	\$3	\$3	\$3			
2011			7 yrs.	\$1	\$1.5	\$2	\$2.5	\$3	\$3	\$3			
			10 yrs.	\$1	\$1.5	\$2	\$2.5	\$3	\$3	\$3	\$3	\$3	\$3
2012	\$25		10 yrs.										
2013													
2014													
2015													
2016	\$10												
2017	\$25												
2018	\$15		8 yrs.		\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	
2019				\$5	\$5	\$5	\$5	\$10	\$10	\$10	\$10		
2020				\$5	\$5	\$5	\$5	\$10	\$10	\$10	\$10		
2021				10 yrs.	\$5	\$5	\$5	\$5	\$5	\$8	\$8	\$10	\$10