

Senate Resources Committee DNR Overview January 18, 2013 Commissioner Dan Sullivan Alaska Department of Natural Resources www.dnr.alaska.gov

OUTLINE



PART I: Introduction

PART II: Looking Back on 2012

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PART I



Introduction

- DEPARTMENT OF NATURAL RESOURCES -



Land Base

- 586,412 square miles—more than twice the size of Texas
- Is larger than all but 18 sovereign nations
- Has more coastline than all other U.S. states combined
- Has more than 3 million lakes and half of the word's glaciers
- Has approximately 40% of the nation's freshwater supply
- Is the least densely populated U.S. state

Land Ownership

- Federal Land: more than 200 million acres
- *State Land:* Approx. 100 million acres of uplands, 60 million acres of tidelands, shore lands, and submerged lands, and 40,000 miles of coastline
- Native Corporation Land: 44 million acres



- Alaska as a Storehouse: Oil & Gas -

North Slope

- USGS estimates that Alaska's North Slope has more oil than any other Arctic nation
 - OIL: Est. 40 billion barrels of conventional oil (USGS & BOEMRE)
 - **GAS:** Est. over 200 trillion cubic feet of conventional natural gas *(USGS)*
- Alaska has world-class unconventional resources, including tens of billions of barrels of heavy oil, shale oil, and viscous oil, and hundreds of trillions of cubic feet of shale gas, tight gas, and gas hydrates
 - o Positive methane hydrate test production

Compared to most basins, Alaska is relatively underexplored, with 500 exploration wells on the North Slope, compared to Wyoming's 19,000.

Cook Inlet

USGS estimates that significant undiscovered volumes of hydrocarbons remain to be found in the Cook Inlet:

- 19 trillion cubic feet of natural gas
- 600 million barrels of oil
- 46 million barrels of natural gas liquids



- Alaska as a Storehouse: Minerals -



The State of Alaska Ranks in the *Top Ten in the World* for Important Minerals, Including:

- Coal: 17% of the world's coal; 2nd most in the world
- Copper: 6% of the world's copper; 3rd most in the world
- Lead: 2% of the world's lead; 6th most in the world
- Gold: 3% of the world's gold; 7th most in the world
- Zinc: 3% of the world's zinc; 8th most in the world
- Silver: 2% of the world's silver; 8th most in the world USGS estimates

According to the USGS, Alaska has over 70 occurrences of Rare Earth Elements (REE).

1. <u>Division of Agriculture (DoA)</u>

- Franci Havemeister, Director
- Promotes and encourages development of an agriculture industry in Alaska
- Key Accomplishments:
 - Strong advocacy throughout the state for the Alaska Grown program
 - Added restaurants, stores, and farmers' markets to the Alaska Grown network
 - Deepened DNR coordination and cooperation with the farming community



2. Division of Forestry (DoF)

- Chris Maisch, Director
- Serves Alaskans through forest management and wildland fire protection
- <u>Key Accomplishments:</u>
 - Responded to late-season wildfires in Dillingham and the Mat-Su Valley
 - Provided assistance to Municipality of Anchorage in response to extreme wind and rain events and to the Mat-Su Borough in response to flooding
 - Played a major role in providing firefighting assistance to the lower 48
 - o Held a successful Tok Wildland Fire Academy
 - Finished final report for Governor's Alaska Timber Jobs Task Force per AO 258
 - Sold 18,786,000 board feed of lumber to 34 Alaskan businesses
 - Provided direct and indirect support to over 80 woody biomass projects

3. Division of Geological & Geophysical Surveys (DGGS)

- Bob Swenson, Director
- Determines the potential of Alaskan land for production of metals, minerals, fuels, and geothermal resources, the locations and supplies of groundwater and construction material, and the potential geologic hazards to buildings, roads, bridges, and other installations
- <u>Key Accomplishments:</u>
 - 2nd year of implementing statewide strategic and critical minerals assessment
 - Completed 7 major field programs in geologic mapping and analysis, including Cook Inlet petroleum systems and Ray Mountains' strategic minerals
 - Published 27 new geologic maps and reports related to geologic analysis of natural resources and geologic hazards
- Finalized and published major new reports and data sets on Energy Resources for local use, LiDAR data on transportation corridors in Alaska, geochemical data from minerals resources, coastal geologic hazards, and earthquake hazards
- Hosted 507 visits from industry and academia to the Geologic Materials Center
- Co-hosted the 2nd Annual Alaska
 Strategic and Critical Minerals
 Summit





4. Mining Land and Water

- Brent Goodrum, Director
- Provides for the appropriate use and management of Alaska's state owned land and water, aiming toward maximum use consistent with the public interest
- <u>Key Accomplishments:</u>
 - 0 In 18 months, reduced permit backlog by 38.2%
 - o Modernized process for issuing Land Use Permits
 - Modified several statutes to create permitting efficiencies
 - Reviewed nearly 30% more Annual Placer Mining Applications than CY2011
 - Issued 45% more Temporary Water Use Applications than CY2011



5. <u>Oil & Gas</u>

- Bill Barron, Director
- Responsible for the leasing of state lands for oil, gas, and geothermal exploration
- <u>Key Accomplishments:</u>
 - Conducted two successful oil and gas lease sales: Cook Inlet and North Slope/North Slope Foothills/Beaufort Sea
 - Incentivized exploration and drilling as part of lease and unit applications
 - Continued strong advocacy to promote new investment and responsible development of Alaska's oil and gas resources
 - o Approved Point Thomson POD

6. Parks & Outdoor Recreation

- Ben Ellis, Director
- Provides outdoor recreation opportunities and conserves and interprets natural, cultural, and historic resources for the use, enjoyment, and welfare of the people
- Key Accomplishments:
 - Lower Chatanika SRS was reinstated into active management thanks to local and legislative support
 - 3 new public use cabins in Southeast (2 Eagle Beach SRA, 1 Juneau Channel Islands SMP); PUC occupancy increased 9% and overnight camping increased 3%
 - 0 4 "Arts in the Parks" events statewide
 - National honors, including: Joe McCullough, National Boating Safety Educator of the Year, and Judy Bittner, National Partners in Conservation Award

7. Support Services

- Jean Davis, Director
- Provides client-focused, efficient and costeffective financial, budget, procurement, information technology and recording services to DNR and the public
- <u>Key Accomplishments:</u>
 - Launched "eRecording" to simplify and accelerate recording process
 - Installed IBM Business Process
 Management servers and software as part of permitting reform initiative



Gas Pipeline Project Office

- Kurt Gibson, Director
- Monitors efforts by the Alaska Pipeline Project (APP) to design, develop, construct and operate a 48-inch natural gas pipeline to commercialize North Slope natural gas
- Key Accomplishments:
 - Facilitated project alignment between the North Slope producers, Alaska Pipeline Project, and TransCanada for a LNG project
 - Monitored project development progress and reimbursable expenditures to ensure the terms of the AGIA license are being met
 - Worked closely with AGDC to maintain good communication, ensure efficient use of state funds, and avoid duplication of effort
 - Supported the effort to reach out to potential LNG customers by describing the advantages of Alaska resource development and our interest in forming strong global partnerships

State Pipeline Coordinator's Office

- Mike Thompson, State Pipeline Coordinator
- Issues leases of state land for pipeline rights-of-ways and implements the state's policy set forth in Alaska Statute (AS) 38.35.010 concerning the development, use, and control of a pipeline transportation system within the state
- <u>Key Accomplishments:</u>
 - Issued Right-of-Way Lease for the Point Thomson Export Pipeline
 - Led a cooperative effort between DNR and the Bureau of Land Management to ensure consistency between the State Right-of-Way Lease and the Federal Right-of-Way Grant for the proposed Alaska Stand Alone Gas Pipeline project
 - Received a record number of right-of-way applications in a single year, including four new North Slope LNG pipeline right-of-way applications, the Trans-Foreland oil pipeline application in Cook Inlet and three TAPS rightof-way amendments for major projects

Office of Project Management & Permitting

- Tom Crafford, Director
- Coordinates the review of larger scale projects in the state
- <u>Key Accomplishments:</u>
 - Coordinated state participation for Pt. Thomson EIS through to completion and issuance of a ROD and Army Corps of Engineers 404 permit
 - Coordinated State review and comments on numerous resource development projects

PART II



Looking Back on 2012:

Secure Alaska's Future: *Oil* Commercializing North Slope Gas
 Comparative Advantages of Alaska LNG

4. Secure Alaska's Future: Strategic & Critical Minerals

5. Permitting Reform

6. Sustainable Development

1. SECURE ALASKA'S FUTURE: *OIL* - ONE MILLION BARRELS/DAY: ARRESTING TAPS THROUGHPUT DECLINE -



- TAPS has transported over 16.3 billion barrels of oil and natural gas liquids since June of 1977. Production peaked at 2.2 million barrels per day in the late 1980s, representing 25% of U.S. domestic production
- Since its peak, however, throughput has steadily declined; today, TAPS is 2/3 empty and declining at 6% per year
- TAPS throughput decline threatens economic disruption and the very existence of our pipeline
- We must encourage industry to invest in exploration and development of conventional and unconventional resources on state and federal land, onshore and offshore
- TAPS has plenty of capacity for increased throughput
- Most near-term critical economic issue facing the state
- Less oil in the pipeline year after year takes away revenue from future generations—the ultimate giveaway

1. SECURE ALASKA'S FUTURE: OIL - FOUR-PART PLAN -

Objective:

The State of Alaska's Comprehensive Strategy to Increase TAPS Throughput to One Million Barrels/Day



- I. Increase production by making Alaska more competitive
- II. Ensure the permitting process is structured and efficient
- III. Facilitate and incentivize the next phase of North Slope development
- IV. Promote Alaska's resources and positive investment climate to world markets

1. SECURE ALASKA'S FUTURE: *OIL* - Cook Inlet, North Slope, & Beaufort Sea Lease Sales -

Cook Inlet, 2011 & 2012 Lease Sales

- In June 2011, the state received the highest number of Cook Inlet lease sale bids in 28 years, totaling over \$11 million
 - o Total tracts sold: 108
 - o Total high bonus bids: \$10,986,826.20
- In May 2012, Cook Inlet lease sale bids totaled more than \$6.8 million
 - o Total tracts sold: 44
 - 0 Total high bonus bids: \$6,865,835



NS & Beaufort Sea, 2011 & 2012 Lease Sales

- In December 2011, the Division of Oil and Gas received more than 300 bids from more than 15 bidders, totaling more than \$21 million, signifying one of the most successful sales in recent Alaska history
 - o Total tracts sold: 239
 - o Total high bonus bids: \$18,712,945.98
- In November 2012, bids for all areas totaled more than \$14 million with tracts sold in the Foothills area for the first time since 2009
 - Total tracts sold : 122
 - o Total high bonus bids: \$14,240,333.73
- State needs billions of dollars in new investment to meet the Governor's onemillion-barrels-a-day goal

1. SECURE ALASKA'S FUTURE: *OIL* - North Slope Recent & Proposed Activity for Oil & GAS -



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1. SECURE ALASKA'S FUTURE: *OIL* - Next Phases & New Areas of Exploration for Oil & Gas -

- Shale oil exploration ongoing
 - July 31st conference in Anchorage on Shale Oil
- Shell finally was able to drill its first exploratory wells in the Beaufort and Chukchi Seas
- Record of federal permitting delays should be a continued source of concern for the State

- Eastern North Slope open, PT settled
 - PT permits issued by the State and the Corps of Engineers
- Linc Energy drilling operations at Umiat are moving forward
- New players, operators and exploration on state land
 - o Shell, Repsol, Brooks Range, Great Bear, Savant
 - Exxon Mobil, Conoco Phillips
- These developments, while positive, are just scratching the surface of our overall potential

1. SECURE ALASKA'S FUTURE: OIL - Cook Inlet Oil & Gas Activity -



WSJ Article, August 27, 2011:

"New Energy Estimate Breathes Life Into a Declining Alaskan Oil Field"

- Legislative tax and investment incentives are working
- New players investing: Apache, Hilcorp, Armstrong, Linc, Buccaneer, Nordaq
- Hundreds of millions invested
- Significant exploration and development activity: 10-15 new oil and gas wells, one geothermal exploration well, two jack-up rigs, and companies shooting 3-D seismic over large areas of the basin
- 3 new gas supply contracts with utilities
- New gas storage project
- State continues to focus on safe, responsible development and operations
- Competitive price for gas relative to lower 48 markets

*Testifying next week on details of present and future challenges and opportunities in Cook Inlet

1. SECURE ALASKA'S FUTURE: OIL - COOK INLET OIL & GAS ACTIVITY -



Petroleum News, January 13, 2013:

"Cook Inlet undoubtedly went through a renaissance in 2012.

"While dwindling supplies remain a concern, the year saw companies large and small making significant investments in the basin after years without exploration and only limited development. If the most ambitious companies were successful, the region would see increased oil and gas volumes some 55 years after production began."



2. COMMERCIALIZING NORTH SLOPE GAS - 2012 STATE OF THE STATE AND BENCHMARKS-

Key principles for any project

- Gas to address Alaska's in-state needs for abundant supplies of low-cost energy and economic growth
- Gas that will maximize the value of the state's massive resource base through high-volume and export markets
- A project that incentivizes exploration and investment in continued oil and gas development

Governor's Roadmap to Gasline

- 1. Resolve Point Thomson
- 2. Align during the first quarter of 2012
- 3. Two projects—under AGIA and AGDC complete discussions by third quarter of 2012 determining what potential exists to consolidate projects
- 4. Harden numbers on an Alaska LNG project by the third quarter of 2012, and identify a pipeline project and associated work schedule
- 5. If milestones are met, the 2013 Legislature takes up gas tax legislation designed to move the project forward

2. COMMERCIALIZING NORTH SLOPE GAS - SIGNIFICANT PROGRESS -

bp



March 30, 2012

Governor Sean Parnell 550 West 7th Avenue, Suite 1700 Anchorage, Alaska 99501

Dear Governor Parnell,

Our three corporations, collectively and individually, value our relationship with Alaska and believe that its citizens across the state, as well as our shareholders around the world, share a common interest in responsible resource development. We write today to inform you of our progress in working together on the next generation of North Slope resource development.

Alaska's vast North Slope holds over 35 trillion cubic feet of discovered natural gas. To date, this gas has been used to enhance North Slope oil production, adding several billion barrels to Prudhoe and Kuparuk recoveries. However, under the right business climate, the full commercial potential of this world-class resource can be unlocked. North Slope gas commercialization will bring new job opportunities, increased state revenues, reliable i

energy supplies and new exploration opportunities, which w North Slope oil and gas. This will be key toward reaching you per day through the Trans-Alaska Pipeline System.

Serious discussions between our companies have taken place along with the Alaska Pipeline Project (APP) parties who are s have aligned on a structured, stewardable and transparent ap commercialize North Slope natural gas resources within an Ad rapidly evolving global market, large-scale liquefied natural ga central Alaska will be assessed as an alternative to gas line exp to broadening market access, a south-central Alaska LNG appr with in-state energy demand and needs. We are now working commercialization project concept selection, which would incl an assessment of major project components including in-state global LNG trends, and LNG tidewater site locations, among ot

Commercializing Alaska natural gas resources will not be easy. issues that must be resolved, and we cannot do it alone. Unpre capital for gas development will require competitive and stable Alaska first be established. Appropriately structured, stable fisc

Serious discussions between our companies have taken place over the past several months, along with the Alaska Pipeline Project (APP) parties who are supporting the AGIA License. We have aligned on a structured, stewardable and transparent approach with the aim to commercialize North Slope natural gas resources within an AGIA framework. As a result of the rapidly evolving global market, large-scale liquefied natural gas (LNG) exports from southcentral Alaska will be assessed as an alternative to gas line exports through Alberta. In addition to broadening market access, a south-central Alaska LNG approach could more closely align with in-state energy demand and needs. We are now working together on the gas commercialization project concept selection, which would include an associated timeline and an assessment of major project components including in-state pipeline routes and capacities, global LNG trends, and LNG tidewater site locations, among others.

Point Thomson is an excellent example of a challenged, world-class resource. With approximately 25% of known North Slope natural gas, Point Thomson development is an important element in consideration of North Slope gas commercialization. However, economic models must span decades into an uncertain future to estimate economic returns. Your Administration has taken the lead in forging a Point Thomson settlement that will bring longterm resources, revenues and jobs to help Alaska's economy. With settlement now finalized, our companies are moving forward, as participating co-venturers, with the initial development phase at Point Thomson with confidence that North Slope gas development will ultimately bring the Point Thomson resource to market.

We agree the next generation of North Slope resource development is achievable, working together with the APP parties, as well as with the State of Alaska. Thank you for your leadership and your confidence in us to take on these challenges. We join you in a vision of prosperity and promise. There is much work to do and opportunities yet to discover.

Sincerely,

Rep W. Tielen & Jim Mulva Bob Dudley Rex Tillerson Jim Mulva Bob Dudley

new opportunities around the world, and will play a pivotal role mmaxing Alaska competitive in the global market and unlocking the economic potential of North Slope resources.

2. COMMERCIALIZING NORTH SLOPE GAS - POINT THOMSON -



Detail

- Point Thomson is a multi-billion dollar project
- Beginning construction now
- Producing Point Thomson liquid condensate into TAPS as part of Phase 1
- Big prize gas commercialization for LNG
- Significant portion of infrastructure being built for Phase 1 is applicable to a gas line or LNG project
- Three phases of development in 2012: explaining/defending settlement; permitting; and getting to work







Source: ExxonMobil update to DNR and AOGCC, October 2012

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The State of Alaska has made significant progress on commercializing North Slope gas

- Much of the upstream infrastructure is in place
- There is a renewed focus from key stakeholders on monetizing the massive reserves of North Slope gas
- Hundreds of millions of dollars have been spent on critical engineering and environmental regulatory and commercial work required for a gas project

WSJ: Alaska, Gas Firms Clear Way For Pipeline

Point Thomson settlement "...paves the way for a pipeline project to ship natural gas from the North Slope, unleashing the state's massive gas reserves." - WSJ, 3/30/12

FT: Oil Groups Agree on \$40bn Alaska Gas Project

"ExxonMobil, BP and ConocoPhillips have reached agreement with the state of Alaska to take a significant step forward on a \$40bn-plus project to export liquefied natural gas to Asia, resolving a long-running lease dispute that had been holding up progress.

In a joint letter, the chief executives of the three companies said they were "aligned" on a plan to develop the huge gas reserves of Alaska's North Slope, which until now have been stranded without a route to market." - Financial Times, 3/30/12



ExonMobil ConocoPhillips	bp () TransCanada	Governor Sean Parnell - 2 - October 1, 201 each of these components would represent a world-class project. Combined, they result in a mega- project of unprecedented scale and challenge; up to 1.7 million tons of steel, a peak construction workforce of up to 15.000 a permanent workforce of over 1 000 in Alaska and an estimated total construction	2
October 1, 2012		in today's dollars of \$45 to \$65+ billion.	s in
Governor Sean Parnell 550 West 7 th Avenue, Suite 1790 Anchorage, Alaska 99501 Dear Governor Parnell: On March 30, 2012, ExxonMobil, ConocoPhillips and BP working together on the next generation of North Slope n three producer companies and TransCanada, through its (APP), have maintained momentum and executed import potential project. We are writing to update you on the pro We established an integrated team, depicted on Attachme efforts of over 200 professionals to date to progress this w respective talents and experience to advance a collective of	On March 30, 2012, ExxonMobil, working together on the next gene three producer companies and Tr (APP), have maintained momente potential project. We are writing	ConocoPhillips and BP submitted a letter informing year time, the pration of North Slope resource development. Since that time, the ansCanada, through its participation in the Alaska Pipeline Project of and executed important early work to select leading concepts for the update you on the progress that has been made to date.	or a bject al g ally,
liquefied natural gas (LNG) exports from Southcentral Alas to refine and understand the opportunities and challenges i development. Our companies bring together specific expertise in Arctic o and in LNG plant design and operation. Since our joint wor upon more than \$700 million in past work by our collective Producer Pipeline Team effort in 2001-02, the Denail Proje contribution through AGIA. As a result, our work on an LN o a new level of understanding. Specifically, the focus of o	components, including the gas liquefaction, LNG storage, and each of these components woul project of unprecedented scale workforce of up to 15,000, a per in today's dollars of \$45 to \$65	arine terminal facilities as described offined, they result in a me d represent a world-class project. Combined, they result in a me and challenge; up to 1.7 million tons of steel, a peak construction and challenge; up to 1.7 million tons of steel, a peak construction rmanent workforce of over 1,000 in Alaska, and an estimated tota manent workforce of over 1,000 in Alaska, and an estimated tota billion.	ga-
 liquefied natural gas (LNG) exports from Southcentral Alas to refine and understand the opportunities and challenges i development. Our companies bring together specific expertise in Arctic o and in LNG plant design and operation. Since our joint wou upon more than \$700 million in past work by our collective. Producer Pipeline Team effort in 2001-02, the Denail Proje contribution through AGIA). As a result, our work on an LN to a new level of understanding. Specifically, the focus of c Developing a design basis for the pipeline, includ permafrost Investigating multiple ways to remove and dispose c Assessing use of existing and addition of new Prudt Mapping multiple pipeline sizes Providing for at least five in-state gas off-take points Completing preliminary geohazard and marine analy Developing a design basis for the required LNG tani Evaluating multiple LNG process design alternatives Confirming a range of gas blends from the Prudhoe a marketable LNG product 	components, including the gas in liquefaction, LNG storage, and project of these components would project of unprecedented scale workforce of up to 15,000, a per in today's dollars of \$45 to \$65 in today's dollars of \$45 to \$65 bysis of 22 LNG site locations liker fleet s 9 Bay and Point Thomson fields can generate	Alaska's North Slope natural gas resources must compete in the global energy markets in order to deliver state revenues, in-state energy supplies, new job opportunities and of our progress and stand committed to work with the State to responsibly develop its considerable resources. Ninerety, Alaska's North Slope natural gas resources must compete in the global energy markets in order to Alaskans. While North Slope gas commercialization is challenging, working together, we can maintain the momentum toward our shared vision for Alaska. We will continue to keep you advised of our progress and stand committed to work with the State to responsibly develop its considerable resources. Sincerely, Jamman Anader Broiles Yuman Exonnobili Trond-Erik Johansen Exonnobili Tony Palmer Production Company Tony Palmer	ga-

The companies 3Q announcement attracted significant national and international press.

WSJ: Natural Gas Glut Pushes Export

"The long-awaited effort is expected to have a significant impact not just on Alaska and its economy, but also on U.S. construction and manufacturing companies that would supply steel and other materials for an 800-mile pipeline and the plant that would convert the gas into liquid for export on tankers." - WSJ, 10/4/12



The Globe and Mail: Alaska plan intensifies gas race to Asia

"A massive new proposal to export natural gas from Alaska brings a major competitor into the race to carry North American gas to Asia, and adds pressure on Canadian export projects to build quickly or risk losing out... It is notable for the stature of its backers—BP PLC, Exxon Mobil Corp., ConocoPhillips Co. and TransCanada Corp., which have now joined forces after dueling for years over separate gas pipeline projects—and for its scale." - Globe and Mail, 10/4/12



Multimillion Dollar, Four-Company Effort – 125+ Employees, 100+ Contractors

Joint work commenced March 31, 2012 after completion of the Pt. Thomson Settlement / joint work agreements

•Cooperative effort among the leading North Slope producers and a leading North American pipeline company

·Identified potentially viable LNG project options to monetize ANS natural gas

·Used company strengths, shared information / expertise; built upon past efforts, sought out new ideas

2. COMMERCIALIZING NORTH SLOPE GAS - SIGNIFICANT PROGRESS -

Attachment 2 Alaska Southcentral LNG – Project Concept Description Producing Fields Liquefaction Plant ·~35 TCF discovered North Slope resource · Capacity: 15 - 18 million tonnes per annum (MTA) Additional exploration potential 3 trains (5-6 MTA / train) Anchored by Prudhoe Bay and Pt. Thomson with Potential areas: 22 sites assessed in Cook Inlet, Prince ~20 years supply available William Sound and other Southcentral sites Use of existing and new North Slope facilities 400 - 500 acres · Footprint: · Peak Workforce: 3,500 - 5,000 people generate marketable LNG product Required Steel: 100,000-150,000 tons Peak Workforce: 500 – 1,500 people Pipeline Storage / Loading Large diameter: 42"- 48" operating at >2,000 psi LNG Storage Tanks, Terminal Capacity: · Dock; 1 - 2 Jetties +Length: · Design based on 15-20 tankers Peak Workforce: 3,500 - 5,000 people Peak Workforce: 1,000-1,500 people Required Steel: 600.000 - 1,200,000 tons State off-take:



Gas Treating

- Located at North Slope or Southcentral LNG site
- · Remove CO2 and other gases and dispose / use 150 - 250 acres
- Footprint:
- ·Peak Workforce: 500 2.000 people
- ·Required Steel: 250,000 300,000 tons
- Among largest in world

· Confirmed range of gas blends from PBU/PTU can

3 - 3.5 billion cubic feet per day ~800 miles (similar to TAPS) ~5 points, 300-350 million cubic feet per day, based on demand



Estimated Total Cost: \$45 - \$65+ Billion Peak Construction Workforce: 9,000 - 15,000 jobs Operations Workforce: ~1000 jobs in Alaska

Descriptions and costs are preliminary in nature and subject to change. Cost range excludes inflation.



* NOTE: Duration of various phases may be extended by protracted resolution of fiscal terms, permitting and regulatory delays, legal challenges, changes in commodity market outlook, time to secure long-term LNG contracts, labor shortages, material & equipment availability, weather, etc.

3. COMPARATIVE ADVANTAGES OF AK LNG - Huge Gas Resource Base -

- The North Slope of Alaska is estimated to have over 200 trillion cubic feet of conventional gas
- Conventional gas is not controversial—unconventional gas in the Lower 48 U.S. states remains controversial
- 35 trillion cubic feet of known reserves
- Prudhoe Bay reinjects 8 billion cubic feet of gas per day, which is enough to meet Canada's daily gas needs

- These numbers do not include the trillions of cubic feet of shale gas, tight gas, and gas hydrates estimated for the North Slope
- This is an almost inexhaustible supply of gas with new technology
- North Slope gas is "wet" gas with a high energy content (BTU value)
- An Alaska LNG project has complete certainty of supply; not all other projects do



3. COMPARATIVE ADVANTAGES OF AK LNG - CO-located with Existing Oil & Gas Infrastructure -

- Existing oil and gas infrastructure on the North Slope can be utilized for a largescale LNG project
- The route for a large-scale LNG project would be the same or similar to the existing Trans-Alaska Oil Pipeline route, which will save on costs and have a limited impact on the environment



3. COMPARATIVE ADVANTAGES OF AK LNG - Exceptional Record of Reliability -

- Alaska has a longstanding tradition of reliably exporting LNG to Asia
 - Alaska has been exporting LNG to Japan for over 40 years
 - Alaska has transported 2.5 trillion cubic feet of gas to Asia (the majority to Japan) over this time
 - Alaska has never missed a LNG cargo shipment to Asia

- Alaska is the only place in the United States exporting LNG
- Alaska does not use gas supplies for political purposes

LNG tanker at the Kenai, Alaska LNG marine export terminal. Photo from ConocoPhillips, "The Kenai LNG Plant celebrates 40 years."

3. COMPARATIVE ADVANTAGES OF AK LNG - GEOGRAPHIC PROXIMITY, POLITICAL/LEGAL STABILITY, & COST COMPETITIVENESS -

- Close proximity to Japan
- Avoids strategic shipping choke points that other sources of LNG must traverse
- Benefits from American legal and political stability and the rule of law
- No looming conflicts in the region
- Proximity/shipping costs are very low
- Use of existing infrastructure and pipeline routes reduces costs



• Cold weather efficiencies significantly decrease processing costs compared to warmer climates

3. COMPARATIVE ADVANTAGES OF AK LNG - COST COMPETITIVE COMPARED TO OTHER GLOBAL LNG PROJECTS -

Recent Studies To Support Competitiveness

Brookings Institution (2012), the public policy organization, published a policy brief that discussed the strong competitive position of a potential, large-scale Alaska LNG to Asia project.

• Alaskan exports may prove to be a source of strong competition at the margin for U.S. LNG in the Pacific Basin. An Alaska project may be one of the least costly alternatives for delivering LNG to Japan in 2020



Wood Mackenzie (2011), the global research and consulting firm, completed a study for the State of Alaska to evaluate the economic competitiveness of Alaskan LNG exports relative to other projects.

- Alaskan LNG exports would be competitive and could generate between \$220 and \$419 billion
- Alaskan LNG exports have a delivered cost structure *below* \$10/MMBtu
- Most competing Australian projects and proposed North American LNG exports yet to secure Final Investment Decision are expected to deliver LNG to Asia at a cost of \$10-\$12/MMBtu under current gas price assumptions

Wood Mackenzie "Alaskan LNG Exports Competitiveness Study, AGPA, Final Report, July 27, 2011" Brookings Institution, "Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas," May 2012

3. COMPARATIVE ADVANTAGES OF AK LNG -World-Class Businesses & LNG Producers Currently Operating -



- World-class businesses and LNG producers have already invested billions of dollars on LNG studies and oil and gas infrastructure in Alaska
- Companies are working closely together/integrating efforts
- Highly trained workforce in Alaska can ensure competitive labor costs
- Strong oil and gas service support industry already in place

3. COMPARATIVE ADVANTAGES OF AK LNG - Significant Progress on Export License and Other Regulatory Matters -

- Existing Alaska LNG export facility has a U.S. Department of Energy export license and has been reliably exporting LNG to Asia for over 40 years
- Not part of Lower 48 shale debate and controversy
 - Stranded gas—no effect on national gas market in the Lower 48 U.S. states
 - Large LNG Alaska project will get more gas to Americans, not less
- First Nation and Native land claim issues have already been resolved

- Previous and upcoming Environmental Impact Statements (EIS)—Yukon Pacific/AGDC
- Federal Energy Regulatory Commission (FERC) filing/resource reports
- State regulatory approvals are in place to produce and transport gas



3. COMPARATIVE ADVANTAGES OF AK LNG - Significant Progress on Export License and Other Regulatory Matters -



3. COMPARATIVE ADVANTAGES OF AK LNG - DOWNSTREAM AND UPSTREAM INVESTMENT OPPORTUNITIES -

North Slope, North Slope Foothills, and Beaufort Sea Areawide Oil and Gas Lease Sales—*November 7, 2012*



3. COMPARATIVE ADVANTAGES OF AK LNG - Other Projects or Regimes in Comparison -

Western Canada/British Columbia

- Resource-risk
- First Nations land claim issues unresolved
 - "First Nations across Canada attempt to stall Northern Gateway, Kitimat, Enbridge," Petroleum News, December 2, 2012

Lower 48

- Shale gas controversy
- Regulatory issues and gas export limits
- Export infrastructure constraints



North American LNG Import/Export proposed terminals, U.S. Federal Energy Regulatory Commission

3. COMPARATIVE ADVANTAGES OF AK LNG - Other Projects or Regimes in Comparison -

<u>Australia</u>

- Cost overruns e.g., Gorgon
 - "Chevron's Gorgon project cost up 40% to \$52 billion," MarketWatch, *Wall Street Journal*, December 6, 2012
- Skyrocketing labor costs
 - "Price Crunch Looms for Australian LNG," *Wall Street Journal*, September 24, 2012

Russian Arctic

- Resource-risk
- Reliability
- Political and legal stability

<u>Qatar</u>

- Political and legal stability
- Regional politics and lack of security

Other US/Alaska Benefits

- U.S.-Korea Free Trade Agreement (FTA)
- No Committee on Foreign Investment in the United States (CFIUS) issues

4. SECURE ALASKA'S FUTURE: STRATEGIC & CRITICAL MINERALS

Objective:

To highlight Alaska's potential for exploration, development, and processing of strategic and critical minerals, including Rare Earth Elements (REEs)



"Secure Alaska's Future: Strategic Minerals" is a comprehensive strategy that will:

- I. Undertake a statewide assessment of Alaska's strategic mineral potential—millions budgeted for this project
- II. Provide support for the development of known or highly prospective strategic mineral occurrences throughout Alaska through infrastructure partnerships and incentives
- III. Improve the structure and efficiency of permitting processes in order to expedite mineral development, including strategic minerals
- IV. Deepen partnership and cooperation with the federal government, local governments, Native corporations, and other potential new entrants to encourage domestic exploration, development, and processing of REEs and other strategic minerals
- V. Attract new investment and markets for Alaska's abundant mineral resources

4. SECURE ALASKA'S FUTURE: STRATEGIC & CRITICAL MINERALS - RECENT MINING ACTIVITY -



In 2011, the gross mineral production value from Alaska totaled \$3.8 billion, up 16% since 2010.

Mineral ore production had an export value of \$1.8 billion in 2011, nearly 40% of Alaska's total exports.

- Producing Mines in Alaska
 - *Red Dog*: one of the world's largest zinc mines, produced over 555k tons of zinc and 78k tons of lead in 2011
 - Greens Creek: among the world's top 10 silver mines, produced over 9.48 million ounces of silver, 56k ounces of gold, and 73k tons of zinc in 2011
 - o Pogo: produced 356k ounces of gold in 2011
 - o Fort Knox: produced 289.8k ounces of gold in 2011
 - *Usibelli*: produced a record 2.2 million tons of low sulfur coal in 2011, exporting half of its production
 - *Nixon Fork:* gold and copper mine re-opened in 2011 and still in pre-commercial production phases
 - *Kensington:* 2011 was first year of production for this new gold mine—produced 88,420 ounces of gold

4. SECURE ALASKA'S FUTURE: STRATEGIC & CRITICAL MINERALS - RECENT MINING ACTIVITY -



In 2011, mineral exploration investment in Alaska totaled \$365 million - accounting for about onethird of the total spent on exploration in the U.S.

- Advanced exploration projects include:
 - *Pebble:* ~ 80.6 billion pounds of copper, 107.4 million ounces of gold, and 5.6 billion pounds of molybdenum
 - **Bokan Mountain:** enriched in yttrium, dysprosium, and critical heavy Rare Earth Elements
 - *Donlin:* ~ 42.3 million ounces of gold
 - Money Knob: ~20.6 million ounces of gold
 - Niblack: ~7.3 million tons of polymetallic (copper, gold, silver, and zinc) volcanogenic massive sulfide project
- 30 exploration projects spent over \$1 million in 2011
- \$2.8 billion has been spent on mineral exploration in Alaska since 1981

4. SECURE ALASKA'S FUTURE: STRATEGIC & CRITICAL MINERALS - STATEWIDE ASSESSMENT & OUTREACH -

- State is undergoing a statewide assessment for strategic and critical minerals \$3M designated in FY13 budget
 - o One of largest undertakings in the country
 - Looking to work with other public and private groups
 - Information will be made available to public
- Held first "Alaska Strategic & Critical Minerals Summit" in Fairbanks in 2011. The event had:

o Huge turnout

o Very favorable national press



4. SECURE ALASKA'S FUTURE: STRATEGIC & CRITICAL MINERALS - STATEWIDE ASSESSMENT & OUTREACH -

- Held second annual "Alaska Strategic & Critical Minerals Summit" in Fairbanks on November 30, 2012, at the Fairbanks Princess Riverside Lodge
- Speakers included:
 - State and Federal Government Officials and a representative from Japan Oil, Gas and Metals National Corporation (JOGMEC)
 - o University of Alaska
 - o Native Corporation leaders
 - o Private Industry





4. SECURE ALASKA'S FUTURE: STRATEGIC & CRITICAL MINERALS - SUMMIT, NOVEMBER 30, 2012, FAIRBANKS, AK -

OPENING REMARKS

Welcome Remarks: Mayor Jerry Cleworth, *City of Fairbanks*, and **Mayor Luke Hopkins**, *Fairbanks North Star Borough*

Day's Overview: Dan Sullivan, Commissioner, Alaska Department of Natural Resources

MORNING ADDRESS

Honorable U.S. Senator Lisa Murkowski, *Ranking Member*, U.S. Senate Committee on Energy and Natural Resources

PRESENTATIONS: Investigating Alaska's Strategic Mineral Potential

Bob Swenson, State Geologist and Director of the Division of Geological and Geophysical Surveys, Alaska Department of Natural Resources

Larry Meinert, Mineral Resources Program Director, U.S. Geological Survey

Curtis Freeman, Avalon Development Corporation

PRESENTATIONS: Access to Alaska's Lands and Resources

Honorable Alaska Senator John Coghill, Alaska Senate Majority Leader

Ed Fogels, Deputy Commissioner, Alaska Department of Natural Resources

Ethan Schutt, CIRI

Matt Ganley, Bering Straits Regional Corporation

Lance Miller, NANA Regional Corporation

KEYNOTE ADDRESS

Michael Silver, *President and Chairman of the Board, American Elements*

PRESENTATIONS: Strategic Minerals – National Policy and Global Security

Dan McGroarty, President, American Resources Policy Network

Hiroyuki Katayama, Assistant General Manager, Japan Oil, Gas and Metals Corporation (Vancouver Office)

PRESENTATIONS: Project Research, Development and Financing

Susan Bell, *Commissioner, Alaska Department of Commerce, Economic Development & Community Affairs*

Mark Myers, Vice Chancellor of Research, University of Alaska Fairbanks

Ken Collison, Chief Operating Officer, Ucore Rare Metals

Mark Davis, Alaska Industrial Development & Export Authority

PRESENTATIONS: Regulatory and Stakeholder Issues

Tom Crafford, Alaska Department of Natural Resources

Karl Hanneman, Alaska General Manager, Livengood Project, Tower Hill Mines Inc.

Mary Sattler, Donlin Gold

Lorna Shaw, Chair, Greater Fairbanks Chamber of Commerce

CLOSING REMARKS

The Honorable Lieutenant Governor Mead Treadwell

RECEPTION AND INVESTOR NETWORKING AT THE MUSEUM OF THE NORTH

5. STATEWIDE PERMITTING REFORM

<u>Objective</u>:

Improve the State of Alaska's permitting processes in order to advance the public interest by ensuring projects are permitted in a timely, predictable and efficient manner while safeguarding the environment.



DNR has been working with a team from DNR, DEC, ADF&G, and LAW to develop and advance strategies that aim to:

- I. Improve agencies' internal permitting structure to create a more efficient, timely, and certain process
- II. Enhance coordination within different state departments and with different entities and stakeholders throughout the state
- III. Seek input from the public about the permitting process including input from municipalities, industry and non-governmental organizations
- IV. Improve coordination between the state and the federal government—federal permitting issues have a strong influence on state projects
- V. Anticipate and plan for permitting the next phases of resource development, e.g. the Shale Oil Task Force

5. STATEWIDE PERMITTING REFORM - Significant Progress Made -

- In FY12, the Legislature provided approximately \$2.7 million in operating funds for the Division of Mining, Land & Water to create efficiency, timeliness and certainty in the permitting process
- We are utilizing capital funding from FY12 (\$2.5M for the Unified Permit Project and Document Management) to focus on business management software and services
- In FY13, the Legislature approved the continuation of FY12 operating funds as part of the ongoing base for permitting and an additional \$950.0 to cover increased personnel costs and fill vacant positions focused on permitting
 - FY13 capital budget included \$3.3M to continue work on the Unified Permit Project, including the continuation of IT strategies and Business Process Management

- We have filled 31 of 36 new/vacant positions
- We reclassified and updated over 50 position descriptions
- Since the beginning of FY12, the backlog has been reduced by 38.2% (1,015 authorizations)
- We have conducted public meetings statewide for input on state permitting processes
- We are evaluating internal processes to identify and fix inefficiencies



5. STATEWIDE PERMITTING REFORM - Significant Progress Made -

Statutory Changes – HB361

- The Division of Mining, Land and Water has identified over 30 statutory changes that would help reduce applicant costs, create efficiencies, reduce redundancies, and reduce opportunities for legal challenges
- During the 2012 Legislative session, the Governor introduced HB 361, which included the highest priority changes related to <u>leasing</u> <u>and disposal programs</u> that would help reduce the permitting burden on the applicant and free more time for staff to work on processing applications
- The Legislature passed HB 361 and it has been signed by the Governor



5. STATEWIDE PERMITTING REFORM - Other Efforts to Create Efficiencies -



- Contributing to the Department/State's Permit Efficiency Task Force
- Evaluating how to improve coordination with other state and federal agencies
- Continuing to evaluate organizational changes in the division (*function of process improvement*)
- Hired a business analyst to help lead our staff through process evaluations and changes
- Broader statewide focus underway
- DNR, including the DMLW and DOG, continues to evaluate our statues and regulations to look for additional modifications to improve permitting efficiency, certainty and timeliness

6. SUSTAINABLE DEVELOPMENT - ROBUST ENVIRONMENTAL STANDARDS -

- Responsible resource development and protecting the environment go hand in hand
- We all must be leaders in this regard
- In Alaska, our efforts to protect the environment and wildlife have been successful. For example:
 - When debating the development of the Trans-Alaska Pipeline System (TAPS), many predicted that oil and gas development would decimate caribou herds
 - These predictions have not come true
 - In fact, caribou have thrived over the past 35 years. The Central Arctic caribou herd, which occupies summer ranges surrounding Prudhoe Bay—*the largest oil field in North America*—has grown from 5,000 in 1975 to over 70,000 today

Because of efforts taken by federal, state, and local governments and the energy industry, oil and gas development in Alaska is conducted in a safe and responsible manner with standards that exceed most other jurisdictions in the world.



6. SUSTAINABLE DEVELOPMENT - ROBUST ENVIRONMENTAL STANDARDS -

Oil and gas development in Alaska is conducted in a safe and responsible manner with some of the most stringent standards in the world

- "No impact exploration"
- No operations can be conducted within one mile of polar bear dens
- The state will not lease acreage in sensitive areas
- The state encourages the unitization of leases
- Whenever possible, onshore pipelines are buried to minimize impacts on wildlife

 if pipelines are built above ground, they are elevated so caribou can migrate

- Alaska mandates that operators use the best available technology for oil discharge containment, storage, transfer, and cleanup
- Nearly 50 years of operations in Cook Inlet have coexisted with worldclass fisheries

6. SUSTAINABLE DEVELOPMENT - Advances in Exploration & Drilling Technology -



- In 30 years, surface footprint requirements have been dramatically reduced. At the Alpine field, 54 wells have been drilled from one 13-acre pad
- Wells can also reach a much larger radius – from 3 sq. miles in 1970 to 50 sq. miles in 1999 and, perhaps, 100 sq. miles in 2012

Liberty Drillsite (2012?)

PART III



2013 Legislative Session & Beyond

LEGISLATIVE SESSION & BEYOND - OIL TAX REFORM -

- The Governor has been encouraged by the consensus that has emerged over the past year
- Alaska should be in the forefront of this American energy renaissance rather than watch oil production continue to ebb
- Alaskans agree that something needs to be done
- Implementing comprehensive plan—tax reform remains key

Core Principles of Tax Reform:

- Must be fair to Alaskans
- Encourage new production
- Simple so that it restores balance to the system
- Durable for the long term

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Status quo favored by some is unfair to Alaskans and unacceptable.

LEGISLATIVE SESSION & BEYOND - OTHER EFFORTS -

Gas Commercialization

- Governor's new benchmarks in 2013 State of the State
- We will work to accelerate gas line development because of our urgent need for in-state energy
- The window of opportunity to sell Alaska LNG to Asian markets will not be open indefinitely
- Global competition is fierce
- Continued work on demand-pull

Permitting Reform

- Progress has been made but we will again pursue significant legislative efforts to create efficiencies by streamlining processes, reduce redundancies, and reduce opportunities for legal challenges
- Introduction today by Governor of SB 26 builds on our comprehensive reform efforts; critical to state's future

Promoting the State

- Mineral Exploration Roundup Conference, Vancouver, January 28-31, 2013
- North American Prospect Expo, Houston, February 5-8, 2013
- "Alaska Grown" produce
- Alaska State Parks hosting "Arts in the Parks" throughout the summer
- Example: *Oil & Gas Journal* feature on Alaska

CONCLUSION

There is cause for optimism, but a lot of work left to do.

Partnership with all Alaskan stakeholders is key.

