

ALASKA'S OIL & GAS INDUSTRY

Overview & Activity Update

Senate Resources Committee

Presented by:

Paul Decker, Petroleum Geologist

Alex Nouvakhov, Commercial Analyst

Division of Oil and Gas

Alaska Department of Natural Resources

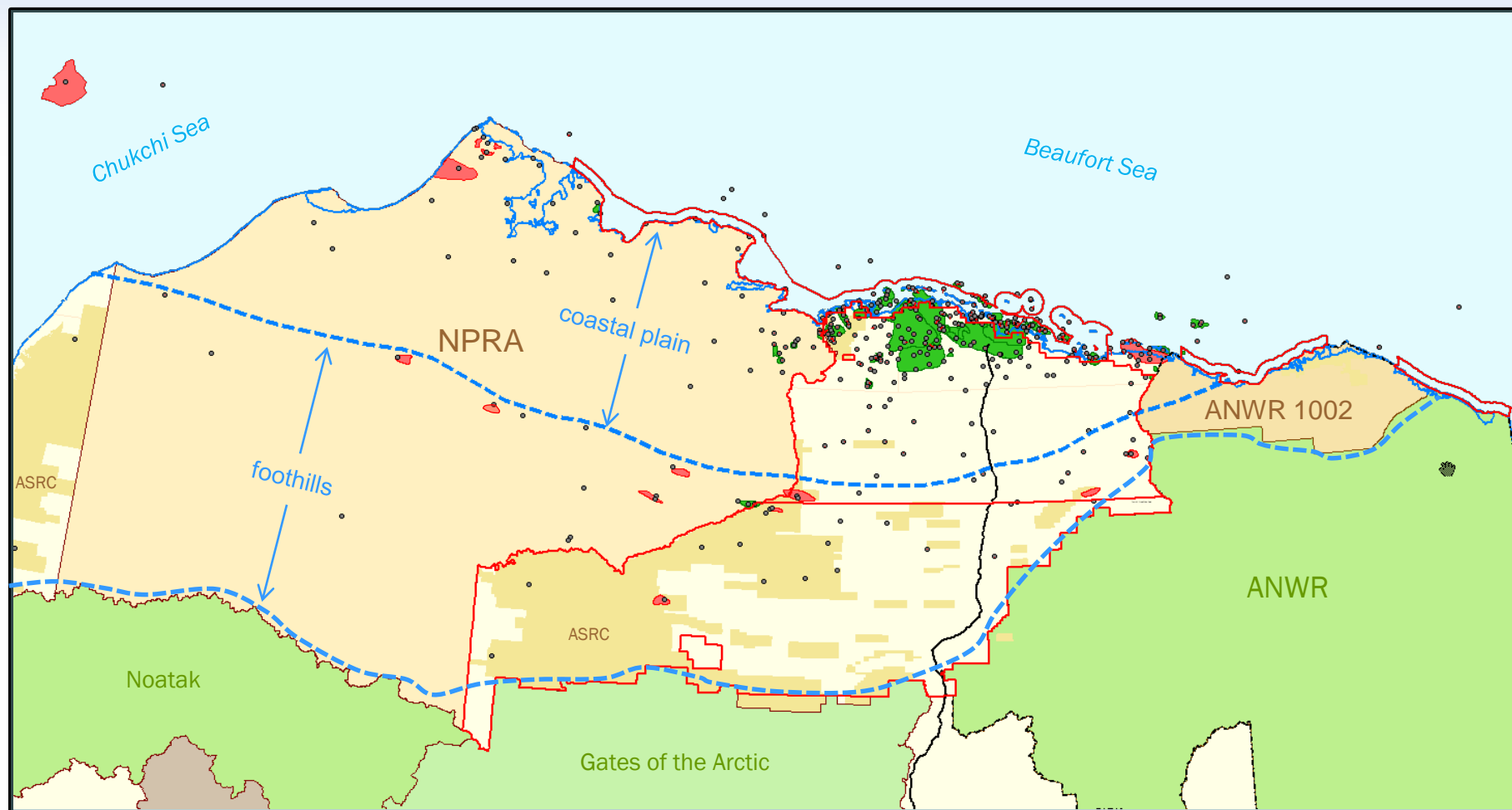
April 6, 2016



OVERVIEW

- **North Slope:**
 - Resources and Reserves
 - Current Activity & New Developments
 - Who's Working the North Slope?
 - Leasing Activity
- **Cook Inlet:**
 - Resources and Reserves
 - Current Activity & New Developments
 - Who's Working the Cook Inlet?
 - Leasing Activity
- **Frontier Basins:**
 - Resources and Reserves
 - Current Activity & New Development
 - Who's Working the Frontier Basins?
 - Exploration Licensing & Lease Conversion
- **DNR Involvement in DOR Tax Credit Process**
- **DNR Royalty Modification & Relief**

NORTH SLOPE RESOURCES OVERVIEW



Red Area – Gas Accumulations
Dark Green Area - Oil Accumulations

Black Dots - Exploration Wells
Red Outlines - State Areawide Lease Sale Boundaries.
Light Green Areas - Permanently Protected Federal Lands.

ARCTIC ALASKA OIL & GAS RESOURCES

MEAN ESTIMATES* OF UNDISCOVERED,
TECHNICALLY RECOVERABLE CONVENTIONAL RESOURCES IN ARCTIC ALASKA:

- ~ 40 billion barrels of oil
- ~ 207 trillion cubic feet of gas

Arctic Alaska	Mean Oil Estimate (Millions of Barrels)	Mean Gas Estimate (Billion Cubic Feet)
Onshore	15,908	98,960
Offshore	23,750	108,180
TOTAL	~ 40 BBO	~ 207 TCF

** Multiple USGS and BOEM sources*

ARCTIC ALASKA OIL & GAS RESOURCES

■ Gas Reserves:

- ~ 30 trillion cubic feet of associated gas is estimated to be recoverable from producing or developing North Slope fields, mostly at Prudhoe Bay & Point Thomson. Without a pipeline, most of that gas is best described as contingent resource, not reserves.
- ~ 5.9 trillion cubic feet of proved associated gas reserves estimated in Alaska, virtually all on North Slope (Energy Information Administration (EIA), 2014)

■ Oil Reserves:

- ~ 2.8 BBO of proved oil reserves estimated on the North Slope (EIA, 2014)

NORTH SLOPE CURRENT ACTIVITY & NEW DEVELOPMENTS

■ **Accumulate Energy**

- Franklin Bluffs area shale play evaluation
 - Drilled Icewine #1 well in October-December 2015
 - Seismic survey of lease area this winter

■ **AEX (ASRC)**

- Placer Unit
 - Currently drilling Placer #3 well – spud in late January 2016

■ **BP**

- Prudhoe Bay Unit
 - Completed 8 new wells, 46 new sidetracks, ~420 well workovers in Initial Participating Area (IPA), 2015
 - Completed first wells in Lisburne PA in 9 years, 2015
 - Completed 3D seismic program in North Prudhoe, 2015

NORTH SLOPE CURRENT ACTIVITY & NEW DEVELOPMENTS

■ Caelus Natural Resources

- Oooguruk Unit
 - On-going development (4-5 wells/year; all long-reach & frac'd)
- Nuna
 - First production from Nuna Torok Phase 1 in late 2018(?)
 - No construction activity this winter
- Smith Bay Exploration (shallow water ice pad)
 - Second of two exploration wells nearly complete

■ Conoco Phillips

- Colville River Unit
 - Initiated first production at CD5 in 2015
 - Plan for a total of 8 new wells in 2016
- Greater Mooses Tooth Unit (Federal/NPRA)
 - Approved funding for \$900MM GMT1 project
 - Plan to drill two Tinmiaq exploration wells in western part of unit

NORTH SLOPE CURRENT ACTIVITY & NEW DEVELOPMENTS

■ **Conoco Phillips**

- Kuparuk River Unit
 - First wells came online at Kuparuk DS-2S in 2015
 - Significant drilling planned in 2016 for Kuparuk PA, Tarn PA and West Sak PA during 2015-16

■ **ExxonMobil**

- Point Thomson Unit
 - Completion of Initial Production System in 2016
 - Completed 22 mile liquid hydrocarbon pipeline from Point Thomson to Badami Field, which connects to TAPS
 - Start-up expected by mid-May 2016 (10,000 bpd condensate)

■ **Great Bear Petroleum**

- Currently acquiring large 3D seismic dataset (~450 sq miles)
- Planning for additional work at Alkaid #1 in 2017

NORTH SLOPE CURRENT ACTIVITY & NEW DEVELOPMENTS

■ Hilcorp

- Northstar Unit
 - Returned 2 wells to production
- Milne Point Unit
 - Drilled 3 new wells, started new G&I plant construction in 2015
 - Plan to drill 10 new wells and complete 16 workovers in 2016

■ Repsol/Armstrong

- Pikka Unit (Nanushuk Project Development)
 - Drilled 3 exploration wells & sidetracked 1 in 2015 (total of 12 wells & sidetracks since 2012)
 - Commenced the project EIS under NEPA in June 2015
 - Plan to drill 1 additional exploration well in 2017

NORTH SLOPE WELLS DRILLED & SEISMIC ACQUIRED

- **New Exploration & Development Wells Drilled 2004-2014**
 - 110 Exploratory Wells and Well Branches
 - 1,646 Development & Service Wells and Well Branches

- **2D & 3D Seismic Data Acquired (Tax Credit Data) 2004-2014**
 - Line Miles 2D (onshore/shorezone ice) ~ 870
 - Square Miles 3D (onshore/shorezone ice) ~ 9,945

WHO'S WORKING NORTH SLOPE?

- **Large Majors (>\$40B Market Cap):**
 - BP Exploration, Inc.
 - Chevron USA, Inc.
 - ConocoPhillips Alaska
 - Eni
 - Exxon Mobil Corporation
 - Shell Offshore, Inc.

- **Large Independents & Mid-Sized Companies:**
 - Armstrong Oil and Gas/70 & 148 LLC
 - Anadarko E&P Onshore LLC
 - BG Alaska E&P Inc.
 - Caelus Natural Resources Alaska LLC
 - Halliburton Energy Services
 - Hilcorp Alaska, LLC
 - Repsol

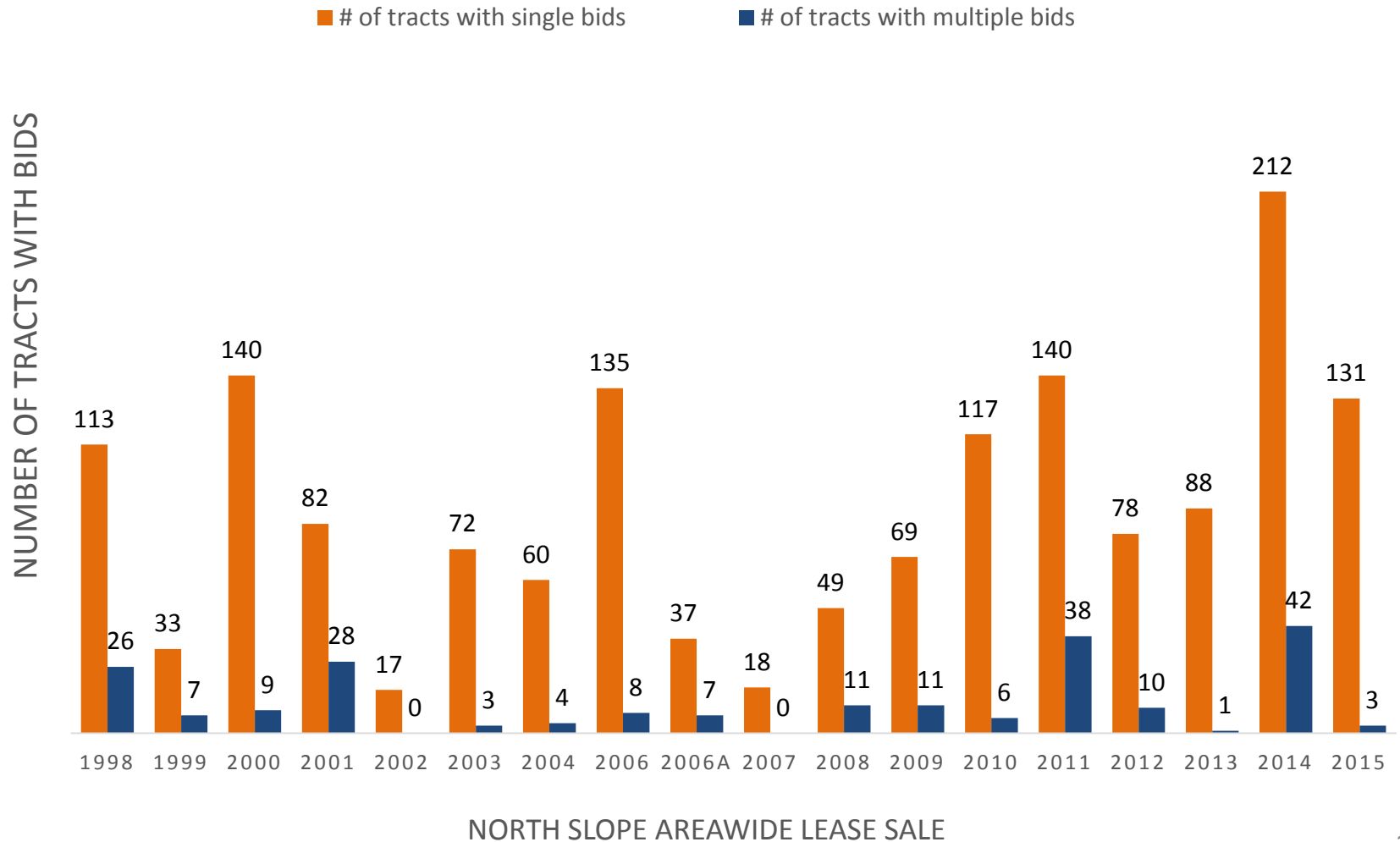
WHO'S WORKING NORTH SLOPE?

■ Small Independents:

- Accumulate Energy Alaska, Inc.
- Alaska, LLC
- Alaskan Crude Corp.
- ASRC Exploration LLC
- Aubris Resources, LP
- AVCG, LLC
- Brooks Range Development Corporation
- Burgundy Xploration LLC
- Caracol Petroleum LLC
- Chap-KDL, Ltd.
- Colt Alaska LLC
- Dewline Petroleum LLC
- Donkel Oil & Gas, LLC
- Eastland Property and Minerals
- GMT Exploration Company LLC
- Great Bear Petroleum Ventures
- MEP Alaska, LLC
- Mustang Operations Center 1, LLC
- NordAq Energy Inc.
- Pacific Lighting Gas Development
- Petro-Hunt, LLC
- Pinta Real Development, LLC
- Petro-Hunt, LLC
- Pinta Real Development, LLC
- Ramshorn Investments, Inc.
- Red Technology Alliance, LLC
- Renaissance Umiat, LLC
- Royale Energy, Inc.
- Samson Offshore, LLC
- Savant Alaska, LLC
- Sunlite International Inc.
- The Eastland Oil Company
- TP North Slope Development, LLC
- Transworld Oil & Gas Ltd.
- Ultrastar Exploration LLC
- URSA Major Holdings LLC
- Woodbine Petroleum, Inc.
- Woodstone Resources, LLC

NORTH SLOPE LEASING ACTIVITY TRENDS

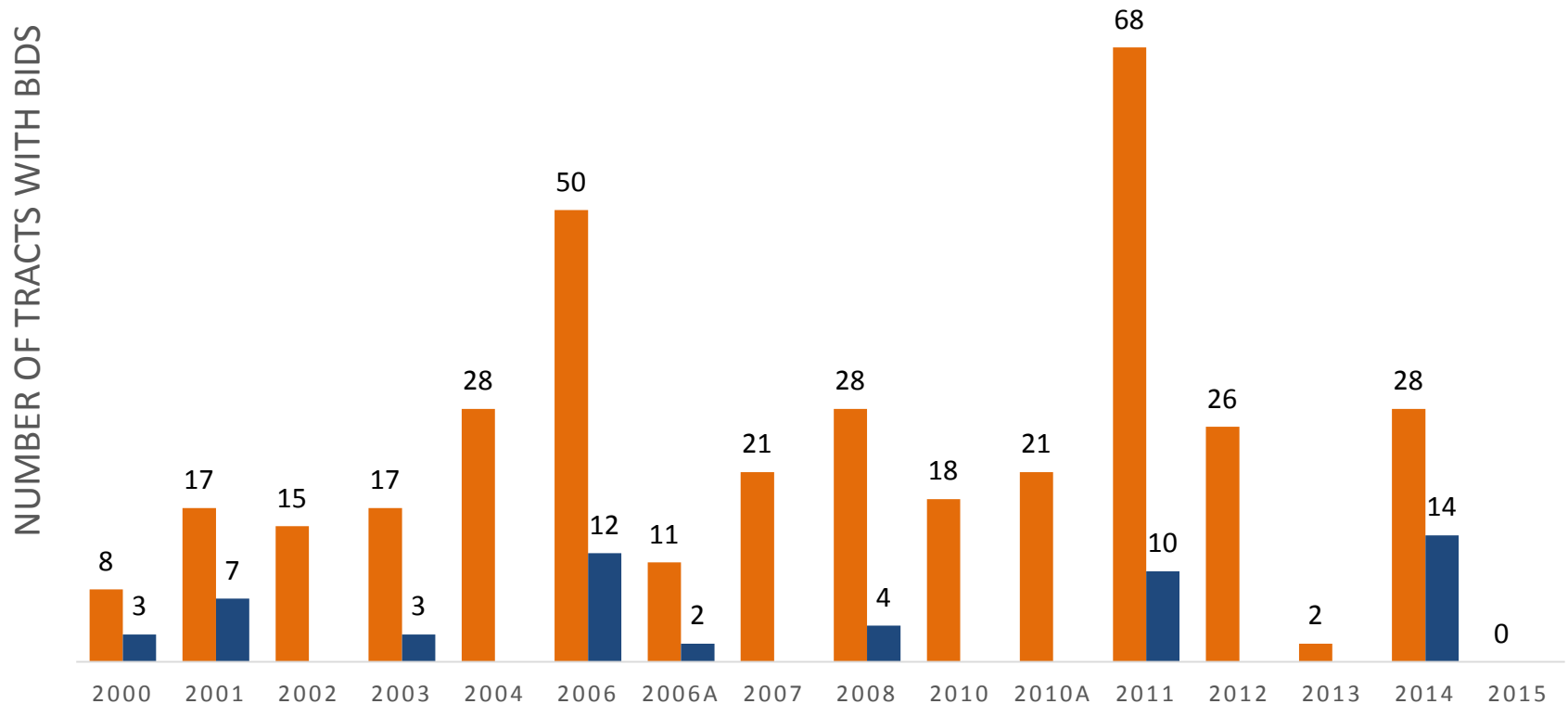
NORTH SLOPE AREAWIDE LEASE SALE RESULTS: NUMBER OF TRACTS THAT RECEIVED BIDS



NORTH SLOPE LEASING ACTIVITY TRENDS

BEAUFORT SEA AREAWIDE LEASE SALE RESULTS: NUMBER OF TRACTS THAT RECEIVED BIDS

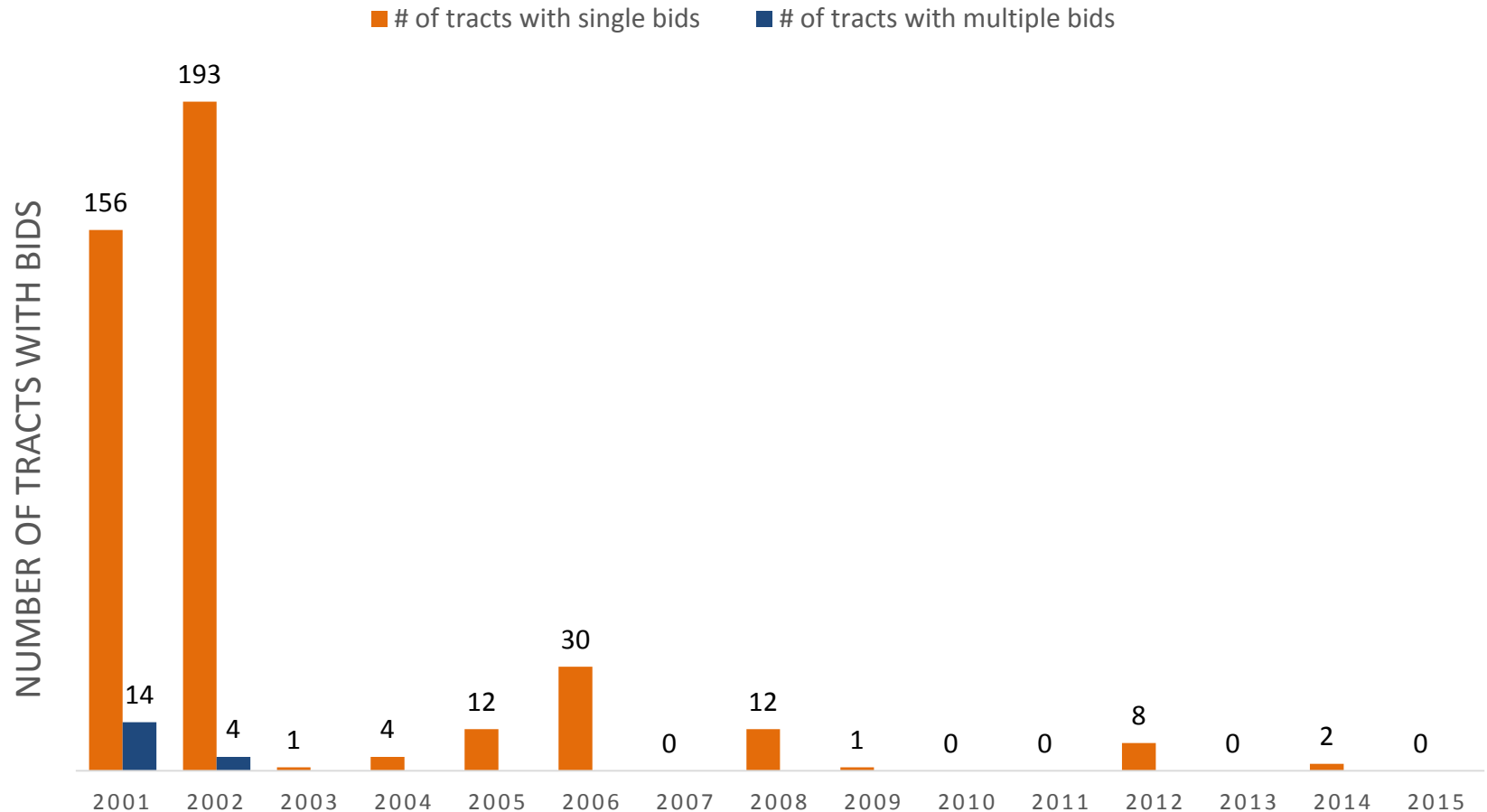
■ # of tracts with single bids ■ # of tracts with multiple bids



BEAUFORT SEA AREAWIDE LEASE SALE

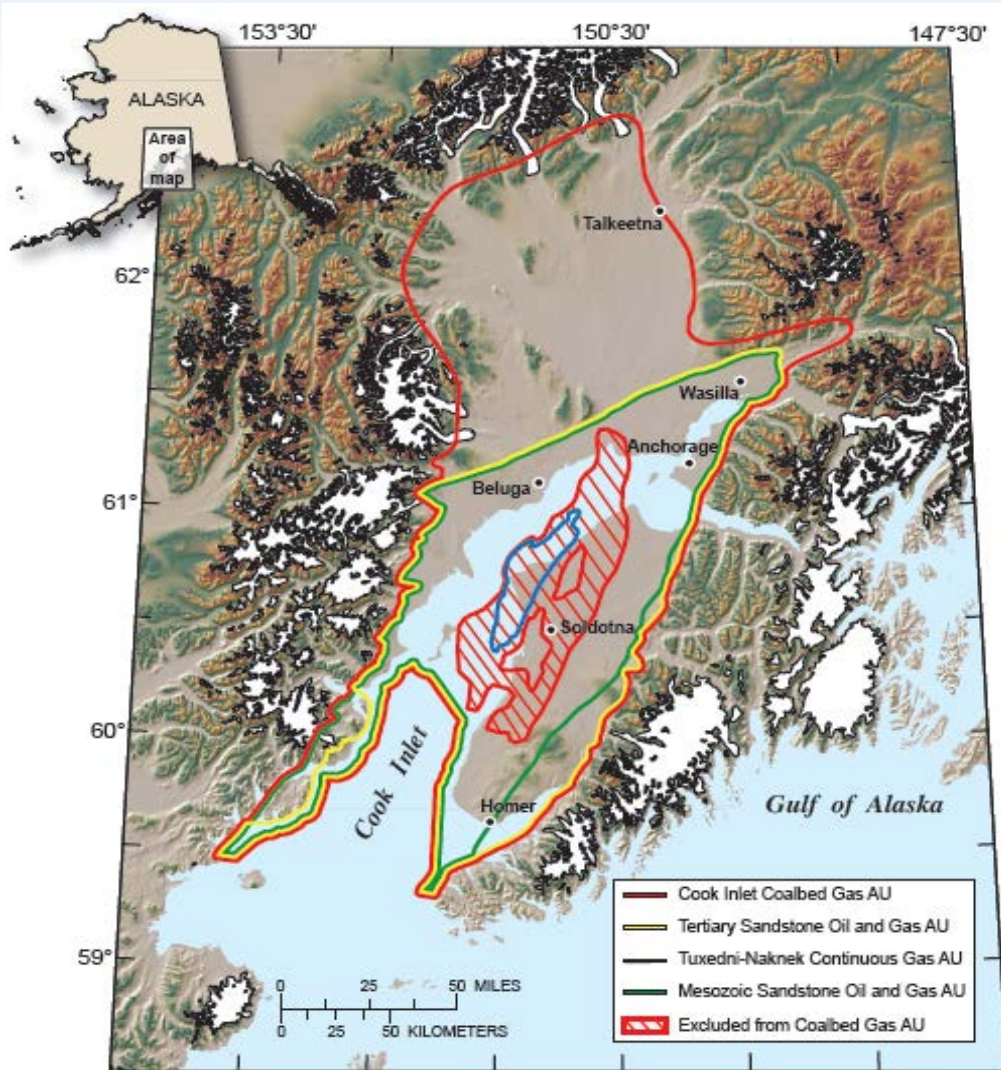
NORTH SLOPE LEASING ACTIVITY TRENDS

NORTH SLOPE FOOTHILLS AREAWIDE LEASE SALE: NUMBER OF TRACTS THAT RECEIVED BIDS



NORTH SLOPE FOOTHILLS AREAWIDE LEASE SALE

COOK INLET RESOURCE & RESERVES OVERVIEW



- **Undiscovered, Technically Recoverable Oil & Gas (USGS, 2011):**
 - mean conventional oil 599 MMBO
 - mean conventional gas 13.7 TCF
 - mean unconventional gas 5.3 TCF
- **Natural Gas Reserves (ADNR, 2015)**
1.18 TCF (Proved + Probable)
- 1.2 TCF additional mean resource assessed in OCS waters (BOEM, 2011)

COOK INLET CURRENT ACTIVITY & NEW DEVELOPMENTS

- **Apache Alaska Corporation:**
 - Ceasing all seismic acquisition and other exploration activity in Alaska
 - Intend to hold leases until expiration
- **Conoco Phillips:**
 - Recent sale of interest in Beluga River Unit
- **Furie Operating Alaska**
 - Kitchen Lights Unit:
 - Set monopod platform in 2015;
 - Completed onshore gas facilities & pipeline in 2015
 - Commenced production in December 2015
 - Randolph Yost, 2nd jack-up rig, arrived in Homer early March, plan to drill two development wells in 2016
- **BlueCrest Energy, Inc.**
 - Cosmo Unit:
 - Planned arrival of new land-based drill rig for oil development in 2016
 - Plan 1st oil in mid-2016 (oil production will be from onshore)
 - Possible offshore drilling for gas (Spartan 151 jack-up rig) in 2016

COOK INLET CURRENT ACTIVITY & NEW DEVELOPMENTS

■ Hilcorp Alaska, LLC:

- Cannery Loop Unit:
 - Completed 2 new wells in 2015
 - Planned 2 workovers in 2016
- Deep Creek Unit:
 - Drilled 1 new well in 2015 and 2nd is planned for 2016
- Ninilchik Unit:
 - Completed 3 new gas wells in 2015 and 7 new gas wells in 2014
- Trading Bay Unit:
 - 19 workover jobs in 2015 and 3 new wells in 2016
- Purchased XTO Energy, Inc. assets in southern Cook Inlet
- Projected ~\$120 MM investment in Cook Inlet in 2016

COOK INLET WELLS DRILLED & SEISMIC ACQUIRED

- **New Exploration & Development Wells Drilled 2010-2014**
 - 24 Exploratory Wells and Well Branches
 - 65 Development & Service Wells and Well Branches

- **2D & 3D Seismic Data Acquired (Tax Credit Data) 2004-2014**
 - Line Miles 2D (onshore/offshore) ~ 725
 - Square Miles 3D (onshore/offshore) ~ 660

WHO'S WORKING COOK INLET?

- **Large Majors (>\$40B Market Cap):**

- ConocoPhillips Alaska

- **Mid-Sized Independents:**

- Hilcorp Alaska, LLC
- Apache Alaska Corp.

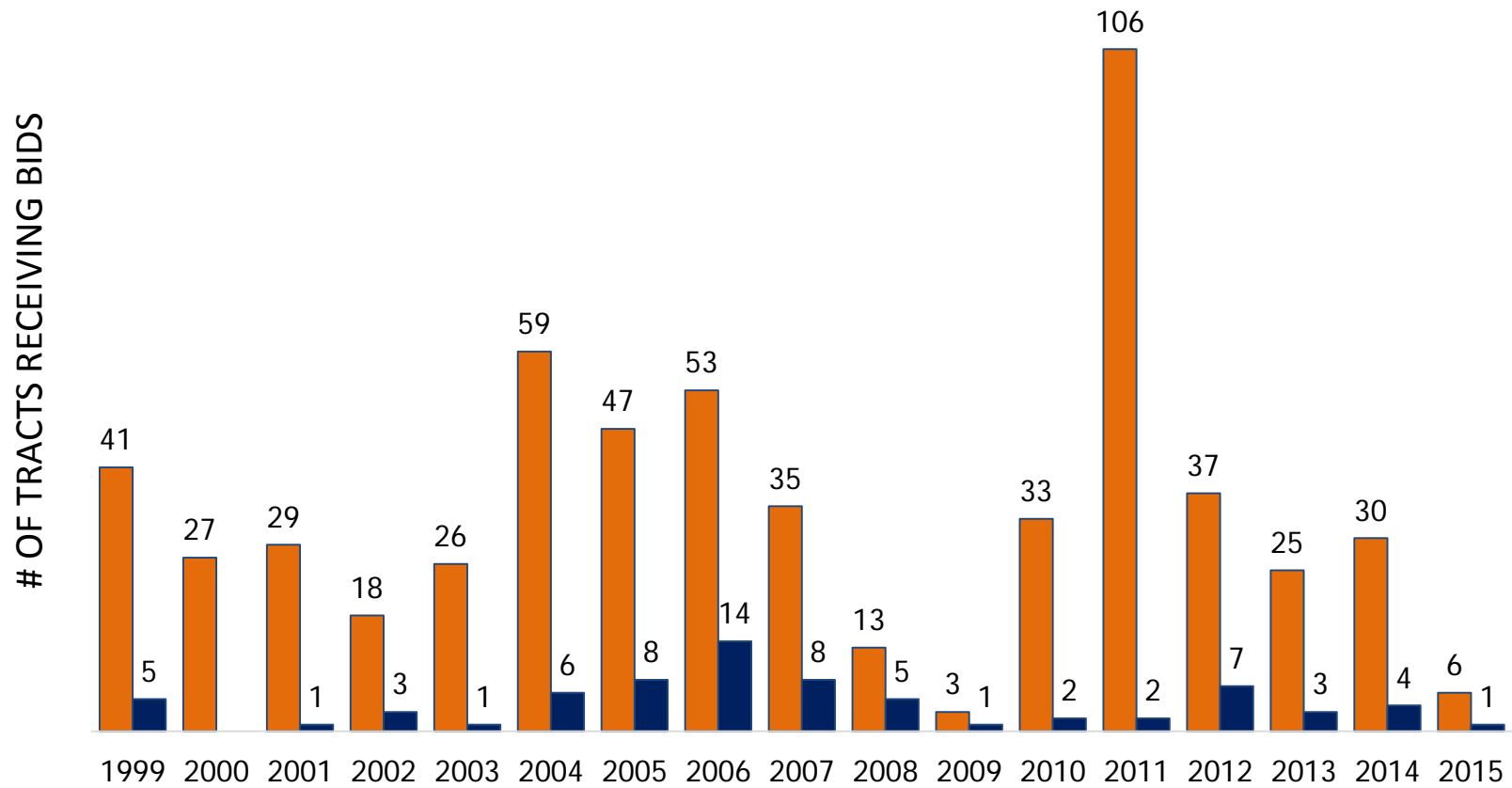
- **Small Independents & LLCs:**

- Alaska Energy Alliance Inc.
- AIX Energy LLC
- Alaska LLC
- Aurora Gas LLC
- Aurora Exploration LLC
- BlueCrest Energy Inc.
- CIRI Production Company
- Cook Inlet Energy LLC
- Cornucopia Oil & Gas Company LLC
- Corsair Oil & Gas Company LLC
- Furie Operating Alaska LLC
- New Alaska Energy LLC
- NordAq Energy LLC
- Taylor Minerals LLC
- Woodstone Resources LLC

COOK INLET LEASING ACTIVITY TRENDS

COOK INLET AREAWIDE LEASE SALE RESULTS: 1999 - 2015

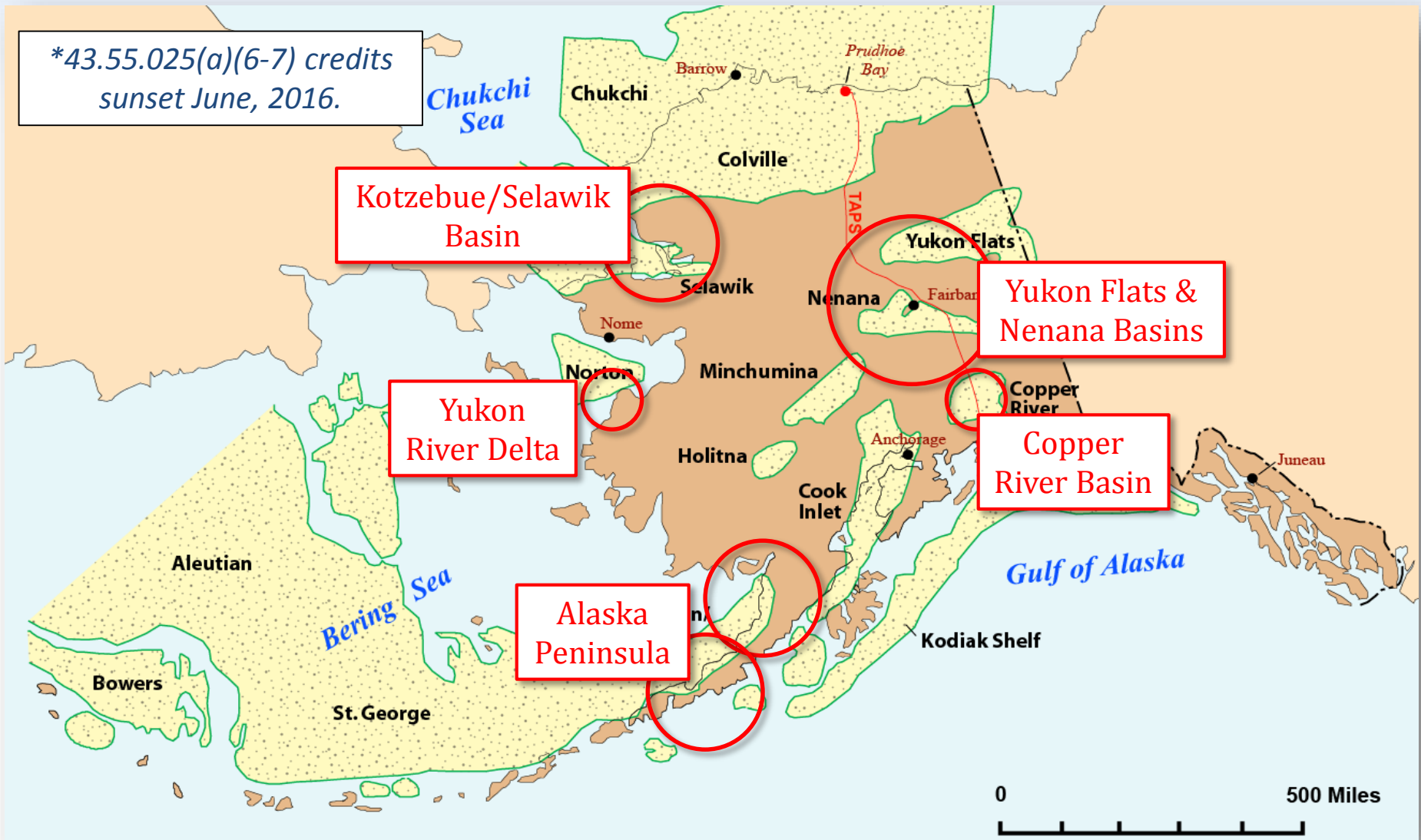
■ # of tracts with single bids ■ # of tracts with multiple bids



COOK INLET AREAWIDE LEASE SALE

FRONTIER BASINS TAX CREDIT* AREAS

*43.55.025(a)(6-7) credits
sunset June, 2016.



STATEWIDE RESOURCE ASSESSMENTS

- UNDISCOVERED, TECHNICALLY RECOVERABLE RESOURCE -

Region	Mean Oil Estimate (Million Barrels)	Mean Gas Estimate (Billion Cubic Feet)
Onshore Arctic	15,908	98,960
Offshore Arctic	23,750	108,180
Interior Basins (only partially assessed)	234	5,641
Upper Cook Inlet	599	19,037
Other Southern Alaska	2,859	23,458
TOTAL	43 BBO	255 TCF

Includes Yukon Flats and Kandik basins
(Nenana, Kotzebue, Copper River,
Holitna, & Susitna basins not assessed)

Mainly federal OCS waters,
minor AK Peninsula
onshore

EXPLORATION LICENSE PROGRAM

- The program supplements the state's oil and gas leasing efforts & encourages exploration outside of known oil & gas provinces
- Every April, DNR accepts proposals to conduct exploratory activity outside existing leasing areas
- The DNR Commissioner may issue a notice requesting proposals to explore a designated area (encourages competition)
- The applicant has up to 90 days to submit their proposal
- Three exploration licenses have been converted to lease: Susitna II, Copper River, & Nenana

WHO'S WORKING THE FRONTIER BASINS?

■ Ahtna

- Copper River Basin, Tolsona Exploration License:
 - Reprocessed 2D seismic data & acquired new Tolsona 2D seismic in spring 2014
 - Plan to drill Tolsona #1 gas exploration well in early 2016; follow up to the Ahtna #1-19 well drilled in 2007-2009 (Rutter & Wilbanks)

■ Doyon

- Nenana Basin:
 - Drilled Nunivak #1 and #2 exploratory wells, 2009-2013
 - Acquired 2D and 3D seismic, gravity, magnetics, and lakebed geochemical surveys, 2005 - 2014
 - Converted exploration license to leases between 2013 & 2014
 - Additional 2D seismic in progress
 - Plan to spud Toghotthele #1 this June

WHO'S WORKING THE FRONTIER BASINS?

■ **Doyon**

○ Yukon Flats Basin:

- Acquired 2D seismic, gravity, magnetics, and lakebed geochemical surveys

■ **NANA**

○ Kotzebue Basin:

- Evaluating and marketing prospects based on legacy industry seismic

■ **Usibelli Coal Mine Inc.**

○ Healy Basin Gas-Only Exploration License:

- Drilled one shallow exploration well in 2014

FRONTIER BASINS WELLS DRILLED & SEISMIC ACQUIRED

- **New Exploration Wells Drilled 2004-2014**
 - 7 Exploratory Wells and Well Branches

- **2D & 3D Seismic Data Acquired (Tax Credit Data) 2004-2014**
 - Line Miles 2D (onshore) ~ 1,220
 - Square Miles 3D (onshore) ~ 340

FRONTIER BASINS EXPLORATION LICENSES

LOCATION	ADL FILE NUMBER	ACRES	COMMITMENT	EFFECTIVE DATE	TERM	STATUS
Healy – Gas Only	390606	204,883	\$500,000	Jan. 1, 2011	10 years	Issued/Active
Nenana Basin	390079	498,813	--	--	10 years	Converted to Leases
Southwest Cook Inlet	392536	168,582	\$1,501,000	Oct. 1, 2014	4 years	Issued/Active
Tolsona	392209	43,492	\$415,000	Dec. 1, 2013	5 years	Issued/Active
Susitna V	391794	45,764	\$250,000	Apr. 1, 2012	5 years	Relinquishing Issued/Active

DNR INVOLVEMENT IN DOR TAX CREDITS UNDER AS 43.55

- DNR involvement is limited to projects that yield geological, geophysical, and engineering data – mainly exploration wells and seismic surveys
- DNR collects and adjudicates data generated and releases to the public as per specified schedule & private land restrictions
- DNR has no role in credits that do not require data submission
 - .023(a)(1) Capital Expenditure for development work
 - .023(b) Net Operating Loss
- Statutes vary but provide minimal ability to screen proposed projects for geologic or commercial risk. When called for, pre-qualification mostly ensures “wildcat”/new exploration status.

EXPLORATION TAX CREDITS

- DNR ADJUDICATION REQUIREMENTS -

AS 43.55	Credit	Pre- Qualification	Major Criteria (in addition to data submission)
.025(a)(1)	30%	Yes (Well)	<ul style="list-style-type: none"> Distinctly separate potential O&G trap Except in Cook Inlet, > 3 miles from pre-existing wells
.025(a)(2)	30%	No (Well)	<ul style="list-style-type: none"> > 25 miles from 7/1/2003 unit boundaries
.025(a)(3)	40%	Yes (Well)	<ul style="list-style-type: none"> Distinctly separate potential O&G trap Except in Cook Inlet, > 3 miles from pre-existing wells Cook Inlet, 10 miles from 7/1/2003 unit boundaries Elsewhere, 25 miles from 7/1/2003 unit boundaries
.025(a)(4)	40%	No (Seismic)	<ul style="list-style-type: none"> Seismic outside of existing unit boundaries
.025(a)(5)	Up to 80-100%	No (Well)	<ul style="list-style-type: none"> Jack-up rig, drill & evaluate Cook Inlet pre-Tertiary prospect
.025(a)(6)	Up to 80%	Yes (Well)	<ul style="list-style-type: none"> Within specified Frontier Basin area Seismically-defined O&G trap, evaluate full depth range Private landowner data release authorization, plus more
.025(a)(7)	Up to 75%	Yes (Seismic)	<ul style="list-style-type: none"> Within specified Frontier Basin area Private landowner data release authorization, plus more
.023(a)(2)	20%	No (Well/Seismic)	<ul style="list-style-type: none"> Qualified Capital Expenditure for exploration
.023(l)(2)	40%	No (Well/Seismic)	<ul style="list-style-type: none"> Well Lease Expenditure south of 68 degrees North

PRE-QUALIFICATION PROCESS

- Presentation (pre-exploration)
 - Dates
 - Location relative to preexisting wells, units, etc.
 - Separate trap requirement (GG&E)
 - Additional factors for Frontier Basin wells & seismic
- Brief DNR Commissioner
- Commissioner decision letter

POST-EXPLORATION PROCESS

- Data Adjudication: Submittal, Inventory, QC
- Presentation [post-exploration & processing, only required for .025 (a)(1, 3, 5, 6, & 7)]
 - Dates
 - Operations consistent with exploration objectives
 - Findings (Geological, Geophysical, & Engineering)
- Brief DNR Commissioner
- Commissioner decision letter
- Data Management: Load for internal use, Prepare for public release, Archive, Release

ROYALTY MODIFICATION

AS 38.05.180(j)

- Commissioner may modify royalty to
 - Allow for production from a field or pool that has not previously produced
 - Field or pool must be sufficiently delineated
 - Production would not otherwise be economically feasible
 - Royalty rate shall not be less than 5%
 - Prolong economic life of a field or pool
 - Future production is no longer economically feasible
 - Royalty rate shall not be less than 3%
 - Reestablish production of shut-in oil or gas
 - Production would not otherwise be economically feasible
 - Royalty rate shall not be less than 3%
- Commissioner may not grant royalty modification unless lessee makes clear and convincing showing that modification meets criteria and is in the best interests of the state.
 - Without royalty modification, development would not proceed

Royalty Modification History

Year	Company	Field	Outcome
1995	BP	Milne Point	Application denied
1997	Unocal	10 Cook Inlet platforms	Application withdrawn
1999	Phillips	Cook Inlet platform	Application withdrawn
2005	Pioneer	Oooguruk	5% royalty until NPSL payout
2006	Kerr-McGee	Nikaitchuq and Tuvaag	Application denied
2007	Chevron	West Cook Inlet fields	Application withdrawn
2008	ENI	Nikaitchuq	5% royalty rate with oil price threshold (\$42.64/barrel escalated with inflation)
2014	Caelus	Nuna Torok	5% royalty rate until \$1.25 billion of gross revenue accumulated

Cook Inlet Discovery Royalty

AS 38.05.180(f)(4)

- Lessee of a discovery well shall pay 5% royalty on all oil & gas production from a pool that is attributable to the discovery lease for 10 years following the date of discovery.
- Available only for leases in Cook Inlet sedimentary basin
- More than one pool is eligible for discovery royalty from a single discovery well.
- After 10 years, royalty returns to rate specified in lease
- Discovery well certification (11 AAC 83.1000 – .1049)
 - Discovery of a previously undiscovered oil or gas pool
 - Well has been drilled in a pool that is capable of producing in paying quantities defined under 11 AAC 83.395(4)

Cook Inlet Discovery Royalty History

- Prior to Furie's Kitchen Lights Unit Well No. 3 (KLU #3), no lessee had utilized the program.
- Furie KLU #3, Discovery Lease ADL 389197
 - 4 previously undiscovered gas pools
 - Discovery date was June 30, 2013
 - Lessees pay 5% on production from these 4 pools that is allocated to discovery lease—until June 29, 2023
 - Lessees will pay 12.5% on all other gas produced in the discovery lease

Other Royalty Relief Statutes

- AS 38.05.180(f)(5) automatically grants 5% royalty for 10 years for specific Cook Inlet fields identified in statute:
 - Falls Creek, Nicolai Creek, North Fork, Point Starichkof (not producing), Redoubt Shoal, and West Foreland—all currently pay 12.5% rate
- AS 38.05.180(f)(6) reduces royalty for specific platforms in Cook Inlet if production falls below certain levels.
 - Lower production based on reservoir conditions
 - Cannot be “the result of short-term production declines due to mechanical or other choke-back factors, temporary shutdowns or decreased production due to environmental or facility constraints, or market conditions.”

Platforms	Current Royalty Rate
Bruce, XTO.C	5%
King Salmon, Steelhead	7%
Dolly	10%
Anna, Granite Point, Grayling, Monopod, XTO.A	12.5%

- AS 38.05.180(n)(2) Nonconventional Natural Gas Rent and Royalty
 - Annual rental reduced to \$1 per acre and royalty reduced to 6.25%

THANK YOU!



550 W. 7TH AVE, STE. 1100, ANCHORAGE, AK 99501
www.dog.dnr.alaska.gov