



RESOURCE EXTRACTION PROJECTS 10-YEAR PROJECTION 2014 REPORT

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PREFACE

Welcome to the 2014 AEDC Resource Extraction Projects: 10-Year Projection Report, generously sponsored by Northrim Bank, with research support from Petroleum News and North of 60 Mining News. This projection began in 2004 as a modest project to address a request to the Kenai Peninsula Borough Mayor's Oil & Gas office from the University of Alaska sponsored Workforce Development Conference. The goal was to give a perspective on what the future might hold for resource extraction projects in Alaska and to identify the related workforce demands those projects could generate in the next decade.

While that first projection was very simplistic, it triggered a flood of requests for a more detailed projection that could be updated annually. Over time, this projection changed in a number of ways, including improved project details, better modeling of project flow and annualized workforce demands. In 2007, the projection migrated from the Kenai Oil & Gas office to the Anchorage Economic Development Corporation (AEDC).

Then in 2009, a milestone was reached through an agreement between AEDC, Petroleum News (PN) and North of 60 Mining News (N60) publications. The two publications agreed to provide the factual research foundation upon which AEDC could then develop its own perspectives and projections. At the same time, AEDC also engaged the McDowell Group to provide help with ratios needed in modeling annualized workforce needs and project spending for the projects profiled.

When first developed, the projection was focused on providing perspectives in support of workforce training initiatives. For example, what projects were under development, when would they likely begin activities and how many workers in different skills categories would they need? It also underlined the need to be better prepared to support the projects through infrastructure improvements, as well as the potential social and economic impacts to communities.

From 2004 through 2008 this projection was driven by optimism for the future, and there was good reason for that optimism. The natural gas pipeline from the North Slope to the Lower 48 looked like a sure thing, the national political stars were aligned for the Arctic National Wildlife Refuge (ANWR), mining was seeing a resurgence of investment and the Pebble Mine was emerging as a world-class copper prospect that could become a new economic driver in a struggling region of rural Alaska. Alaska's economic future was bright and the early years of the resource extraction project projection reflected those dawning opportunities.

The 2009 projection, however, was a significant departure from the previous year's forecasts. While there were a large number of projects profiled that had the potential to move forward in the next 10 years, for the first time AEDC sounded a clear note of caution that forces were aligning against the successful launching of those projects. This growing sense of concern was driven in part by the global recession, but also by growing issues related to taxation, permitting, infrastructure and litigation.

In 2011, AEDC departed completely from past practice and did not offer “odds of success” for any projects included in the projection. The increasingly challenged investment environment in Alaska led AEDC to view the future as questionable for most of the projects addressed.

Permitting, litigation, critical habitat, public support, taxation, project economics and lack of key infrastructure were issues that challenged resource extraction projects in ways that, when combined, created high levels of uncertainty that negatively affected investment and diminished Alaska’s competitiveness in the global market place. Since the 2011 report was issued, the situation grew even worse in many instances, though there were a few glimmers of hope and progress noted in the 2012 report.

In 2013, with several new enhancements added, our report underscored a renewed yet cautious sense of optimism for some of the projects, particularly those in the Cook Inlet Basin. The report also noted some progress over the last year in addressing the many challenges that face the mining and oil and gas industries, mainly focused in the area of taxation and to a lesser degree permitting. However, the report still sounded a cautious alarm that Alaska’s attractiveness to investment in major energy and mineral projects remains challenged.

In this year’s report, we discuss the ongoing development of the state’s effort to bring North Slope natural gas to market and its implications. This project not only addresses serious issues of affordable energy throughout the state, but also economic opportunities that may impact all of Alaska. Another highlight of our findings is the increasing interest in Cook Inlet operations and the potential for greater activity in the area. Finally, the mining section provides a great deal of detail on the changing conditions for a number of large projects, both positive and negative, and gives some indication that substantial development may be on the horizon.

AEDC would like to thank Mr. Dan Dickenson for his research and writing efforts on behalf of AEDC in the development of the oil and gas sections of this report. Additional thanks go to Mr. Shane Lasley of North of 60 Mining News for his support with the development of the mining sections of this report. AEDC would also like to thank Petroleum News for their continuing support in providing research and review of the factual information contained in this year’s report.

EXECUTIVE SUMMARY

This year was a year of significant change in Alaska's resource extraction industry. From both the business and governmental perspective, economic conditions shifted dramatically, but have ultimately resulted in more clarity of future conditions. It is the hope of many that Alaska's increasingly stable tax and regulatory environment will result in more projects moving from concept to reality. In this report, we highlight a number of projects that are in the planning stage which could have great benefit to the state and its economy.

The optimism noted last year in this report for the Cook Inlet basin proved to be with merit, as 2014 saw a great deal of investment and increased production. According to the State of Alaska, Cook Inlet oil producers have boosted output 25 percent in the last year and production has essentially doubled in Cook Inlet since fiscal year 2010, increasing from 8,900 barrels per day in fiscal year 2010 to 16,288 barrels per day presently. The region has proven to be an attractive investment for independent oil and gas explorers and has thrived on this new energy.

Oil and gas and related support industry employment in the Cook Inlet region continues to grow and has been a substantial contribution to the sustained drop in unemployment rates, particularly the record lows within the Kenai Peninsula Borough. This bodes well for the odds of future success for projects proposed for this region in the next decade. At the same time, a number of challenges related to permitting, infrastructure, key industry support services and litigation, to name a few, still challenge these projects and could delay or derail many of these efforts.

Alaska's North Slope may see similar results in the coming decade with many of the field's major investors indicating a renewed interest in forwarding projects. For the most part, the dust seems to have settled on the state's oil tax system that had recently caused much uncertainty in development plans. Long term expectations for the industry's investment climate has stabilized and there is new hope that the decline in the North Slope oil production curve may flatten out. However, tax policy alone will not lead to another "Oil Boom" as was seen in the early days of the Prudhoe Bay discovery. Progress in stemming declines in North Slope oil production will likely be measured in inches in the next few years as proposed investments ramp up, projects are designed, permits are developed, litigation is overcome, drilling is completed, facilities are built or revamped, and actual new production is brought on line as a result.

While established fields are expected to see increased development in the near term, plans for new areas of exploration, particularly in the federal waters of the Outer Continental Shelf (OCS), have stalled. A lengthy wait for new federal regulations involving drilling in the Arctic region have put a number of exploration projects on hold. Shell Oil Company has maintained throughout the process a goal of continuing their drilling program in 2015, but given current conditions, their plans will not result in increased oil production in the near term. Alaska has reached a point where the average oil project timeline is measured in decades, and given the rapidly changing marketplace Alaska finds itself doing business in, time is not Alaska's friend.

In just five years global oil and gas markets, particularly in the Lower 48, have become ever more competitive thanks to new technological innovations. Hydraulic fracturing and horizontal drilling have changed the face of U.S. energy markets. According to the U.S. Energy Information Administration projections, within the next 20 years the United States could reach a point of balance in the amount of energy it consumes as a nation versus the amount of energy it produces domestically, meaning the United States will no longer be reliant on imported crude oil.

This is a game changer for energy markets, regional economies and the global trade in oil and natural gas. These new technologies are driving down the costs and time required for exploration, development and production of oil and natural gas with resulting regional supply overbalances that are driving down prices as new reserves of oil and natural gas flood U.S. Lower 48 markets. Technology is making Alaska's already challenging cost and time environment even less competitive as it becomes cheaper to explore for and produce oil and natural gas in the Lower 48 and Canada.

In the mining sector, recent developments have clarified the future of a number of projects. Near record highs of gold production in the state have been a boon for existing operations, but the dramatic decline in the commodity's price has stifled new investment and has priced out some prospects. The Pebble Project, an extraordinary development that has seen years of planning, incurred major disruptions in the past year and uncertainty in its future has become more prevalent. On the more positive side, recent developments in both state and federal mining support has bolstered the development schedule for two sizable mining projects, Bokan Mountain and Donlin Gold. As history has shown, mining development in Alaska is a moving target, and today's super project can quickly become yesterday's shelved plan. We are cautiously optimistic that the momentum behind these two sites will bring new investment and opportunity to Alaska.

Influencing all of these projects is the ongoing effort to bring North Slope natural gas to market. A cheap, reliable source of energy greatly reduces costs for many of the potential projects outlined in this report and may spur the development of even more prospects. This multi-billion dollar project will itself be a major source of jobs and investment that will bolster the state's economy. In the oil and gas section of this report, we have produced an overview of the current status of the many moving parts to this transformative development. It is encouraging to see the high level of coordination between the private and public interests in the Alaska LNG project, and the significant investments put forth in the last year have sent a strong signal that this opportunity may be realized within the next decade.

Alaska's competitiveness in the global oil and gas and mineral markets remains challenged in many ways. Several related issues continue to diminish Alaska's competitiveness. Issues based in social compacts, taxation, permitting, litigation, commodity pricing, high costs related to project development and access to needed infrastructure have reached a point of, what is effectively, gridlock for many proposed resource extraction projects. Compounding these challenges is a continuing lack of agreement among Alaskans on a common vision for Alaska's economic future.

Resource extraction projects developed in the next seven to 10 years will be the foundation of a growing, more diversified economy based on new jobs, new investment and potential for lower energy costs for more Alaskans. The wealth generated by these projects, combined with our existing industry base, will provide the needed capital to broaden our economy through investments in education, infrastructure, community and economic development. If we are unable to develop even a minority of the projects described in this report, there is a growing likelihood that Alaska will face a period of economic stress which will result in a growing trend of economic stagnation and decline for many areas of Alaska.

So what is the outlook for proposed projects in the next decade? For 2014, AEDC's updated projection shows Alaska has the potential to generate roughly 20,000 jobs at peak construction and that would be created through \$68 billion of private sector investments in 14 resource extraction projects that are proposed for development within our state in the next decade.

The following are the graphed views of the projects profiled in this projection, along with a historical representation of resource extraction job levels in Alaska over the last 11 years to provide context. The first three graphs present a combined view of oil and gas and mining projects from two perspectives.

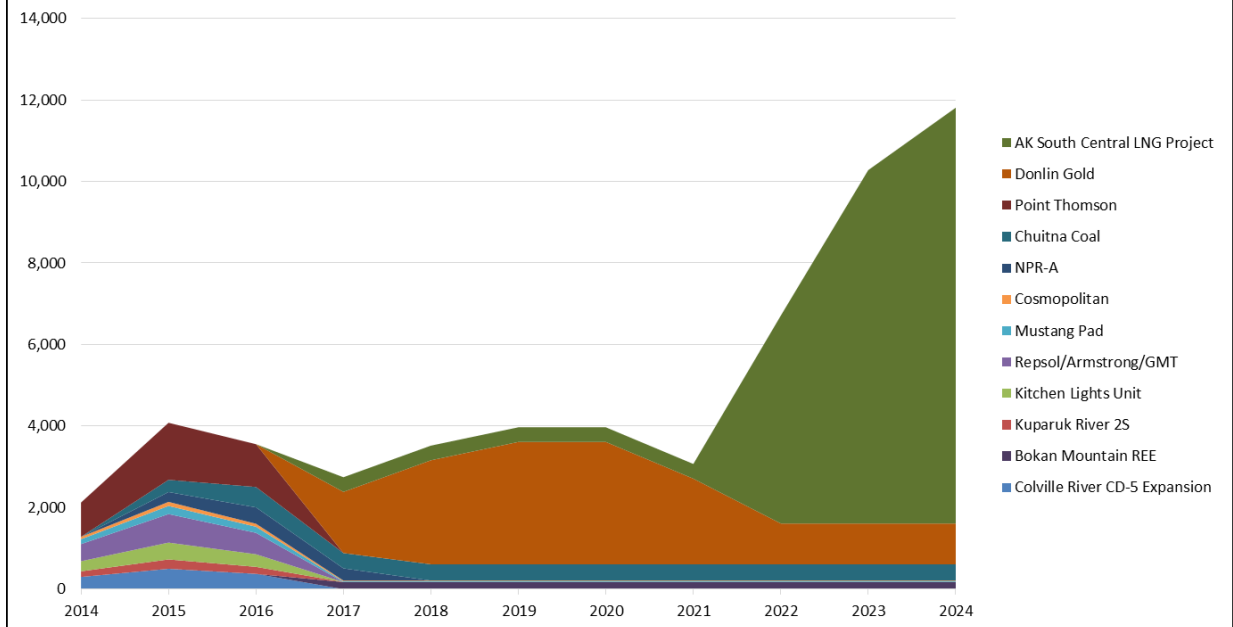
The first shows the number of combined oil & gas and mining jobs in Alaska by quarter since 2004. Next is the view of total jobs the proposed projects in this report could create and when. The third graph presents an overview of total spending on these projects and when that spending will take place. This is the earliest that these jobs/spending could occur and are based on favorable conditions.

Please note that all graphs are based on available information and in some cases, projects only offer jobs numbers or capital investment figures, not both, and will be excluded from either the jobs or investment graph. It is inappropriate to interpret these graphs as firm commitments by the proposing companies. As discussed at multiple points in this report, all of these projects face significant challenges that must be overcome to initiate actual construction and operations.

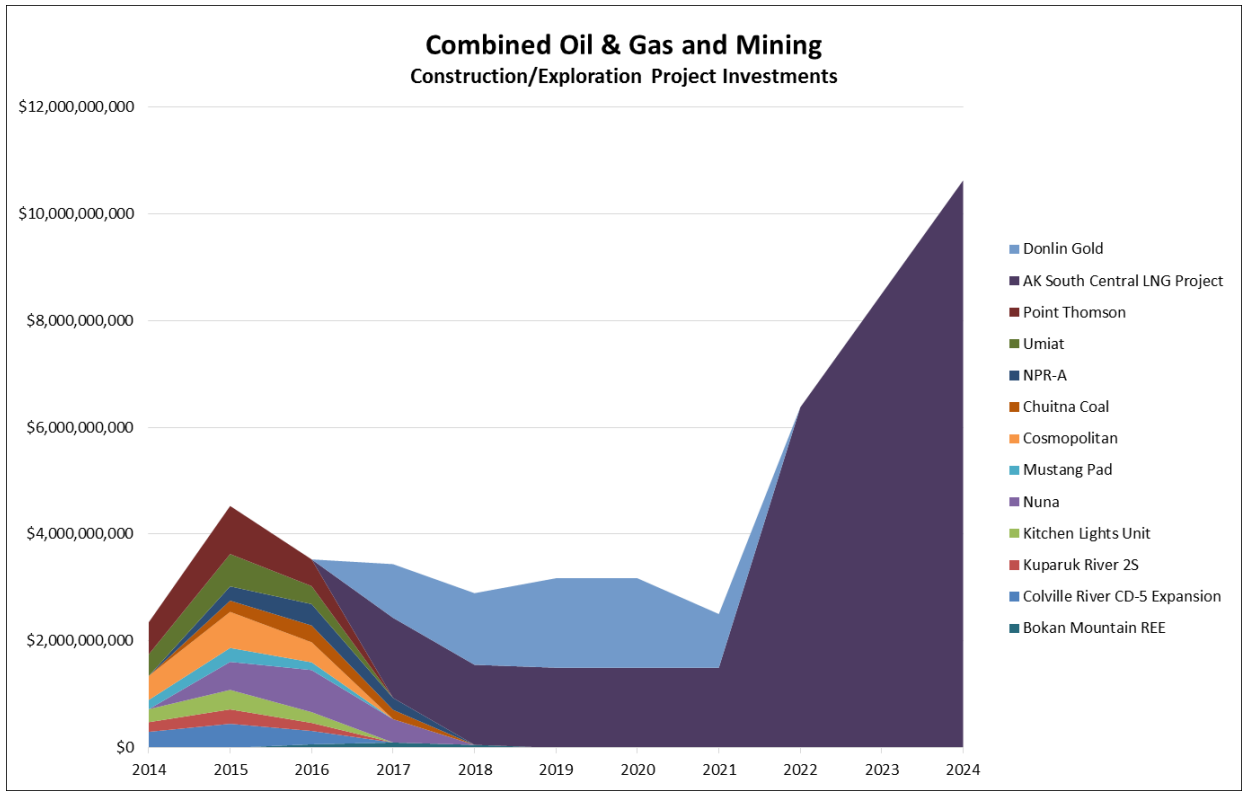
Alaska's Combined Mining and Oil & Gas Jobs, 2004 to Present



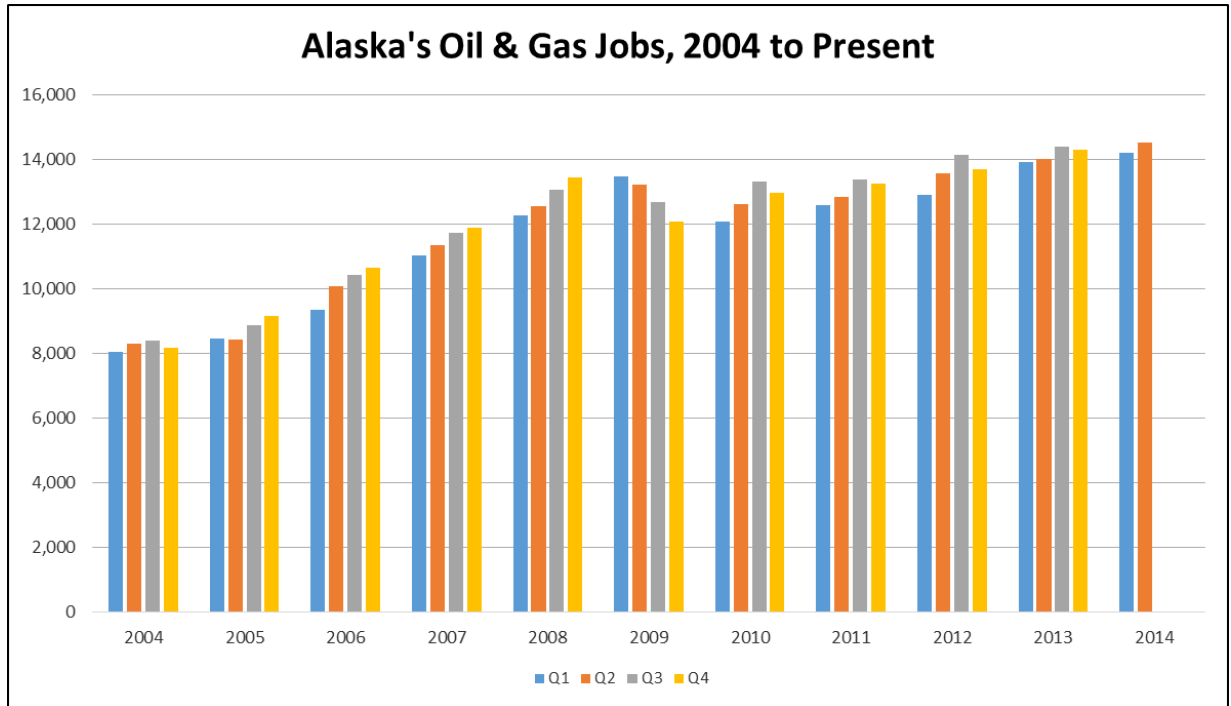
Combined Oil & Gas and Mining Jobs Construction/Exploration and Operations



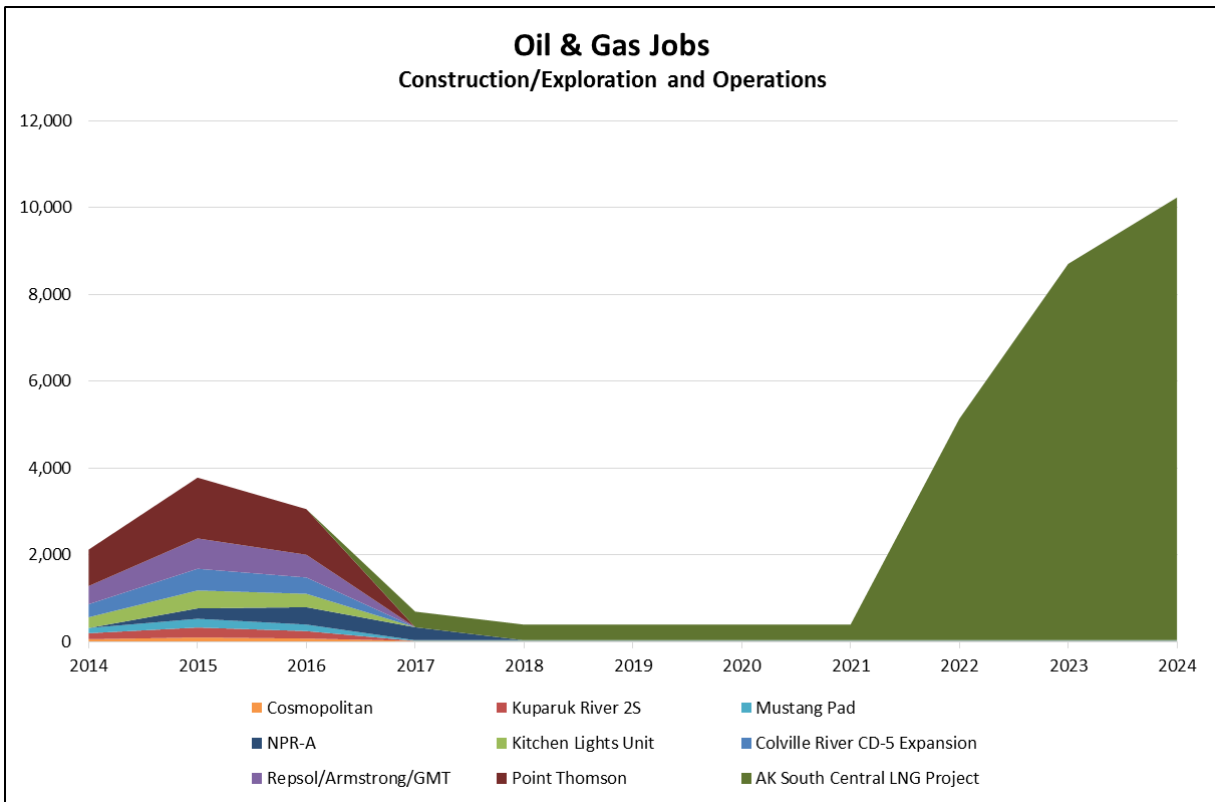
Note: Many of these projects are reported without data regarding jobs during production periods, which results in an under-reporting of potential jobs after 2017.



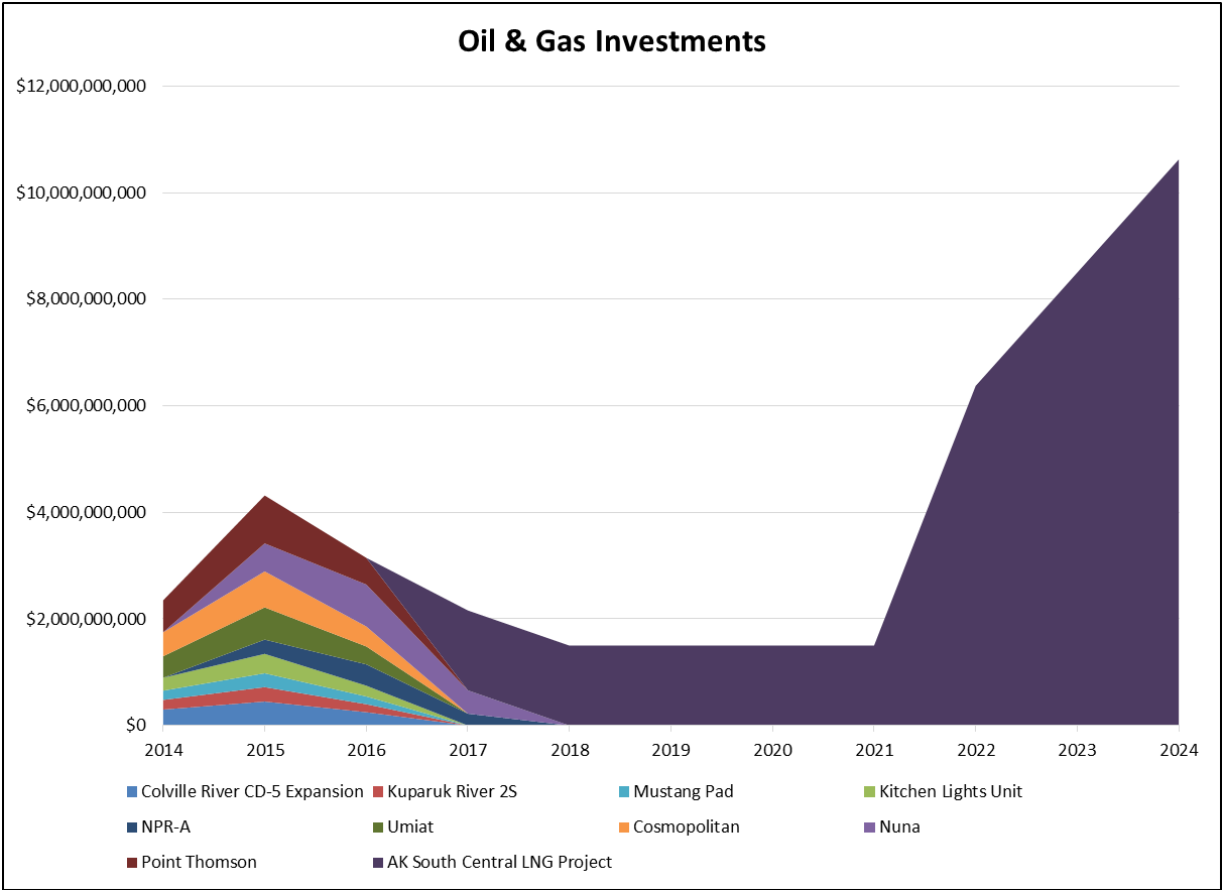
This graph represents the number of jobs in the oil and gas industry in Alaska over the last eleven years.



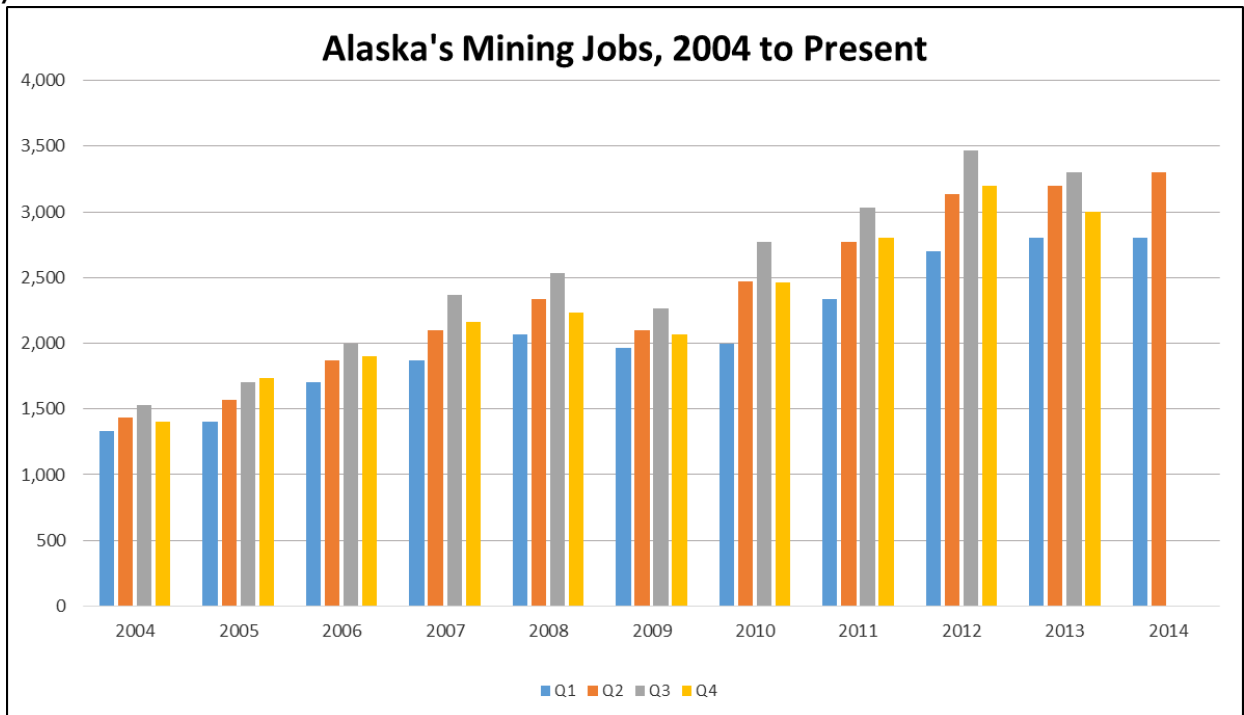
The next two graphs offer the narrow view of proposed oil and gas projects only, and again address total jobs and spending related to those projects over the next decade.



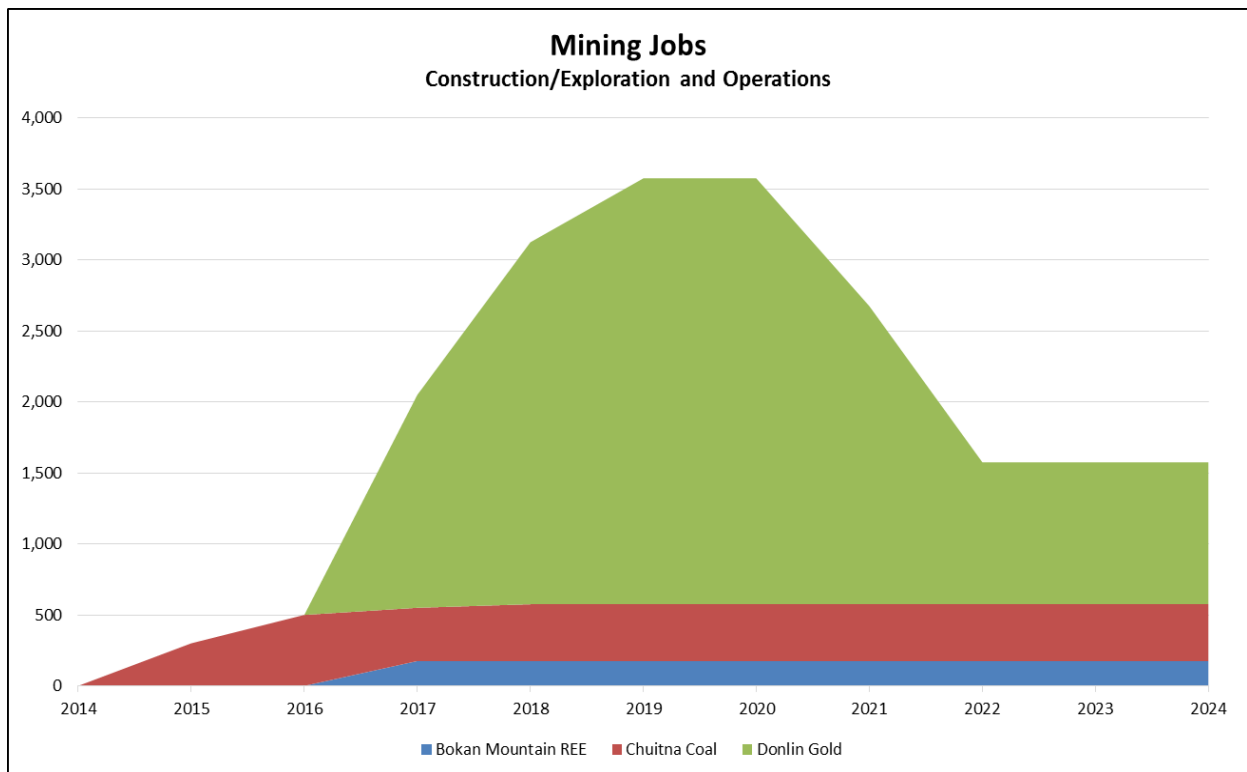
Note: Many of these projects are reported without data regarding jobs during production periods, which results in an under-reporting of potential jobs after 2017.



This graph represents the number of jobs in the mining industry in Alaska over the last eleven years.



The final two graphs offer the narrow view of proposed mining projects only and again address total jobs and spending related to these projects over the next decade.



BACKGROUND INFORMATION OVERVIEW

In prior years the Resource Extraction Projection Project has presented oil and gas projects in various ways. We have looked at what projects could be considered far enough along to actually be considered “plans” and which were ideas to watch. We compared projects with a greater than 50 percent likelihood to those with less than a 50/50 chance. We assembled massive appendices detailed the latest information on various projects. In the 2013 edition, we moved away from classifying fields as proposed or to be watched, as this brought an element of “picking winners and losers” into the equation.

In an earlier publication, we wrote of the three steps required to bring about oil and gas production: exploration to find hydrocarbons; investments to develop a field (including required supporting infrastructure); and finally production. In this year’s edition of the resource extraction project we look at the world through these three phases, and assign each oil and gas project to one of the three. Our goal is to provide summaries of recent activities to allow the reader to judge the projects based on its merits. Of course, as a ten year project projection report, some prognostication is required, and the AEDC’s perspective on job numbers and project investment levels is shown in the preceding graphs. We hope these changes provide an improvement to this report and serve to expand the community’s understanding of this vital industry.

The following sections contain the factual background information upon which these projections are based. Our thanks to the Shane Lasley with North of 60 Mining News and Dan Dickinson for providing the research that generated the very detailed information that is provided herein.

This report is divided into two sections, Oil & Gas and Mining, each beginning with an article of interest for the industry. Next, the oil and gas project overviews are presented in three groupings: producing units; active drilling and exploration; and other early stage projects. The mining section is presented in two pieces, proposed projects and existing operations. At the end of each resource section, maps are provided to show the distribution of projects across Alaska.

OIL & GAS RESOURCES

A Gas line Project.

Since the discovery of Prudhoe Bay in the late sixties, Alaska has been focused on both the oil and gas resources on the North Slope. Roughly 17 billion barrels of oil have moved through the Trans Alaska Pipeline System to market, generating economic wealth as well as the tax and royalties that have funded practically all of Alaska's state government during most of statehood. On the other hand, while North Slope gas has provided fuel and a tool for reservoir management, for the most part it has burdened oil production with the costs of handling what has now reached roughly 8.5 billion cubic feet of gas coming out of the Slope's oil wells that must be compressed and re-injected back into the reservoir.

The question of how the state can best enable getting those vast reserves of North Slope natural gas to market has dominated much public discourse in Alaska. Picking up the recent history: in the 1990's, Gov. Knowles proposed using a Stranded Gas Development Act (SGDA) process to enable a Liquefied Natural Gas (LNG) export project. In the early years of this century, Gov. Murkowski spearheaded an amendment to the SGDA and a contract to enable a pipeline through Canada to markets in the lower 48. Later, Gov. Palin's Alaska Gasline Inducement Act (AGIA), while continuing to focus on a line through Canada, was structured to allow other configurations if any parties showed interest during "open seasons"; no interest was announced.

The Parnell administration characterizes itself as having chartered a new course in trying to turn this perennial opportunity into an actual project. This new focus returns to an LNG project for export to the hungry markets of Asia where currently natural gas sells for a huge premium. Various relevant agencies of the State of Alaska have signed agreements with ConocoPhillips, ExxonMobil and BP, the three lessees that have the rights to produce most of the North Slope gas, and the Trans Canada pipeline company to work out many engineering, cost, operational and ownership issues during a pre-FEED (Front End Engineering and Design) process.

The administration has asked and received from the legislature permission to negotiate terms for active state ownership in the project. Physically, that is envisioned to consist of a massive North Slope gas treatment plant (GTP), where the gas would first be prepared for delivery to a pipeline. An 800 mile pipeline would connect to a gas liquefaction plant on the Kenai Peninsula, where tankers would move the gas to Asia or wherever it had been sold. While affiliates of the three large producers will own roughly 75% of that infrastructure, a non-producer, an affiliate of Trans-Canada, is expected to own the other 25% of the GTP and the pipeline. The state envisions taking a 25% ownership stake in the Kenai Peninsula facilities.

The 25% stake of the facilities not owned by the producers will roughly correspond to the percentage of shipped gas that the state hopes to own. About half this gas is the State's royalty share. The State of Alaska owns the mineral rights for most of the known North Slope gas and

it has leased the right to produce the gas to the producers. As part of those leases it is entitled to take a royalty-in-kind, usually 12.5% of any gas produced. In addition, the state is now authorized to negotiate a deal where it will receive roughly an additional 13% of the gas in lieu of having the producers pay certain taxes. The role of royalty collector or tax collector is viewed as a passive role, the producer builds the physical and commercial structures necessary to market the gas and the taxes and royalties are calculated as a percentage of the wealth created. However, the current plan has the state and Trans Canada splitting the builder's duties. First the state must raise and pay the money for its 25 percent share of the infrastructure it will own and contract with TransCanada to make sure that its gas can be treated and moved from the North Slope. Then it will either act as a commercial business, going out and signing up customers, or hiring others to act in its behalf. The Alaska Gasline Development Corporation (AGDC) will have the lead responsibility for state's interest in the infrastructure development. Just as it did in the late seventies through the mid-eighties when the state took significant amounts of its oil "in-kind", the state Department of Natural Resources (DNR) will be in charge of executing the commercial arrangements for the gas.

There will also be at least five off-take points within the state, where gas can be withdrawn for local uses. It is often remarked on tension that within the state we have both this almost unimaginably large gas resource while many smaller village, towns and even cities have some of the highest energy costs in the nation. Moving gas from the North Slope to five points across the state could begin to resolve this tension. The enabling legislation directs that further analysis and planning be undertaken to spread the benefits to the parts of the

Is this the project-du-jour, destined to fuel only the rate of growth of the archives filled with the various proposals, plans, authorizations to negotiate and studies that have come to naught? Or might this finally bring gas to markets both world-wide and within the state? Looking back over earlier editions of this study we can see both kinds of projects: those that moved from ideas "to watch" to "producing units", and those that haven't.

Proponents of the project and optimists (and to be fair, the supporters do not deny the problems that may lie ahead) point to the fact that both physical field work and design has advanced further than before. More importantly, they would point to the unprecedented sets of conceptual agreements between the producers, non-producer pipeline company and the state. This has already led to a significant amount of investment at Pt. Thomson, the second largest know gas field on the North Slope, after development had stretched out over decades with no commercial production. As of the fall of 2014, the project has both submitted an application for a liquefied natural gas (LNG) export license to the U.S. Department of Energy and initiated the Pre-Filing process with the Federal Energy Regulatory Commission to begin to review environmental, operational and technical issues related to the project in cooperation with other federal and state authorities and with input from project stakeholders.

Skeptics and those less enamored of the project point to the fact that all the pre- FEED work performed to date is essentially feasibility analysis for the actual FEED stage which could take another 2 to 3 years. Only then is final investment decision, the "go/no go" decision made. While it is hard to know what the project will look like then, it is safe to say that everything

that will have been learned in those years will have created a potential project different than today's. Prior projects also had "unprecedented" milestones such as the first open season or the creation of a federal coordinator's office for that project.

Given the drama and politics over the passage of SB 21 and the recently concluded initiative to repeal that legislative, a hurdle identified in section 9.3.2 of the Heads of Agreement looms particularly large. That provision calls for negotiation on terms to make "contractual terms durable and predictable." ExxonMobil fleshed this concept out a little more in October 2013 press release stating that "a competitive, predictable, and durable oil and gas fiscal environment will be required for a project of this unprecedented scale, complexity and cost to compete in global energy markets." In short, where the state retains the sovereign power to achieve redistribution of the projects profits through taxes if it can't get them through normal commercial channels, its other commercial co-venturers, without those police powers, are understandably nervous. Some commentators view the proposed "fiscal stability" provisions of Gov. Murkowski's Stranded Gas Development Act Contract to be one of the flaws that led to its demise.

We have used the following four metrics to put projects discussed on this report on a common basis. What should be clear about the large LNG export project (and perhaps many of the others discussed in this report) is that "Descriptions are costs are preliminary in nature and subject to change." None the less the figures we reproduce below are used by the all the parties in describing the staggering large scope of this project during the pre-FEED stage. They will probably continue to be used until a new set, driven by better data, informs the decision to move (or not to move) on to Front End Engineering and Design.

Start Date: Pre-Feed work is going on now. The actual decision to actually build the project, the so-called sanctioning or "final investment decision", is hoped by some to occur within the next four years.

Duration of Project: Sticking to an aggressive schedule would have first gas within a decade from now, followed by at least 35 years, though it could be longer with yet to be discovered gas.

Jobs: Between 9,000 to 15,000 during peak construction. Alaska operational jobs: Around 1,000

Total Project Costs: \$45 to \$65 billion (2012 dollars, excluding inflation)

While this project's scope and size generates a great deal of focus, there are other smaller projects that are being pursued:

- The State sponsored Alaska Stand Alone Pipeline (ASAP) project would be a State funded, smaller diameter pipeline aimed not at export markets but to bring gas from the North Slope to various points in Alaska. The Alaska Gasline Development Corporation is charged with advancing both this and the larger line, though clearly if the larger line is built, the smaller one will not be. If progress on the larger line slows at some point, the plan is for the state to shift emphasis back to the ASAP line.

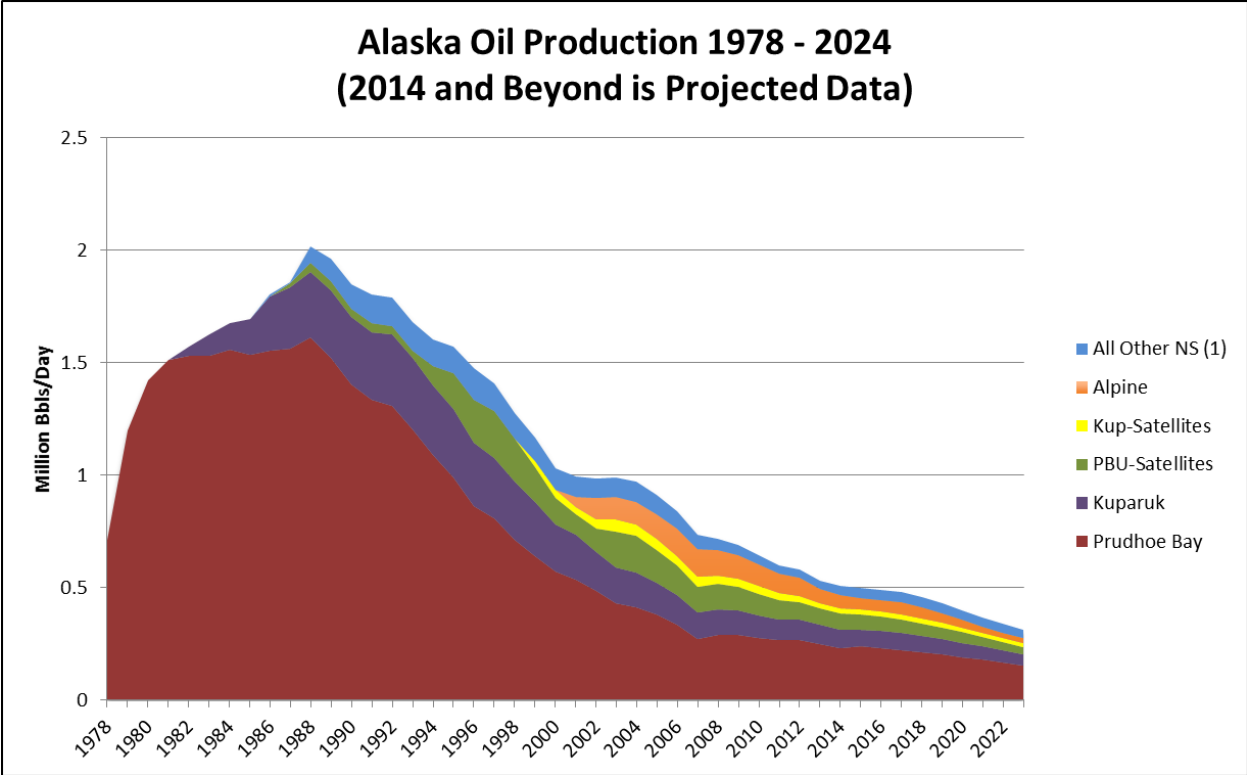
- Meanwhile, in the Cook Inlet, other investors are looking at creating smaller projects with gas already at tidewater. The Cook Inlet Recovery Act has provided incentives for exploration and development within the Cook Inlet since 2010. New supplies of gas have been found. This has created interest in turning that gas into LNG for moment to other markets.
 - For example, as a consequence the 2011 Fukushima Daiichi disaster, Japan is looking for alternatives to nuclear power and Resources Energy Inc. is advocating a much smaller plant at tidewater to move Alaskan LNG to Japan.
 - WestPac is planning a small LNG plant which would liquefy the gas for transportation to the interior of Alaska.

PRODUCING UNITS

NORTH SLOPE DEVELOPMENTS

Alaska’s North Slope oil production is mainly derived from the super-giant Prudhoe Bay unit, with additional input from a handful of nearby fields, many of them giant fields.¹ Peak production of 2 million barrels a day and the subsequent years of decline are clearly illustrated on Table One. Actuals have consistently come in lower than past projections and this should be taken into account when considering the implications of this material.

Table One



I. “All Other NS” includes Endicott, NPR-A, Pt. Thomson, Northstar, Oooguruk, Nikaitchuq, and Liberty fields
 Source: Alaska Department of Revenue, Fall 2013 Revenue Sources Book & earlier RSB, DNR 2007 Oil and Gas Report (projected out to 2029)

Resource development in the North Slope of Alaska repeats a pattern found around the world. Large fields typically have several owners and those owners hire someone, frequently one of the owners with a large ownership share to be the operator, and actually run the field according to the wishes of the owners. Who are the owners?

¹ Although no “official” definition exists, generally fields with over a half billion bbls are considered “giant” fields. Super-giants are an order of magnitude larger with over 5 billion barrels.

As we can see from Table Two below, there are three owners that own about 90 percent of the production. At the other extreme, the ten companies with the smallest ownership shares own about two tenths of one percent. There are five companies that have stakes in at least three of the producing fields. ConocoPhillips has the most production spread across four fields, about 40 percent of the total.

Table Two

Oil Production by Unit & Ownership											
North Slope, FY 2014 (July 1, 2013 - June 30, 2014)											
Unit	Production by Unit	Owners									
		Conoco Phillips	BP	Exxon Mobil	ENI	Anadarko	Chevron	Pioneer	Savant	ASRC	10 Others
Badami	433,150								292,376	140,774	
Colville River	20,740,598	15,895,594				4,650,042					194,962
Endicott	2,718,758		1,432,242	673,164				535,867			77,485
Kuparuk River	40,526,279	21,892,296	15,521,565	1,110,420				2,006,051			
Milne Point	6,947,818		6,741,468		75,731						130,619
Nikaichuq	6,572,648				6,572,648						
Northstar	3,500,145		3,494,545								5,600
Ooguruk	2,954,056				807,934	11,225			2,106,242		28,654
Prudhoe Bay	97,232,832	35,081,606	25,630,575	35,392,751				1,127,901			
Totals	181,626,284	72,869,496	52,820,394	37,176,335	7,456,314	4,661,267	3,669,819	2,106,242	292,376	140,774	437,320
Barrels per Day	497,606	199,642	144,713	101,853	20,428	12,771	10,054	5,771	801	386	1,198
centage of Total	-	40.1%	29.1%	20.5%	4.1%	2.6%	2.0%	1.2%	0.2%	0.1%	0.2%

Totals include royalty barrels owned by the State of Alaska

The 10 Other Owners are Doyon, Limited, George Alan Joyce, Jr., Herbal Exploration LLC, Kerr-McGee Oil & Gas Corp., Murphy Exploration (Alaska), Inc., NANA Regional Corp., Inc., Petro-Hunt, LLC, Phillips Alaska, Inc., Rosewood Resources, Inc. & XH, LLC. The largest of these producers averaged less than 500 barrels per day.

Sources: Alaska Oil and Gas Conservation Commission, Alaska Department of Natural Resources

Each unit has an operator in charge of the day-to-day operations and infrastructure needed for extraction. BP's operations produce the most oil, around 60 percent of the North Slope total, mostly coming from the Prudhoe Bay Unit. For the first thirty years of North Slope extraction operations, BP and ConocoPhillips (or its predecessor Arco) were the only operators of producing fields. Since 2008, however, ENI Pioneer, ENI and Savant became production operators in the region, soon to be joined (or replaced) by Cealus Energy, Cook Inlet Energy, Hilcorp and Exxon Mobil.

Table Three

Oil Production by Unit & Operator						
North Slope, FY 2014 (July 1, 2013 - June 30, 2014)						
Unit	Production by Unit	Unit Operator				
		Conoco Phillips	BP	ENI	Pioneer	Savant
Badami	433,150					433,150
Colville River	20,740,598	20,740,598				
Endicott	2,718,758		2,718,758			
Kuparuk River	40,526,279	40,526,279				
Milne Point	6,947,818		6,947,818			
Nikaichuq	6,572,648			6,572,648		
Northstar	3,500,145		3,500,145			
Oooguruk	2,954,056				2,954,056	
Prudhoe Bay	97,232,832		97,232,832			
Totals	181,626,284	61,266,877	110,399,553	6,572,648	2,954,056	433,150
Barrels per Day	497,606	167,854	302,465	18,007	8,093	1,187
Percentage of Total	-	33.7%	60.8%	3.6%	1.6%	0.2%

Sources: Alaska Oil and Gas Conservation Commission, Alaska Department of Natural Resources

COOK INLET DEVELOPMENTS

Table Four presents the oil production from the Cook Inlet. Cook Inlet accounts for roughly 2 percent of the oil produced in Alaska. As recently as 2010, there were more than six companies producing oil in the Cook Inlet. However, most of them were acquired by Hilcorp between in 2011 and 2012, and now there are three.

Table Four

Oil Production by Unit and Ownership				
Cook Inlet, FY 2014 (July 1, 2013 - June 30, 2014)				
Unit	Production by Unit	Owners		
		Hilcorp	Cook Inlet Energy	XTO Energy Inc.
Swanson River	833,885	833,885		
Beaver Creek	51,800	51,800		
Reboubt Shoal	540,222		540,222	
W. McArthur River	336,761		336,761	
Trading Bay	904,036	904,036		
Granite Point	897,193	897,193		
Middle Ground Shoal	750,890	172,104		578,786
McArthur River	1,595,103	1,595,103		
Totals	5,909,890	4,454,121	876,983	578,786
Barrels per Day	16,191	12,203	2,403	1,586
Percentage of Total	-	75.4%	14.8%	9.8%

Sources: Alaska Oil and Gas Conservation Commission, Alaska Department of Natural Resources

Cook Inlet is also a gas producer, producing gas that is exported as liquefied natural gas, but the majority of it is utilized by Alaskan consumers. (The North Slope also has sizable gas resources. However, most of it is used to power the operations that produce oil, or it is re-injected into the field to help produce the oil. There is some of that usage in the Cook Inlet as well.

Table Five

Natural Gas Production by Field & Operator									
Cook Inlet, FY 2014 (July 1, 2013 - June 30, 2014)									
Field	Total Gas Produced	Owners							
		Hilcorp	ConocoPhillips Alaska, Inc.	ConocoPhillips Co.	Municipality of Anchorage	Cook Inlet Energy	Aurora Gas, LLC	XTO Energy Inc.	Uncommitted
Albert Kaloa	11,897							11,897	
Beaver Creek	3,606,294	3,606,294							
Beluga River	21,791,387	3,632,624	10,895,694		7,263,069				
Deep Creek	3,679,824	3,673,200							6,624
Granite Point	739,415	739,415							
Ivan River	702,361	702,361							
Kasilof	86,466	86,466							
Kenai	10,858,002	10,858,002							
Kenai C.L.U.	3,415,990	3,396,177							19,813
Kenai Loop	3,267,801				3,267,801				
Lewis River	467,411	467,411							
Lone Creek	458,676						458,676		
McArthur River	14,640,985	14,640,985							
Middle Ground Shoal	523,711	120,035						403,676	
Moquawkie	47,936						47,936		
Nicolai Creek	588,480						588,480		
Nikolaevsk	212,171	212,171							
Ninilchik	10,691,866	10,330,481							361,385
North Cook Inlet	10,805,505		3,241,652	7,563,854					
North Fork*	2,957,181						2,957,181		
Pretty Creek	466	466							
Sterling	288,512	288,050							462
Swanson River	2,997,878	2,997,878							
Three Mile Creek	42,342						12,703	29,639	
Total	92,882,557	55,752,017	14,137,345	7,563,854	7,263,069	3,267,801	2,969,884	1,136,628	403,676
Mcf/Day	254,473	152,745	38,732	20,723	19,899	8,953	8,137	3,114	1,106
Percentage		60.0%	15.2%	8.1%	7.8%	3.5%	3.2%	1.2%	0.4%
Cumulative Percentage		60.0%	75.2%	83.4%	91.2%	94.7%	97.9%	99.1%	100.0%

*Effective February 2014, Cook Inlet Energy owns 100% of the North Fork Field. Previously, the ownership was split between Dale Resources Alaska, LLC (35%), GMT Exploration Co. LLC (30%), Armstrong Cook Inlet, LLC (20%), Jonah Gas Co., LLC (7.5%) and Nerd Gas Co., LLC (7.5%).

Sources: Alaska Oil and Gas Conservation Commission, Alaska Department of Natural Resources

As these tables indicate, there are 9 Operators active in the state of Alaska.

- BP operates the largest field – Prudhoe Bay on the North Slope.
- ConocoPhillips has the most production, though only around half of it comes from fields it operates which are Kuparuk and Alpine (Colville River Unit) on the North Slope as well as gas fields in the Cook Inlet.
- Hillcorp, a relative new-comer to Alaska which operates most of the fields in the Cook Inlet, is slated to take over operatorship of two properties from BP on the North Slope.
- Cook Inlet Energy operates oil and gas fields in the Cook Inlet and is in the process of replacing Savant as the operator of Badami on the North Slope.
- ENI operates one North Slope field.
- Caelus has taken over as operator from Pioneer at the North Slope's Oooguruck unit.
- XTO, a wholly owned subsidiary of Exxon, operates two producing platforms in the Cook Inlet. They are profiled here for the first time.

- Aurora operates several Cook Inlet Gas Fields; they too are profiled here for the first time.
- As of 2014, Buccaneer operates one Cook Inlet gas field. It is currently in bankruptcy and at least one existing operator has bid to add that field to its assets.
- Not included in the tables above is the North Slope Borough, which operates the Barrow gas field for local consumption.

Within the next two years, as described in the second section below, we anticipate that no less than three and possibly more additional companies will also bring projects in the development section to completion, and those three entities will too become operators.

PRODUCING UNIT OVERVIEWS

BADAMI PRODUCING UNIT

Overview

The Badami unit is located on the eastern North Slope, onshore and offshore between Endicott and Point Thompson. BP had brought Badami on line in 1998, however it had proved a disappointment and had only been producing intermittently. When Savant became the unit operator in January 2012, the unit was producing slightly more than 1,200 barrels per day from five wells. Since then, Savant has drilled the Red Wolf No. 2 exploration well, which proved to be a dry hole. In 2014, Miller Energy Resources of Knoxville, TN announced that they were working with regulators to complete its acquisition of Savant's share of Badami.

Start Date: Currently in production

Duration of Project: TBD

Jobs: Savant had 55 contractors and employees working at Badami

Total Project Costs: Unknown

COLVILLE RIVER PRODUCING UNIT AND THE CD-5 EXPANSION IN THE NPRA

Overview

Located about 40 miles west of the Kuparuk River Unit, the Colville River Unit (Alpine) came on line in 2000, and including satellite production had produced over 470 million barrels (gross) through June 2014. Peak production of 123,000 bpd occurred in 2006, before three satellites were added. The unit abuts the Colville River, which generally divides State-selected lands on the North Slope from the federally owned National Petroleum Reserve—Alaska (NPRA). Although it took over seven years for Operator ConocoPhillips to receive approval for its CD-5 satellite development 5 miles to the west in the NPRA, the company has received the necessary permits, sanctioned the project, and in 2012 began the process of designing and building the first roads, bridges and pipelines across the Colville River. Legal controversies remain, though ConocoPhillips continues construction work with a goal of first oil in 2015. The project is expected to eventually produce 10,000 to 18,000 bbls a day.

Start Date: Alpine currently in production, as well as satellites Fiord, Nanuq and Qannik, CD-5 construction starts 2014, first oil late 2015

Duration of Project: Unknown

Jobs: Total Unknown: Estimated 500 jobs during peak construction

Total Project Costs: (CD-5) \$1 billion (gross)

COOK INLET ACQUISITIONS BY HILCORP ENERGY

Overview

The first commercially produced oil in from Alaska was produced from the Swanson River field in the Cook Inlet. Although gas now dominates its hydrocarbon production, at its height in the early seventies, Cook Inlet oil production peaked at over 80,000 bbls a day. The gas production

from this area once fed a large fertilizer plant and an active LNG export facility, but as of 2012, most of the gas produced is used in the railbelt of Alaska. In 2011 and 2012, Hilcorp acquired the assets of the largest Cook Inlet producers Marathon, Chevron, and Unocal, as well some other smaller assets. Hilcorp has announced investments of several hundred million dollars over the next several years which would include bringing four new rigs into the inlet. While its acquisitions have been dramatic, its approach to development is to make marginal improvements in existing assets. In 2013, President Greg Lalicker stated that its approach to Cook Inlet would be “what we specialize in as a company: lots of little things.” By the summer of 2014 the Cook Inlet was producing about twice the amount of oil every day that it had been in 2008, the nadir year for Cook Inlet Oil production, with roughly 80% of the production from Hilcorp operated properties. Hilcorp is also pursuing exploration projects at Ninilchik and Deep Creek.

Start Date: Currently in production

Duration of Project: TBD

Jobs: “Growing and Hiring”

Total Project Costs: Unknown: Roughly \$300 to \$350 a year in investment

KENAI LOOP PROJECT, COOK INLET

Overview

This project moved into the producing category as Buccaneer Alaska found gas with its Kenai Loop #1 well in 2011 and began production in 2012. Before declaring bankruptcy in 2014, Buccaneer had drilled additional wells, however production is tied up in legal questions as to whose leases are being drained. Meanwhile, the Endeavour Jack-up rig that Buccaneer brought to the Cook Inlet in 2012 has only drilled one well, spending more than three quarters of its time inactive. Buccaneer sold its interest in that rig.

Start Date: In progress

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: Unknown

KUPARUK RIVER PRODUCING UNIT

Overview

The Kuparuk River Unit was discovered in 1969, around 40 miles west of Prudhoe Bay. First oil was produced in 1981, with peak production of 340,000 bpd occurring in 1992. Total oil produced through June of 2014 exceeded 2.5 billion barrels with over 500 producing wells (completions). Since production began, the Kuparuk owners have spent more than \$5.6 billion to develop and implement programs to optimize oil recovery at the unit. Kuparuk, operated by ConcocoPhillips, is the second largest oil field on the North Slope. Current infield expansion includes the development of drill site 2S.

Start Date: Currently in production, 2S construction began in 2014
Duration of Project: Unknown, First oil from 2S is slated for 2015
Jobs: Unknown, 230 peak construction jobs estimated for 2S.
Total Project Costs: Unknown, 2S costs estimated at \$600 million (gross)

MILNE POINT, ENDICOTT, NORTHSTAR

Overview

The Milne Point, Endicott and Northstar are a trio of North Slope fields that include both onshore and offshore production. Through June of 2014, these fields had a cumulative production since startup of about 1 billion barrels of oil (gross).

BP announced in April 2014 that it has agreed to sell interests in those three BP-operated oilfields, associated pipelines and the Liberty prospect to Hilcorp. The sale includes all of BP's interests in the Endicott and Northstar oilfields and a 50 percent interest in each of the Liberty and the Milne Point fields. Approximately 200 employees who support these assets will become Hilcorp employees. These fields accounted for about 15 percent (19,700 bopd) of BP's net production. The sale will allow BP to focus on the Prudhoe Bay field and the potential development of Alaska LNG.

Milne Point was the site of the Cold Heavy Oil Production with Sand (CHOPS) pilot project, originally developed to discover ways to produce cold and heavy oil. BP started up a \$150 million heavy oil pilot program on the Milne Point S-Pad in 2007 in an effort to find an economical way to extract Ugnu heavy oil. Although initial results were encouraging, in 2013 the four wells in this program produced until they developed mechanical problems and were shut down, bringing a close to the CHOPS project.

NIKAITCHUQ PRODUCING UNIT

Overview

The Nikaitchuq producing unit, operated by Eni Petroleum, is located immediately north of the Kuparuk unit and northeast of the Ooguruk unit. Shown as a "planned project" in the 2010 Resource Extraction Projection, Eni produced first oil from the unit in January 2011. As of the end of 2014, Eni has drilled most of the 52 extended reach wells initially planned for full development. These include 26 producing wells, 21 water injection wells, 3 water source wells and 2 disposal wells. With that drilling that it has attained production of 25,000 bbls a day. Eni is currently evaluating both infield and geographic expansion, aiming to add contingent resources to its reserves base.

Start Date: Currently in production
Duration of Project: at least 30 years
Jobs: 650 jobs created during construction through 2011, 200 jobs created during development drilling from 2011-2014 and 60 jobs created during field operation from 2015 until the end of production
Total Project Costs: Around \$2 billion

NORTH FORK UNIT

Overview

The North Fork was designated a project to watch in earlier Resource Extraction Reports until 2011, when it began producing gas and graduated to a producing Cook Inlet unit. Armstrong believed the prospect, originally discovered back in the sixties, is far from fully delineated, but said early results suggest a field between 7.5 billion and 12.5 billion cubic feet of gas, with the possibility of as much as 20 billion to 60 billion. In early 2014, the field and associated infrastructure was acquired by Miller Energy Resources of Knoxville, TN which is currently merging its operations with its other Alaska affiliate, Cook Inlet Energy (CIE). CIE is evaluating a further expansion of North Fork production operations.

Cook Inlet Energy also produces oil and gas from onshore and offshore properties on the West Side of Cook Inlet.

Start Date: In production

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: Unknown

OOGURUK PRODUCING UNIT

Overview

The Oooguruk producing unit is located northwest of Oliktok in the Beaufort Sea's Harrison Bay, northwest of the Kuparuk unit. In 2008, Pioneer Natural Resources, Alaska become the first independent to operate a producing field on Alaska's North Slope. Crude is processed at Kuparuk River unit (KRU) under a facility sharing agreement with KRU. There are an estimated 120-150 million boe in recoverable reserves, resulting in an estimated 30-year commercial life from start-up for the unit, not including liquids from the Nuna project (see Nuna Project overview). In 2014 Pioneer's share as well as operator responsibilities were acquired by Caelus Energy Alaska, LLC.

Start Date: Oooguruk is currently in production

Duration of Project: 30 years from start-up

Jobs: Unknown

Capital Investment to Date: approximately \$1 billion

GREATER PRUDHOE BAY UNIT

Overview

The Prudhoe Bay unit is located on the North Slope. Oil was discovered in the Prudhoe Bay reservoir in 1968 and came online in 1977. Production averaged more than 1.5 million barrels of oil and natural gas liquids per day for more than a decade. By June of 2014, more than 12.3 billion barrels (gross) had been produced from the Prudhoe reservoir, including associated satellite fields Orion, Polaris, Aurora, Midnight Sun, Borealis, Lisburne, Point McIntyre and

Niakuk. Over time, production from Prudhoe has accounted for about 70 percent of all the oil produced in Alaska. Early Estimates were of 25 billion barrels of oil in place in the Greater Prudhoe Bay Area, excluding heavy oil. Initially, engineers thought they could recover 40 percent, but new technologies and techniques increased that estimate to more than 60 percent. In 2014 when operator BP announced the sale of four other North Slope assets, part of its rationale was its ability to “play to two of [its] great strengths, managing giant fields and gas value chains” both of which certainly suggests a focus on Prudhoe. For the giant Prudhoe field, BP Alaska president Janet Weiss outlined a multi-year plan with the potential of adding 40,000 bbls a day in production for development of the west end of Prudhoe Bay. It will require investment of \$3 billion (gross), and result in more than 130 new wells. BP is already adding two drilling rigs at Prudhoe Bay, one rig by 2015 and a second in 2016, for a total incremental \$1 billion investment over five years. As to the gas value chain in the context of rising hopes for a project to move North Slope gas to market, the vast majority of that gas would come from Prudhoe Bay.

Start Date: Currently in production

Duration of Project: Some estimates as high as decades from now

Jobs: Over 2,000 full time jobs and 6,300 contractors

Total Project Costs: Over \$40 billion to date, which includes development and transportation infrastructure

XTO COOK INLET PLATFORMS “A” AND “C”

Overview

Ft. Worth based XTO Energy remains distinct from its parent – Houston based ExxonMobil. It operates two oil-producing Cook Inlet platforms in the Middle Ground Shoal Field. The “A” platform, installed in 1964 and originally known as the “Shell A” platform is the oldest of Cook Inlets 16 platforms.

ACTIVE DRILLING & EXPLORATION

One way of measuring recent progress on oil and gas projects is to review recent drilling. It is not a perfect measure. As the NPR-A section demonstrates, there are projects first drilled in the 1940s which found hydrocarbons but which have still not been produced. However, drilling wells is key to developing an oil and gas project, and is the measure we will use in this section.

The Alaska Oil and Gas Conservation Commission (AOGCC) is charged with regulating wells in the state and it publishes statistics on wells completed and permitted. For 2014, the AOGCC published data about 153 wells and 193 permits, as shown in Tables Six and Seven.²

Table Six

Oil & Gas Wells Completed in FY 2014 (July 1, 2013 - June 30, 2014)					
By Operator and Area					
	Development & Service Wells		Exploratory Wells		
	North Slope	Cook Inlet	North Slope	Cook Inlet	Other
BP Exploration (Alaska) Inc.	60				
ConocoPhillips Alaska, Inc.	43		3		
ENI US Operating Co. Inc.	16				
Pioneer Natural Resources Alaska, Inc.	2				
Hilcorp Alaska, LLC		12		2	
Cook Inlet Energy, LLC		3		2	
Aurora Gas, LLC		1			
Repsol E&P USA, Inc.			4		
Linc Energy Operations, Inc.			1		
Buccaneer Alaska Operations, Inc.				1	
Furie Operation Alaska, LLC				1	
Doyon, Limited					2
Grand Total: 153	121	16	8	6	2

Source: AOGCC

The vast majority of the wells (121) were service or development wells. For the most part, these wells were drilled by operators BP and ConocoPhillips as part of ongoing development of the larger North Slope units. Development wells will be used to actually produce oil while the

² Well completions are included in the AOGCC's reporting as that data is reported to the AOGCC. The figures analyzed here are those reported for the fiscal year of 2014. The numbers may be slightly different from those reported by the AOGCC in its annual data summaries as those only included wells reported through mid-February.

service wells including injection wells are used to support production. ENI and Pioneer also drilled service and development wells as part of their respective North Slope unit operations. The exploration wells drilled by these four operators and shown in the first four lines of the table were drilled within the units. Similarly in the Cook Inlet, 16 development wells were drilled in the Cook Inlet by operators.

That leaves 16 oil and gas exploration wells in 8 new projects, 3 on the North Slope and 6 in the Cook Inlet. The AOGCC does not track the drilling of wells in the federal waters off of Alaska.

In addition, the AOGCC data base shows 193 additional permits were issued in FY 2014. The following table breaks those permits out by month. Some of those wells were even begun in 2014, however, they have not been reported as being completed.

Table Seven

Well Permits Issued in FY 2014 (July 1, 2013 - June 30, 2014), by Month and Region													
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Grand Total
Cook Inlet	2	2	2	0	3	3	2	3	4	2	2	3	28
Development & Service Wells	0	1	0	0	2	3	2	3	4	2	2	2	21
Cook Inlet Energy, LLC		1			1	1			2	2			7
Hilcorp Alaska, LLC					1	2	2	3	2		2	2	14
Exploratory Wells	2	1	2	0	1	0	0	0	0	0	0	1	7
Furie operation Alaska, LLC	1											1	2
Buccaneer Alaskan Operations, LLC	1	1	1										3
Hilcorp Alaska, LLC			1										1
Cook Inlet Energy, LLC					1								1
North Slope	12	13	17	19	9	21	14	15	8	13	9	13	163
Development & Service Wells	12	13	17	19	9	19	12	14	7	13	9	13	157
BP Exploration (Alaska) Inc.	4	8	6	8	6	9	8	7	2	8	3	4	73
ConocoPhillips Alaska Inc.	6	3	9	8	2	6	4	5	3	3	4	8	61
ENI US Operating Co. Inc.	2	2	2	2	1	3		1	2	2	2		19
Pioneer Natural Resources Alaska, Inc.				1		1		1					3
Caelus Natural Resources Alaska, LLC												1	1
Exploratory Wells	0	0	0	0	0	2	2	1	1	0	0	0	6
Repsol E&P USA, Inc.						2	1		1				4
ConocoPhillips Alaska Inc.							1	1					2
Other Areas	0	2	0	0	0	0	0	0	0	0	0	0	2
Development & Service Wells	0	2	0	0	0	0	0	0	0	0	0	0	2
Doyon, Limited		1											1
University of Alaska		1											1
Grand Total	14	17	19	19	12	24	16	18	12	15	11	16	193

Source: AOGCC

Most of the drilling in the state is in already producing oil and gas fields (there is an old oil patch saying that “the best place to find oil and gas is where you have oil and gas.”) However there are other exploration projects with active drilling as seen in the table above and the project overviews below. Another way of exploring is through seismic exploration – either 3-D or 2-D. Quite a bit of exploration is going on this way.

For example, of the drilling projects listed below,

- Repsol also added two 3-D seismic projects one on the North Slope, one offshore at Niglik Fiord, the other onshore south of Prudhoe and Kuparuk

- Apache continues to shoot seismic in the Cook Inlet
- Great Bear shot a 3-D seismic program surrounding its earlier wells
- Doyon shot seismic at its Middle Earth Prospect – Between the North Slope and Cook Inlet

Stand alone seismic project include:

- Royale and Rampart collaborated on a shoot allowing Rampart to farm into Royale's North Slope acreage
- Seismic companies permitted a multi-client project between Badami and Pt. Thomson
- A West Canning Project was announced.

ACTIVE DRILLING & EXPLORATION PROJECT OVERVIEWS

COOK INLET ENERGY'S COOK INLET PROSPECTS

Overview

In early 2012, Cook Inlet Energy (CIE) drilled the Otter #1 Well on the west side of the Cook Inlet. In late 2012 CIE drilled the Olsen #1 well, also on the west side of Cook Inlet, and in 2014 that was followed by Olsen #2. Cook Inlet Energy has held several exploration licenses in the Susitna Basin, the oldest for almost a decade, and is in the process of converting to more traditional leases. In 2014 it won a contested exploration license for both on shore and offshore work on Iniskin Peninsula, where drilling occurred over a hundred years ago. Most of the prospectivity associated with all these projects is for gas. Meanwhile, CIE has drilled the Sword prospect on the border of its West MacArthur Unit and had acquired a rig to drill its Sabre prospect in the same vicinity in early 2015.

Start Date: Started 2012

Jobs: Unknown

Duration of Project: Unknown

Total Project Costs: Unknown

KITCHEN LIGHTS UNIT

Overview

The Kitchen Lights Unit (KLU) is located in the Upper Cook Inlet and is operated by Furie Operating Alaska. In 2011, Furie brought the first jack-up rig to the Cook Inlet in almost 20 years. Drilling only during the months that ice conditions allowed in 2011 through 2014, Kitchen Lights #1, #2, #2A, #3, #4 and #5 wells were drilled or begun. Although the well data remains confidential, Furie announced a major gas find as the 2011 drilling season ended. The only other prospect in the unit that has been previously drilled is Corsair, where Shell, Phillips and ARCO drilled a total of five exploration wells between 1962 and 1993. These wells all had gas shows and some also tested for small quantities of oil. In 2012, Furie began the process of putting together the first new Cook Inlet platform and accompanying subsea pipelines since 2000. Production is anticipated to begin in 2015.

Start Date: Underway (first gas as early as 2015)

Duration of Project: 30 Years

Jobs: 412 exploration/drilling

Total Project Costs: \$810 million

NUNA PROJECT

Overview

The Nuna Project aims to access the Torok formation, a predominantly shale formation partially off-shore and inside the Ooguruk Unit, from two on-shore drill sites, one outside the unit boundary and one just inside. In 2014 it was acquired from Pioneer Resources by Caelus, which intends to proceed with a 31 well program leading to production of between 15,000 to

20,000 bpd. Part of the project will be constructing a pipeline to send the well fluids from these new onshore drill sites to the Kuparuk Production facilities where the oil will be produced.

Start Date: Nuna could begin production as early as 2016

Duration of Project: 30 years from start-up

Jobs: Unknown

Total Project Costs: Estimated between \$1.5 and \$2 billion

REPSOL/ARMSTRONG/GMT PROSPECTS

Overview

The Repsol/Armstrong/GMT prospects are located on 494,211 acres of Alaska's North Slope and nearshore Beaufort Sea, including large chunks near the Kuparuk River and Ooguruk units. For the 2011-2012 drilling season, the companies proposed between six and fifteen wells at a cost of \$5 to \$30 million per well, depending on depth and location. However, a blow-out at the Qugruk No. 2 well delayed much of that program, though both the Qugruk No. 4 and Kacheamach No. 1 wells were completed. The companies have so far allocated a minimum investment of \$768 million for a multiyear drilling program. Current estimates place the oil reserves around 1.5 billion barrels. Having formed the Qugruk unit in 2011, Repsol's 2013 and 2014 drilling resulted in five more wells --Qugruk Wells #1,#3, #5, #6 and #7. Positive results were announced and Repsol is now evaluating how to bring the area into development.

Start Date: Multiyear exploration drilling program began in 2011-2012, first production as early as 2015

Duration of Project: Unknown

Jobs: Direct jobs expected during the exploration phase are estimated at 550, with 400-700 jobs per year for two years each during peak development drilling and construction investment periods

Total Project Costs: Unknown

SOUTH MILUVEACH UNIT, MUSTANG PAD (FORMERLY NORTH TARN) DEVELOPMENT

Overview

The Mustang Pad is located on the North Slope adjacent to the west side of the Kuparuk River unit, just north of the Alpine pipeline and west of Kuparuk River Unit drill site 2M. Brooks Range Petroleum Corp. (BRPC) has formed the Southern Miluveach Unit covering 8,960 acres over leases held by its joint venture partners. (Other parts of this prospect were assigned to the Kacheamach unit.) BRPC drilled the first well in March 2011, resulting in a discovery. In the 2011-12 exploration season, the company drilled and tested a delineation sidetrack which confirmed the size of the reservoir. An innovative financing structure with the Alaska Industrial Development and Export Authority (AIDEA) was used first to build an access road and production pad, and is now being used to construct 200 plus million dollar production facilities which will incorporate extra capacity for future discoveries or finds by other explorers. A \$350

million drilling program over the next three years is expected to achieve peak production of 12,000 barrels a day. In 2014 Thyssen Petroleum Corporation, MEP Alaska LLC and JK Teck Holdings have replaced the Alaska Venture Capital Group and Ramshorn as the major owner investors in the project.

Start Date: Currently under construction, first oil in 2016

Duration of Project: 20 years

Jobs: 100 construction, 100 drilling, 16 operation

Total Project Costs: \$580 million

COSMOPOLITAN PROSPECT OFFSHORE SOUTHERN COOK INLET

Overview

What is now the Cosmopolitan prospect was first explored by Pennzoil in the sixties from an offshore jack up rig in the Cook Inlet. Subsequent exploration by predecessors of ConocoPhillips and Pioneer Natural Resources occurred onshore. Ft. Worth based BlueCrest Energy, the current operator and sole owner of the leases, has used the Endeavour jack up rig to drill one offshore well and anticipates several more, focusing on gas which will be produced through offshore monopod platforms. Meanwhile they are in the process of acquiring a land-based rig for further exploration and development of the oil reserves from onshore. Prior owner/operator Buccaneer has released estimated proven and probable (2P) reserve figures of 90 bcf of gas and 44 million bbls of oil.

Start Date: Drilling began in 2013

Duration of Project: Unknown

Jobs: Total of 100 jobs estimated to be created during development and construction phase and 20 jobs to be created by production operations.

Total Project Costs: Unknown, up to \$1.5 billion

KALDACHABUNA WELL & APACHE'S 3D COOK INLET SURVEY

Overview

In 2011, Apache began a multi-year 3 D seismic program in the Cook Inlet, using a cutting edge wireless nodal technology. They acquired roughly 800,000 acres through state exploration lease sales and arrangements with private landowners. Although the USGS's estimate of Cook Inlet reserves is around 600 million barrels, Apache geologists are seeing evidence of figures around twice that size. The seismic program, although slowed by permitting issues, is proceeding. In 2013 Apache added the Kaldachbuna #2 well to its exploration mix.

Start Date: 2011 for the seismic phase

NATIONAL PETROLEUM RESERVE - ALASKA (NPR-A)

Overview

Although the NPR-A was created on account of its projected oil reserves, as of 2012 there was still no commercial production from area. There are about 180 legacy wells drilled by the

federal Interior Department left over from the early years of the reserve. Several public lease sales were held in the early eighties, though all those leases eventually expired. Finally in 1999, a more regular pattern of sales was established and there were seven lease sales held between then and 2012, including one each year since 2010. The next sale is scheduled for November 2014. There are concerns that these sales have not covered NPRA's most prospective areas for oil and gas. However, a revised assessment from the U.S. Geological Survey in 2010 slashed the estimate of undiscovered, technically recoverable oil in the reserve by roughly an order of magnitude from 10.5 billion barrels to just 896 million barrels. The data indicate an abrupt change from oil prone to more gas prone resources, just 15 to 20 miles west of the Alpine oil field in the Colville River Delta. USGS scientists think oil plays analogous to the Alpine field in NPRA likely contain very little oil west of the area that ConocoPhillips and Anadarko have been exploring. See the discussion of the Colville Units western expansion for more information on what is likely to be the first NPRA production.

Following CD5, the next production from NPR-A might be the Greater Mooses Tooth Unit (formerly known as the Lookout prospect). In 2013 seismic was shot over the area. ConocoPhillips is working with the Bureau of Land Management on development plans and permitting issues. Those plans anticipate that estimate production could be 30,000 bbls a day. Recently CP drilled two exploration wells in the Greater Mooses Tooth Unit (Flat Top and Rendezvous), and one in the Bear Tooth Unit (Cassin).

Other NPRA explorers include Talisman subsidiary FEX, which drilled four wells in 2006/07 and conducted extensive seismic work. However, in 2008 it turned its focus elsewhere, and eventually gave up its NPRA leases. Independent Nordaq Energy Inc. has announced plans for follow up drilling in some of those areas.

Start Date: Greater Mooses Tooth: preliminary work has begun aiming for first oil in 2017
Duration of Project: Unknown
Jobs: 400 positions at peak.
Total Project Costs: \$890 Million

POINT THOMSON UNIT

Overview

The Point Thomson unit is located on state acreage along the remote Beaufort Sea shoreline, 60 miles east of Prudhoe Bay and 60 miles to the west of the village of Kaktovik. The total estimated recoverable reserves are 8 trillion cubic feet of gas, about 25 percent of the North Slope's gas reserves, and over 200 million barrels of condensate. In 2012, operator ExxonMobil and its partners announced an agreement with the state setting forth work commitments that would allow the owners to retain their leases and bring the unit into development. The settlement agreement requires the owners to construct an "Initial Production System" (IPS) to include a pipeline to connect Point Thompson to the existing pipeline infrastructure and gas cycling facilities capable of cycling 200 million cubic feet of gas per day while extracting 10,000 barrels a day of condensate for delivery to TAPS. As of 2014 this phase of the work is

proceeding full bore. The pipeline connecting Point Thomson to Badami from where oil can be transported on to TAPS has been completed.

Subsequent development could include full-field cycling, enhanced hydrocarbon recovery and/or, if the infrastructure to access markets is achieved, natural gas sales. Point Thomson could become, according to ExxonMobil, the highest-pressure gas cycling operation in the world.

Start Date: Ongoing IPS work remains on schedule with first production anticipated in 2016

Duration of Project: 30 years

Jobs: 1,200 peak construction, 200 development drilling and 60-80 operation

Total Project Costs: Over \$2 billion has been spent to date with another 2 billion anticipated to achieve the IPS goal of 10,000 bbls a day of condensate to TAPS in 2016. Full field gas development could take another \$6 to \$8 billion in investment.

UMIAT PROSPECT

Overview

The Umiat prospect, originally discovered by the US Navy in the 1940s is located in the foothills of the Brooks Range Mountains. Australia's Linc Energy acquired the prospect from Renaissance Alaska LLC in July 2011, signed a rig and announced plans for a five-well exploration program beginning during the 2012-13 season. Mobilization began in 2012 wells have been drilled each. The prospect has estimated oil reserves of 250 million barrels and an anticipated peak production rate of 50,000 barrels of oil per day. To commercialize any discovery, Linc would need to build oil processing facilities and a 110-mile buried pipeline.

Start Date: Drilling began 2013, (first oil possible as early as 2015)

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: \$45 million for appraisal phase, \$1.3 billion for development phase

DOYON NENANA MIDDLE EARTH PROSPECT

Overview

Every other project listed in this report is either on the North Slope or in the Cook Inlet sedimentary basin. Doyon has drilled two wells in the part of the state south of the North Slope and North of the Cook Inlet, usually called Middle Earth. The Nunivak #1 and #2 wells were drilled in 2009 and 2013 respectively. Neither found commercial quantities of hydrocarbons. However, Doyon said that the region was so underexplored these first looks into the subsurface must be considered successful because they yielded so much good information. Doyon has continued to build its knowledge of this and other outlying areas with 3-D seismic. The wells fulfilled the work commitment aspects of Doyon's exploration license, allowing it to convert and obtain regular leases for the area.

Start Date: Unknown

Duration of Project: Unknown
Jobs: Unknown
Total Project Costs: Unknown

OTHER EARLY STAGE PROJECTS

Before a hopeful explorer can even drill, it must take the first step of acquiring the right to explore (and/or produce) oil and gas from land. There are a handful of land-owners in the state who also own the mineral rights underneath their land. However, in Alaska and off its shores, the state and federal governments generally own the rights to develop the oil and gas. There are several programs such as the State's exploration license program which don't involve competitive bidding. However, the way state and federal governments typically get this land into hands of prospective explorers is by holding lease sales. There bidders vie for the right to acquire leases which give them a certain number of years to explore for oil and gas, and if they find it, to hold on to those leases while they develop and produce the oil and gas. Acquired acreage is another good measure of a project.

There are three sets of lease sales pertinent to Alaska. They are acronym rich: both the outer continental shelf (OCS) which starts three miles off shore, and any federal land within in Alaska are under the control of the US Department of Interior. Within that department, the Bureau of Land Management (BLM) administers the land while the Bureau of Ocean Energy (BOEM)³ has jurisdiction over the offshore.

For the last decade, the BLM has held a sale offering leases in the NPRA almost every year. In that last sale in 2012 there were two bidders that obtained NPRA acreage. The activities of the two bidders spending the most were profiled in the NPR-A section above.

Table Eight

2013 National Petroleum Reserve-Alaska Lease Sales			
Winning Bidder	Leases	Dollars	Acres
Nordaq Energy, Inc.	17	\$ 2,026,368	194,581
Conoco Phillips	2	\$ 586,736	15,289
Paul Craig	3	\$ 272,049	35,423

The MMS/BOEM picture is more complex, as the table nine shows: there were no lease sales for OCS land in Alaska in 2012. In fact, the last such event was Lease Sale 193 held in 2008. BOEM's next scheduled sales are for 2016.

³ Many people may be more familiar with the Minerals Management Service (MMS) which existed from 1982 to 2010: the BOEM was created when MMS was split into several pieces.

Table Nine

Recent & Upcoming BOEM Outer Continental Shelf Area Lease Sales in Alaska				
	Planning Area			
	Chukchi Sea	Beaufort Sea	Cook Inlet	North Aleutian Basin
Lease Sale 244			Scheduled for 2016	
Lease Sale 242		Scheduled for 2017		
Lease Sale 237	Scheduled for 2016			
Lease Sale 221	Scheduled for 2012 - Withdrawn			
Lease Sale 219			Scheduled for 2011 - Cancelled due to lack of industry interest	
Lease Sale 217		Scheduled for 2011 - Withdrawn		
Lease Sale 214				Scheduled for 2010, but withdrawn until 2017
Lease Sale 212	Scheduled for 2010 - Withdrawn			
Lease Sale 211			Cancelled due to lack of industry interest	
Lease Sale 209		Scheduled for 2010 - Withdrawn		
Lease Sale 202		Held April 2007		
Lease Sale 195		Held Mar 2005		
Lease Sale 193	Held Feb 2008			
Lease Sale 191			Held 2004 - No bids received	
Source: Bureau of Ocean Management				

On state land the Department of Natural Resources conducts annual lease sales with active bidders in each of the areas of interest across the state. Bidders have shown little interest in the Alaska Peninsula (in the same part of the state as the Federal North Aleutian Basin study area) since 2007. There were no bidders in the North Slope foothills area in 2010 and 2011. Other than those exceptions, however, the state has had annual vigorous sales for its land in

the Cook Inlet, on the North Slope and for the Beaufort Sea.⁴ The results of the 2013 and 2014 sales include both some projects and the principals in the projects covered in the descriptions above and some new names.

Table Ten

2013 & 2014 Alaska DNR Lease Sales					
Area	Date of Sale	Winning Bidder	Leases	Dollars	Acres
Alaska Peninsula	5/7/2014	Novus Terra Limited	2	\$47,000.00	9,400.00
Alaska Peninsula	5/8/2014	Auxillium Alaska Inc.	1	\$4,400.00	880.00
		Subtotal	3	\$51,400.00	10,280.00
Beaufort Sea	11/6/2013	70 & 148	2	\$52,403.20	2,560.00
		Subtotal	2	\$52,403.20	2,560.00
Cook Inlet	5/8/2013	Hilcorp Alaska, LLC	16	\$1,570,846.96	60,758.55
Cook Inlet	5/8/2013	Cook Inlet Energy, LLC	5	\$849,678.17	28,074.12
Cook Inlet	5/8/2013	Aurora Gas, LLC	1	\$144,859.77	4,449.01
Cook Inlet	5/8/2013	NordAq Energy Inc.	1	\$201,152.00	3,200.00
Cook Inlet	5/8/2013	Woodstone Resources LLC	1	\$314,880.00	3,840.00
Cook Inlet	5/7/2014	Hilcorp Alaska, LLC	13	\$1,160,956.78	33,220.03
Cook Inlet	5/7/2014	Apache Alaska Corporation	7	\$1,918,245.59	30,103.00
Cook Inlet	5/7/2014	Cook Inlet Energy, LLC	4	\$763,315.20	23,040.00
Cook Inlet	5/7/2014	NordAq Energy Inc.	4	\$314,470.40	10,240.00
Cook Inlet	5/7/2014	Woodstone Resources LLC	2	\$783,360.00	5,120.00
Cook Inlet	5/7/2014	W.J. Kennedy	1	\$237,715.20	5,760.00
		Subtotal	55	\$8,259,480.07	207,804.71
North Slope	11/6/2013	NordAq Energy Inc.	52	\$2,302,272.32	74,667.00
North Slope	11/6/2013	ConocoPhillips Alaska, Inc.	14	\$945,589.40	35,754.00
North Slope	11/6/2013	Great Bear Petroleum Ventures II, LLC	12	\$761,966.73	30,321.00
North Slope	11/6/2013	70 & 148, LLC	5	\$229,209.59	8,237.00
North Slope	11/6/2013	AVCG, LLC	3	\$765,648.00	5,040.00
North Slope	11/6/2013	Burgundy Xploration LLC	2	\$97,070.40	2,880.00
North Slope	11/6/2013	Savant Alaska LLC	1	\$15,383.70	802.07
		Subtotal	89	\$5,117,140.14	157,701.07
		Total State Lease Sales	149	\$13,480,423.41	378,345.78

Source: AK Dept. of Natural Resources

⁴ Note that for purposes of the State's leasing program the Beaufort Sea is the three mile strip of the Northern Coast of Alaska.

EARLY STAGE PROJECT OVERVIEWS

The remaining projects monitored here are all ones where the project sponsor has acquired land this year, or in earlier lease sales. Many of these projects have been drilled in the past, though not in the past year.

ANADARKO PETROLEUM'S GUBIK COMPLEX

Overview

The Gubik Complex is near Umiat, in the gas-prone Brooks Range Foothills. Originally explored by the US Navy in the forties and fifties, it consists of a series of natural gas prospects and known, but undeveloped natural gas fields, including Gubik, Chandler and Wolf Creek. The first exploration program for natural gas in northern Alaska, Gubik Complex exploration and delineation wells were drilled in the early winters of 2008 and 2009. Results of the first well were made public by Petro-Canada, which reported it tested at rates of up to 15 million cubic feet per day. However, projects to move North Slope gas to markets have not advanced as anticipated, postponing further development. In 2012, Anadarko returned to the well for additional testing though results have not been announced publicly.

Start Date: Unknown

Duration of Project: TBD

Jobs: Had the entire \$4-\$6 billion range project proceeded as originally hoped, total jobs for the exploration phase were estimated at 560. Total estimated development and construction phase jobs: 2,400. Total jobs estimated for production operations: 3,300

Total Project Costs: \$4 to \$6 billion

BEECHEY POINT UNIT

Overview

The Beechey Point unit is located in Gwydyr Bay at the Kuparuk River delta north of the Prudhoe Bay unit. The operator, Brooks Range Petroleum Corp., has drilled four wells in the area. The development program includes total construction and drilling costs estimated to be \$200 million (excluding what has already been spent to date) with a total of 100 drilling and 100 construction jobs created. Exploration drilling on the property began with the Hamilton Brothers Point Storkersen No. 1 well in 1969. Currently the operator is focused on bringing its Mustang prospect on line further west.

Start Date: Unknown

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: Unknown

DEWLINE UNIT

Overview

The Dewline Unit is wedged along the coastline, just west of Prudhoe Bay unit's Point McIntyre and north of the Midnight Sun PA. The first well in the area was the 1969 Hamilton Brothers Pt. Storkersen #1 Well. Since forming the unit, operator Ultrastar drilled one 9,900 foot vertical well targeting oil in the Ivishak formation. A North Dewline No. 1 well, also targeting the Ivishak, is in the planning stage. Estimated potential reserves in the unit are 5 to 20 million barrels of oil, though the economic analysis for development was done on the mean case for reserves, or 11 million barrels. Although part of the unit is offshore, all wells can be drilled from onshore locations.

Start Date: Unknown

Duration of Project: Unknown

Jobs: Estimate 150 jobs for the drilling of second well, 150 for third well drilling and 100 for road and pipeline construction when development proceeds.

Total Project Costs: Unknown

GREAT BEAR PETROLEUM

Overview

Great Bear Petroleum's source rock oil development is located south of the Kuparuk and Prudhoe units, bracketing the Dalton Highway and the trans-Alaska oil pipeline. Great Bear Petroleum is proposing to develop "source-reservoired oil" from its 500,000-acre lease position. If production began in 2013 as originally planned and grew by a projected 200 wells per year, Great Bear could be producing from its acreage 200,000 bpd by 2020, peaking at 600,000 bpd in 2056, with a projected project life of around 80 years. In 2011, when asked by Alaska lawmakers if it would be possible for Great Bear to increase the number of wells up to 1,000 a year in order to get 1 million barrels of oil into the Trans-Alaska Pipeline System (TAPS), Great Bear's top executive said it would, provided he had the support of all of the stakeholders in such an accelerated program. Total project costs, including the necessary infrastructure construction, could reach as high as \$40 billion with thousands of jobs created. As part of a planned six well "proof of concept" drilling program, Great Bear drilled the Alcor #1 and Mercak #1 wells in 2012. Samples from those wells are currently undergoing laboratory analysis.

Start Date: Underway (first oil unknown)

Duration of Project: Roughly 80 years

Jobs: Unknown

Total Project Costs: Unknown – \$2 billion a year during development

HEMI SPRINGS PROSPECT

Overview

The Hemi Springs prospect is composed of 16 leases located just south of the Prudhoe Bay Unit. The prospect overlaps or is contiguous to acreage that once was either part of Arco's Hemi Springs unit, ENI's RockFlour unit, Pioneer's NE Storms unit or Alaska Crude's Artic Fortitude Unit. The Donkel/Cade group assembled leases over a number of years and in early

2013, the 40,698 acre package was acquired by Polar Petroleum. Polar estimates that the project could yield up to a half billion barrels of oil. At least one Arco well drilled in the vicinity in the eighties was certified as having found paying quantities of hydrocarbons. Polar has committed to drilling the next exploration well in the next two years.

Start Date: Unknown

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: Unknown

LIBERTY DEVELOPMENT

Overview

The Liberty Development is located six miles offshore in the Beaufort Sea outer continental shelf (OCS), 15 miles east of Prudhoe Bay. Shell drilled two wells in 1982 and one in 1987 within the Liberty prospect area. Although it found evidence of hydrocarbons in the 1987 well, Shell subsequently dropped the lease. In 1997, Operator BP discovered the Liberty accumulation while drilling an exploration well from the Tern gravel island. It has proposed a number of ways of reaching the accumulation. Hilcorp will become 50 percent owner of the Liberty field by year end 2014. To maintain their leases, BP and Hilcorp will submit the Liberty Development and Production Plan to the federal regulators by the end of 2014.

Start Date: Unknown

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: Unknown

OUTER CONTINENTAL SHELF/CHUKCHI AND BEAUFORT SEAS

Overview

The Outer Continental Shelf (OCS) waters off Alaska's northern coastline encompass the Chukchi Sea and the Beaufort Sea. Resource estimates by the now defunct U.S. Minerals Management Service projected a mean estimate of up to 15.5 billion barrels of oil and 50 trillion cubic feet of natural gas economically recoverable in this region. In February 2008, Shell successfully bid \$2.1 billion to acquire 275 lease blocks in the Chukchi Sea, in addition to their \$44 million bid in 2005 for 84 leases in the Beaufort Sea. Since 2008, Shell had proposed several drilling plans that have all been challenged during the various permitting processes and in a number of cases in court. Finally, in late 2012, Shell was able to begin its long delayed OCS drilling program. Originally planned as a 5-well season, a series of mechanical and regulatory issues limited Shell to drilling two "top holes". Shell has applied for the permits necessary for further work in 2015. In September of 2012, Norway's Statoil announced that it was pushing out its anticipated OCS drilling till 2014 "if we drill it at all." In April of 2013, ConocoPhillips announced that it too was deferring OCS work originally planned for 2014, and plans for further OCS work will be "re-evaluated in the future."

Start Date: Unknown

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: Unknown: Shell has been quoted as having spent \$6 billion to date, including lease acquisition.

SHADURA PROJECT

Overview

Nordaq completed its first well, the Shadura No. #1 well, on the east side of the Cook Inlet. Although the well was not shown as finished in the AOGCC data until 2012, in the fall of 2011 Nordaq announced a discovery that is hoped to lead to production of up to 50 million cubic feet of gas a day starting in early 2013. The next Nordaq well began in 2012 was the Tiger Eye prospect on the west side of the Cook Inlet. In the fall of 2014 Nordaq announced it had arranged financing to proceed with a second Shadura well.

Start Date: Unknown

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: Unknown

STINSON PROSPECT, OFFSHORE WESTERN NORTH SLOPE

Overview

The Stinson prospect is composed of 10 leases located on 35,434 acres north of Arctic National Wildlife Refuge's 1002 area in Camden Bay directly west of Point Thompson. Early in 2011, the DNR chose not to unitize the prospect and owners Donkel/Cade lost some leases. Those investors were able to re-acquire much of the acreage in a December 2011 lease sale. The current lessees have not drilled on the property to date, but the Stinson #1 well ARCO drilled on the property in 1991 is certified as capable of producing in paying quantities. There are an estimated 150 million barrels in the tertiary horizon within a single 100-foot sand. Once the property has reached the development stage, the sponsor would need to construct a pipeline tie-in to Badami, or if developed by then, Point Thompson.

Start Date: Unknown

Duration of Project: Unknown

Jobs: Unknown

Total Project Costs: Unknown

TOFKAT (FORMERLY TITANIA) PROJECT

Overview

The Tofkat prospect is located east and south of Nuiqsut, southwest of the Kuparuk River unit near the Colville River. To keep the leases in the Tofkat unit, Operator Brooks Range Petroleum Corp. will need to drill additional exploration wells in the future. Currently the operator is focused on bringing its Mustang prospect on line further west.

Start Date: Unknown
Duration of Project: Unknown
Jobs: Unknown
Total Project Costs: Unknown

VISCOUS & HEAVY OIL

Overview

With an emphasis on heavy oil, this section is included among the projects that have not been drilled recently. Crude oil ranges from light – most of what has been produced on the North Slope – to heavy, with viscous oil in between. Viscous oil production from Alaska’s North Slope is currently around 40,000 barrels per day. Production is drawn from an estimated 6 billion barrels of in-place viscous oil located within currently producing North Slope units, including the West Sak sands/Schrader Bluff formation in the Prudhoe Bay, Milne Point and Kuparuk River units, as well as the Nikaitchuq and Oooguruk units. Another 4-6 billion barrels of undeveloped in-place resource is estimated to be present close to existing infrastructure. With achievable technological advancements, BP Alaska’s former President John Minge said in 2011 that he believes it is possible to develop 2 billion barrels of gross viscous oil on the North Slope. Hitting that target would require around 2,000 additional wells on 50 pads, in addition to a new gathering center and a hundred miles of new pipeline. This development would cost an estimated \$30 billion and would provide roughly 3,500 jobs per year in the first 10 years. Meanwhile ConocoPhillips is focusing a \$450 million expansion of the IH pad to produce up to an additional 9,000 bbls a day of viscous oil from the West Sak development.

While not currently in production, heavy oil represents a significantly larger prize. There are perhaps 20 billion barrels of heavy oil in place near existing infrastructure in the Ugnu formation. The estimated cost of developing this oil is \$30 billion, with a minimum of 3,500 jobs per year for the first 10 years of development. In its 2012 Fact Book, ConocoPhillips designated Ugnu as a “project in appraisal,” with an anticipated gross peak production between 20,000 and 30,000 barrels of oil per day.

Start Date: Unknown.
Duration of Project: Unknown
Jobs: 3,500 per year for first 10 years for viscous oil production plus an additional 3,500 per year for first 10 years of heavy oil production
Total Project Costs: \$30 billion for viscous oil production, \$30 billion for heavy oil production

YUKON GOLD

Overview

As of 2014, the Yukon Gold prospect, is in the process of being acquired by Knoxville’s Miller Energy Resources and is located around 50 miles east of Prudhoe Bay. The Yukon Gold #1 well drilled by BP in the nineties confirmed the presence of hydrocarbons in the area: there are an

estimated 120 million barrels of recoverable reserves with an expected peak production of 50,000 barrels of oil per day. Development of this prospect is expected to cost \$450 million, a figure that does not include construction of a necessary pipeline to nearby Point Thompson. An estimated 300 to 400 jobs would be expected during the development drilling and pipeline construction phase of this project.

Start Date: Unknown. Dependent on construction of pipeline to Point Thompson

Duration of Project: Unknown

Jobs: 400 expected during development drilling and pipeline construction phase

Total Project Costs: \$450 million (does not include cost of pipeline to Point Thompson necessary for project development)

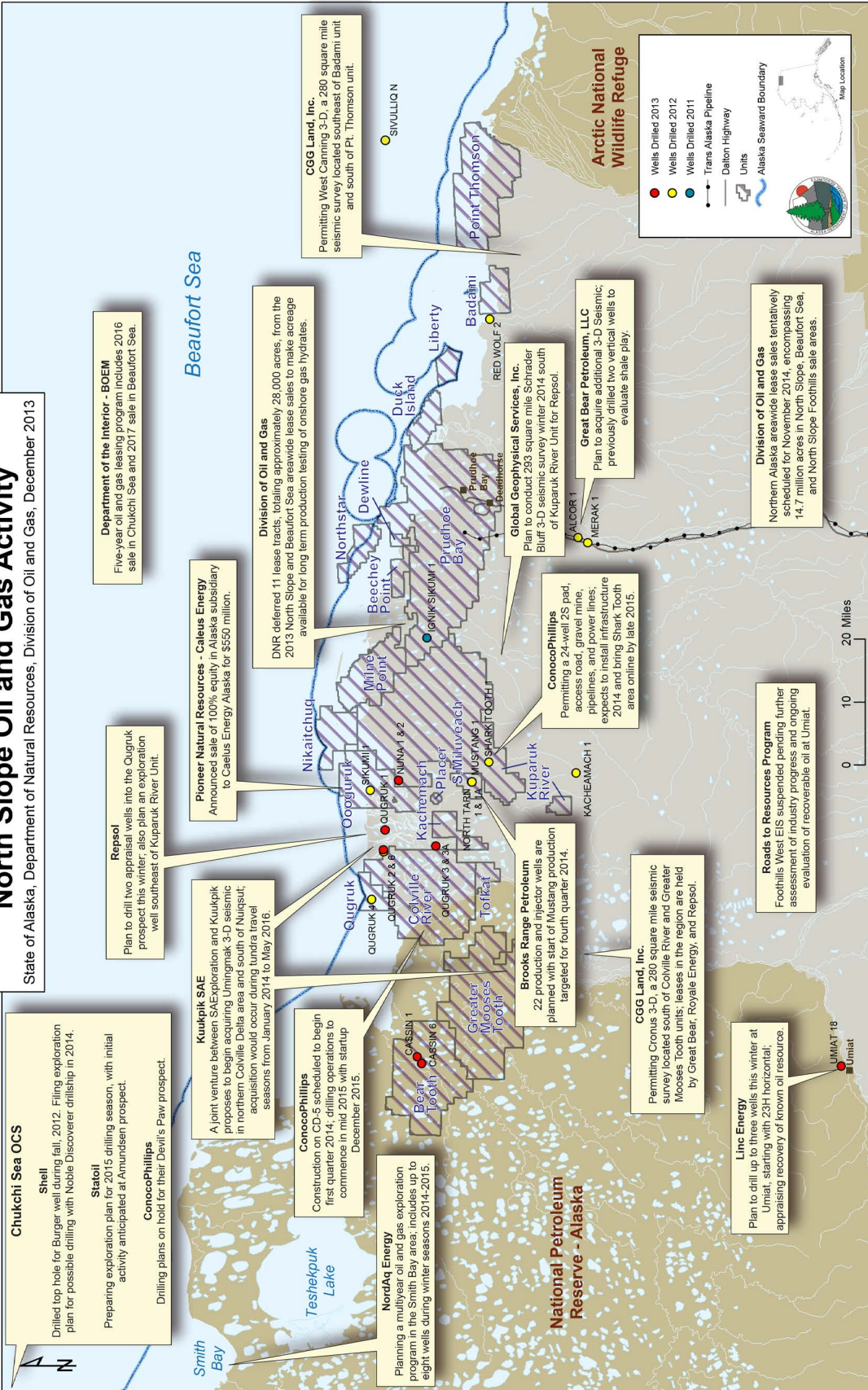
Cook Inlet Oil and Gas Activity

State of Alaska, Department of Natural Resources, Division of Oil and Gas, December 2013



North Slope Oil and Gas Activity

State of Alaska, Department of Natural Resources, Division of Oil and Gas, December 2013



Chukchi Sea OCS
Shell
Drilled top hole for Burger well during fall, 2012. Filing exploration plan for possible drilling with Noble Discoverer driftpip in 2014.

Statoil
Preparing exploration plan for 2015 drilling season, with initial activity anticipated at Amundsen prospect.

ConocoPhillips
Drilling plans on hold for their Devil's Paw prospect.

Kuukpik SAE
A joint venture between SAE Exploration and Kuukpik proposes to begin acquiring Umingmak 3-D seismic in northern Colville Delta area and south of Nuiqsut; acquisition would occur during tundra travel seasons from January 2014 to May 2016.

ConocoPhillips
Construction on CD-5 scheduled to begin first quarter 2014; drilling operations to commence in mid 2015 with startup December 2015.

NordAq Energy
Planning a multiyear oil and gas exploration program in the Smith Bay area; includes up to eight wells during winter seasons 2014-2015.

Brooks Range Petroleum
22 production and injector wells are planned with start of Musang production targeted for fourth quarter 2014.

CGG Land, Inc.
Permitting Cronus 3-D, a 280 square mile seismic survey located south of Colville River and Greater Mooses Tooth units; leases in the region are held by Great Bear, Royale Energy, and Repsol.

Linc Energy
Plan to drill up to three wells this winter at Umiat, starting with 23H horizontal; appraising recovery of known oil resource.

Repsol
Plan to drill two appraisal wells into the Qugruk prospect this winter; also plan an exploration well southeast of Kuparuk River Unit.

Pioneer Natural Resources - Calcasieu Energy
Announced sale of 100% equity in Alaska subsidiary to Calcasieu Energy Alaska for \$550 million.

Division of Oil and Gas
DNR deferred 11 lease tracts, totaling approximately 28,000 acres, from the 2013 North Slope and Beaufort Sea areawide lease sales; to make acreage available for long term production testing of methane gas hydrates.

ConocoPhillips
Permitting a 24-well ZS pad, access road, gravel mine, pipelines, and power lines; expects to install infrastructure 2014 and bring Shark Tooth area online by late 2015.

Global Geophysical Services, Inc.
Plan to conduct 293 square mile Schrader Bluff 3-D seismic survey winter 2014 south of Kuparuk River Unit for Repsol.

Great Bear Petroleum, LLC
Plan to acquire additional 3-D Seismic; previously drilled two vertical wells to evaluate shale play.

Division of Oil and Gas
Northern Alaska areawide lease sales tentatively scheduled for November 2014, encompassing 14.7 million acres in North Slope, Beaufort Sea, and North Slope Foothills sale areas.

Roads to Resources Program
Foothills West EIS suspended pending further assessment of industry progress and ongoing evaluation of recoverable oil at Umiat.

Department of the Interior - BOEM
Five-year oil and gas leasing program includes 2016 sale in Chukchi Sea and 2017 sale in Beaufort Sea.

CGG Land, Inc.
Permitting West Canning 3-D, a 280 square mile seismic survey located southeast of Badami unit and south of Pt. Thomson unit.

Global Geophysical Services, Inc.
Plan to conduct 293 square mile Schrader Bluff 3-D seismic survey winter 2014 south of Kuparuk River Unit for Repsol.

Great Bear Petroleum, LLC
Plan to acquire additional 3-D Seismic; previously drilled two vertical wells to evaluate shale play.

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Legend

- Wells Drilled 2013
- Wells Drilled 2012
- Wells Drilled 2011
- Trans Alaska Pipeline
- Dalton Highway
- Units
- Alaska Seaward Boundary

Map Location



MINING RESOURCES

INTRODUCTION

In the 2013 Resource Extraction Report, we noted how the mining industry's enthusiasm for new projects in Alaska had lessened considerably in recent years. We pointed to a number of factors: the general economic malaise throughout the world, lowered demand for mineral resources and declines in commodity prices to name a few. While many of these issues still remain, there is a rising sense of optimism within our state that significant progress is being made to move major mining projects towards monetization. In this narrative, we will again address the state of the mining industry from both a global and local perspective and describe the changing conditions that may be leading a renewed interest in mine development in Alaska.

In the past decade, emerging markets, such as China and India, drove a global boom in prices for mineral resources. Significant investments were made by multi-national mining corporations to capitalize on this, leading to the opening of new mines, expansion of older sites and modernization of equipment to maximize production. As a result, the marketplace was flooded with mineral products and prices fell dramatically. In 2011, gold prices peaked at over \$1,900 per ounce but are now in the low \$1,200 range. Rare Earth Element (REE) prices also followed a similar trajectory during this time.

In order to lessen the economic impact of these fluctuations and to respond to pressure from their shareholders, nearly half of the largest global mining companies have replaced their CEO's in the past two years. These new leaders have focused on de-risking their businesses and reprioritizing their investments to more profitable and efficient operations. As a result, the global mining industry experienced a write-down of \$40 billion in 2012, followed by an additional \$57 billion in 2013. Operations in developed countries, where costs are appreciably higher than emerging markets, were affected dramatically. The largest 40 mining companies worldwide faced losses of \$4 billion from developed market countries, while at the same time, emerging market areas netted them profits of \$24 billion. Indications seemed to point to a continuing reallocation of capital towards these emerging markets to take advantage of perceived profit potentials.

However, significant negative conditions exist in many of these emerging market countries that should give major investors reason to pause. As Curt Freeman succinctly put it in the June 29th edition of the Petroleum News:

“By definition, emerging market countries expose companies to significantly higher political, regulatory and business risks. Resource nationalism within these emerging market countries has resulted in an increasing trend of governments looking to maximize returns from their natural resources by taking a larger carried interest in operations, imposing windfall taxes, production royalties or unilaterally approving other “revenue generating” measures. Many of these costs are not imposed on a project until it reaches an advanced stage of development or is actually in production, both of which serve to put large amounts of committed capital, equipment and manpower at risk without assurances that cash flow generated will be available to repay up-front costs.”

So then the trick for mine investors is to find an area where there is a balance between quality untapped mining potential and political and business environments which offer a low risk proposition. This is where Alaska maintains its competitive advantage in the global marketplace. There is no question that our state contains some of the world's highest quality mineral deposits. According to the World Trade Center Alaska, our state contains six percent of the world's known resources of copper, three percent of both the known gold and zinc deposits and two percent of the lead and silver. Additionally, the Alaska Department of Natural Resources lists more than seventy known REE mineral occurrences throughout the state, with many more yet to be found. The chances of exploration discoveries to be made and the potential for profitable development and production are very good in our state, satisfying the first of the two considerations.

Political and business risks in Alaska also favor new investment. With a few exceptions, the State has a long history of supporting mining activity that goes back decades. In 2013, the Fraser Institute's Survey of Mining Companies placed Alaska as the 22nd most attractive jurisdiction for investment worldwide based on the state's favorable governmental policies towards mining. More recently, in early 2014, Governor Parnell signed into law a bill which authorized the Alaska Industrial Development and Export Authority (AIDEA) to provide up to \$270 million dollars of financing for infrastructure and construction costs at two emerging mining sites, the Niblack and Bokan Mountain projects. AIDEA has an impressive history of successful infrastructure financing success that has led to increased mining activity, specifically in support of the Red Dog Mine in the Northwest Arctic Borough. Continued engagement between AIDEA and major mining interests such as Capstone Mining, Eagle Whitehorse, Ucore Rare Metals, Heatherdale Resources, Zazu Metals and NovaCopper strongly indicate to the mining community that Alaska is ready, willing and, perhaps most importantly, able to assist in project development.

Record production numbers from Alaska's current mining operations also send strong signals to the world's mining community. In 2013, over one million ounces of gold were produced throughout the state, a peak not reached since 1906 during the heart of the gold rush. Another major milestone was reached by Kinross' Fort Knox mine last year when their average cost to produce an ounce of gold dropped to \$555 during the third quarter of 2013, the second lowest cost among the company's global operations. Even placer gold production has been on the rise in recent years, having more than quadrupled between 2003 and 2012.

As rosy as these statistics may seem, there are still some hurdles to overcome on the road to maximizing the potential of Alaska's mineral resources. In balancing the economic gains of mine development with the societal and cultural impacts these activities bring, the pendulum has recently swung away from mining interests in the state. Intervention by the U.S. Environmental Protection Agency has severely hampered efforts to move the Pebble Mine Project forward this year and will continue to be an ongoing issue for this project. The tailings dam failure at Canada's Mount Polley copper mine in August, while not an Alaskan project, served to reinforce environmental concerns throughout the industry and intensified some private efforts to curtail mining developments. However, in a state where mining directly employs 4,600 people, contributes \$630 million in direct and indirect payroll and generates \$150 million in

state government revenues, mining will continue to find ways to grow in Alaska. It is incumbent on our communities and government to find ways to help make this happen.

PROPOSED PROJECTS

BOKAN MOUNTAIN RARE EARTH ELEMENTS PROJECT

Overview

Bokan Mountain is a rare earth element project located within the Tongass National Forest on Prince of Wales Island some 35 miles southwest of Ketchikan. In March 2011, Ucore published an inferred mineral resource of 5.3 million metric tons grading 0.65 total rare earth oxides (TREOs), with 40% of the TREOs being the higher value heavy rare earth oxides (HREOs). Rare earths are key ingredients of a number of military, high-tech and green technology applications. China, which currently supplies between 90 and 95 percent of the world's rare earth oxides, has dialed back their exports over recent years. The strategic and economic importance of rare earths coupled with restrained and unreliable supply of these elements has resulted in support for the development of the Bokan Mountain project on both the state and federal government levels. A preliminary economic assessment released by Ucore projects that it will cost \$221 million to develop a mine at Bokan, including a separation plant capable of producing 2,250 metric tons of market-ready rare earth oxides per year during the first five years of full production. Annual output is anticipated to be 95 metric tons of dysprosium oxide, 14 metric tons of terbium oxide, and 515 metric tons of yttrium oxide.

Permitting and feasibility level studies began in 2013, and Ucore was busy throughout the summer of 2014 conducting sampling, drilling and testwork activities at the mine site. Ucore has stated that a Bokan Feasibility Study based on this field work will be released sometime in 2015. Additionally, a pilot plant to test the proposed production circuit was approved in late 2013 and is in the process of being installed on site. Support from the state has also been forthcoming. In June, Governor Parnell signed into law legislation authorizing the Alaska Industrial Development and Export Authority to provide up to \$145 million in financing for infrastructure and construction costs at the mine. Statements from Ucore have indicated that this greatly improves the project's economics in both the short and long-term and is a good sign that the project will continue to move forward.

Commodities: Yttrium, dysprosium, terbium, and other rare earth elements

Start Date: Construction expected to begin in 2016; production targeted for 2017

Duration of Project: 11 years (based on 2011 resource estimate)

Jobs: Approximately 175 during operation

Total Project Costs: \$221 million

CHUITNA COAL PROJECT

Overview

The Chuitna Coal project is a surface coal mining and export development proposal for an ultra-low-sulfur, sub-bituminous coal resource located in the Beluga coal field of Southcentral Alaska, roughly 45 miles west of Anchorage. The proposed project includes a surface coal mine and associated support facilities, a mine access road, a coal transport conveyor, personnel housing, air strip facility, a logistic center, and a coal export terminal which would include a 10,000 foot elevated conveyor constructed into Cook Inlet for the loading of ocean going coal transport ships. The proposed mine is slated to produce roughly 240 million metric tons of coal over an initial 25-year mine-life. Landownership in the project area consists of a

combination of public and private entities including the State of Alaska, Mental Health Trust, Kenai Peninsula Borough and Tyonek Native Corp. A previous project design was evaluated in an Environmental Impact Statement and permitted by most of the applicable state and federal regulatory agencies in the 1990s, but the project never proceeded to development. There have been substantial changes to the projects design since then which resulted in the United States Environmental Protection Agency requiring the project prepare a comprehensive, stand-alone Supplemental EIS (SEIS) which PacRim originally submitted in 2006. In 2010, the US Army Corp of Engineers took over as the lead federal agency and a revised project description was submitted to incorporate current design changes. The SEIS and permitting process is expected to be completed in 2014 at which point the Pac Rim Coal LP will decide whether or not to proceed with development based on permit and market conditions.

Commodity: Coal

Start Date: Currently estimated to begin construction by 2015 and commence production following a two-year construction schedule.

Duration of Project: Current predictions a minimum of 25-year mine life

Jobs: About 500 during construction and 350–400 employees during operations

Total Project Costs: More than \$700 million

DONLIN GOLD PROJECT

Overview

The Donlin Gold project, located 280 miles northwest of Anchorage, is situated on Native lands owned by the Kuskokwim Corporation (surface) and Calista Corporation (subsurface). The refractory gold deposit at Donlin has estimated reserves of 33.85 million ounces of proven and probable reserves averaging 2.09 grams of gold per metric ton. Additionally, the project contains 5.16 million ounces of gold in the measured and indicated resource category and 5.99 million ounces of gold in the inferred resource category. A feasibility study completed in 2011 estimates the capital costs of developing a mine at Donlin, including a natural gas pipeline stretching from Cook Inlet some 310 miles northwest to the Kuskokwim region project will be roughly \$6.7 billion.

Donlin Gold LLC, a partnership owned equally by NovaGold Resources Ltd. and Barrick Gold Corp., initiated the permitting process for its Donlin Gold project in August of 2012 and is about halfway through their permitting timeline. In May 2014, a significant permit application was filed to lease the right-of-way for a \$1 billion LNG pipeline to the site for power generation purposes. If the line is authorized in a timely fashion, construction on this essential piece of infrastructure is slated to begin in 2016, with first gas delivery to the mine site by mid-2019. Additionally, the U.S. Corp of Engineers is currently preparing an environmental impact statement for Donlin's plans with a draft report expected in 2015. Donlin Gold has also put a large amount of resources towards community outreach in order to increase public acceptance of the project. It is expected to take about three to four years more to gain the 100 or so permits needed to develop Donlin and, if the partners decide to move ahead with development, construction will take about as long.

Commodity: Gold

Start Date: Construction is anticipated to begin in 2017 with operations scheduled to start by 2021

Duration of Project: 27-year mine life based on current reserves

Jobs: 3,000 construction jobs for 3.5-year construction period, about 1,000 workers during operations

Total Project Costs: \$6.7 billion

LIVENGOOD GOLD PROJECT

Overview

The Livengood project, located adjacent to the Elliot Highway about 70 miles north of Fairbanks, is being advanced toward development by International Tower Hill Mines Ltd. The Money Knob deposit at Livengood has an estimated 20.6 million ounces of gold resources. According to preliminary economic assessment completed in 2011, building a 91,000-metric-ton-per-day at Livengood would cost roughly \$2.8 billion, with an additional \$667 million in life-of-mine sustaining capital costs. Based on current reserves, the mine outlined in the PEA would produce an average of 562,000 ounces of gold per year over a 23-year mine life, or about 12.9 million ounces of gold.

A feasibility study completed in 2013 indicated that under current plans and economic conditions, the project does not appear to be economically feasible. Tower Hill is currently investigating ways to reduce the project's costs, including alterations to the mine design and ore management strategies. Energy costs are a significant barrier to development, and there is some hope that the Governor's Interior Energy Project, designed to encourage construction of a natural gas distribution system in the Railbelt, may help alleviate some of these costs and make the Livengood project more viable. Tower Hill's primary goals at this time are to continue baseline environmental work and to secure a partner with adequate funding.

Commodity: Gold

Start Date: Unknown

Duration of Project: 23 years

Jobs: Approximately 1000 workers during construction and roughly 500 workers during operation (depending on final mine design)

Total Project Costs: Estimated at \$3.4 billion

NIXON FORK GOLD MINE

Overview

The Nixon Fork mine is an underground lode mine located 32 miles northeast of McGrath that has been sporadically active since 1917. The mine has yielded 125,591 ounces of gold, 19,566 ounces of silver and 1.27 million pounds of copper from then until 2009. Fire River Gold Corp. resumed production at the historical operation in July of 2011. The mine consisted of a 200 metric ton per day flotation plant with a gravity gold separation circuit, a sulfide flotation circuit and a carbon-in-leach circuit. There was also a fleet of mining vehicles, a power plant, maintenance facilities, an 85-person camp, office facilities and a 5,000 foot long airstrip. However, in June 2013, market conditions and financial troubles forced the operators to cease operations and go to a care and maintenance schedule. In October, 2013, Fire River announced it had defaulted on a payment to Waterton Global Value, L.P. that was secured by Fire River's

Nixon Fork gold mine in Alaska. Waterton has since taken full ownership of the mine and has not announced any plans for its future.

Commodity: Gold

Start Date: Unknown

Duration of Project: Two years of resource currently delineated

Jobs: Approximately 85

Total Project Costs: Unknown

PEBBLE COPPER/GOLD/MOLYBDENUM PROJECT

Overview

The Pebble Project is a copper-gold-molybdenum porphyry deposit located in the Bristol Bay region of Southwest Alaska 17 miles northwest of the community of Iliamna. The reserves for the Pebble project are estimated to be 80.6 billion pounds of copper, 107.4 million ounces of gold, and 5.6 billion pounds of molybdenum as well as silver, rhenium and palladium. Assuming the total resource was mined at a rate of 220,000 metric tons per day, a mine at Pebble would be in operation for more than 100 years. There have been several political and public relations campaigns for and against the Pebble Project, which has become a hot button issue for both environmentalists and resource development proponents. Due to the sensitive nature of the project, Pebble has been reluctant to issue a timeline for completion of the mine plan and feasibility study currently underway. The project description is expected to include details of the Pebble mine plan, transportation corridor linking the deposit and Cook Inlet some 85 miles to the east, deep-water port-site at Cook Inlet; and a facility to generate the some 400 megawatts of electricity expected to be needed to power the mill and other facilities at the enormous copper project. Conceivably, Pebble could begin production as early as 2021 but given the contentious nature of this project, it will likely take longer to realize the potential of this massive deposit. Early estimates project it will cost \$4.7 billion to develop the Pebble mine site and \$1.3 billion will be needed for infrastructure costs. 2,100 people are expected to be employed over the four year construction period and 1,000 people will be necessary for the operations workforce.

The project faced a number of setbacks in the past year which have greatly reduced the chances that development of the mine will commence anytime in the near future. The federal Environmental Protection Agency's Bristol Bay Assessment, ostensibly a non-project specific overview of the impacts of large scale mining in the region, was released in January of 2014. Summarized by EPA Region 10 Administrator Dennis McLearran, the EPA has concluded that "large-scale mining in the Bristol Bay watershed poses significant near and long-term risks to salmon, wildlife and native Alaskan cultures." While not specifically addressing the Pebble Project, the EPA has claimed that it justifies a review process through provisions in the federal Clean Water Act that could result in a preemptive ban on the permits needed to move the mine development forward. In response, the Pebble Limited Partnership in May 2014 filed suit in U.S. District Court for Alaska seeking an injunction to halt this process.

The Pebble project also suffered from a number of organizational changes as well. In September of 2013, Anglo American plc withdrew from the Pebble Limited Partnership in an effort, described by their CEO Mark Cutifani, to "prioritize capital to projects with the highest value

and lowest risks.” This left Northern Dynasty Minerals, Ltd. as the sole owner of the mining claim. To complicate matters further, Rio Tinto, a global mining corporation, donated their 19 percent of Northern Dynasty’s common shares to two Alaskan non-profits, the Alaska Community Foundation and the Bristol Bay Native Corporation Education Foundation. The BBNC has been a vocal opponent to the mine for some time, and it is unclear how this arrangement will play out.

Commodity: Copper, gold, molybdenum, silver, rhenium and palladium

Start Date: Unknown

Duration of Project: The project will likely be permitted for a 20-30 year mine life

Jobs: 2,100 during the four-year construction phase, 1,000 during operations

Total Project Costs: Estimated at \$6 billion

WISHBONE HILL COAL PROJECT

Overview

The Wishbone Hill coal prospect is owned by the Usibelli Coal Mine Inc. and is located ten miles northeast of Palmer. Estimated reserves are 14 million tons of bituminous coal. About 6 million tons are currently being considered for mining, which would provide for a potential commercial life of 12 years from start of production. If Usibelli decides to proceed with the development of Wishbone Hill, some 500,000 tons of bituminous coal will be shipped overseas to Japan via a newly constructed loading facility at Port MacKenzie on the west side of upper Cook inlet across from Anchorage. An Institute of Social and Economic Research (ISER) study estimated the number of jobs potentially created by the mine at 90 people.

Start Date: Unknown

Duration of Project: Twelve years based on current reserves estimates

Jobs: 75 – 125 based on an ISER socioeconomic study

Total Project Costs: Unknown

EXISTING OPERATIONS

FORT KNOX GOLD MINE

Overview

The Fort Knox mine is an open-pit gold mine located on State of Alaska and Mental Health Trust lands approximately 26 miles northeast of Fairbanks. The mine was originally permitted in 1994 and currently produces nearly 400,000 ounces of gold annually. To date more than 5 million ounces of gold have been extracted from Fort Knox since production began there in 1997. In 2009, Kinross Gold Corp., owner and operator of Fort Knox, completed construction of a heap leach facility and expansion of the existing mine. The heap leach facility, which can economically process low-grade material, is extending the life of Fort Knox and contributing to increased gold production at the mine. The operation produced 360,000 ounces of gold in 2012 and over 428,000 ounces in 2013. These returns have topped the previous record of 411,220 ounces of gold mined at the mine in 2001. Management at the mine has estimated 2014's production to be near 390,000 ounces of gold. Kinross projects there are enough ore reserves in place to continue mill operations until 2018 and to continue heap leaching operation through 2021. At the end of 2013 the Fort Knox area had 2.8 million ounces of gold in reserves. An additional 1.6 million ounces of gold in the lower-confidence resource category and other nearby deposits are expected to add to the life of the mine.

Commodity: Gold

Start Date: 1997

Duration of Project: Current projections; mill operating until 2018 and heap leach into 2021

Jobs: 625 employees

Total Project Costs: Unknown

GREENS CREEK MINE

Overview

The Greens Creek Mine is located adjacent to Admiralty Island National Monument, an environmentally sensitive area of Southeast Alaska. The Greens Creek property is located on 17 patented lode claim, one patented mill site claim, and property leased from the US Forest Service. In addition, Greens Creek also hold the mineral rights to 7,500 acres of federal land adjacent to the properties. The project is accessed by boat and served by 13 miles of road and consists of the mine, an ore concentrating unit, a tailings impound area, a ship-loading facility, camp facilities and a ferry dock. The Greens Creek Mine opened in 1989 with enough reserves to support a seven-year mine life. Subsequent exploration has expanded on those estimates and the current reserves are estimated to be 7.9 million tons, enough ore to keep the mine in operation for an additional nine years. The mine produced 7.4 million ounces of silver in 2013 and is projected to produce 6.5 to 7 million ounces in 2014. Continuing exploration drilling has resulted in the discovery of additional mineral veins in the Killer Creek area, less than a mile from the current mine site, and in the Deep 200 South ore trend. There is some optimism that these new finds may lead to a new mineralizing center and expanded operations.

Commodities: Silver, gold, zinc and lead

Start Date: 1989

Duration of Project: Current reserves to last till 2024

Jobs: About 300 workers
Total Project Costs: Unknown

KENSINGTON GOLD MINE

Overview

The Kensington Gold mine is located in southeast Alaska roughly 45 miles northwest of Juneau. Major permitting for the mine was completed in 2005 and the construction of the mine and mill facilities was completed in 2007. In 2009, the U.S. Supreme Court affirmed the Kensington 404 Permit for tailings placement allowing production at the mine to go forward. It was Alaska's sixth major mine when it began production on June 24, 2010. The mine produced a total of 43,143 ounces of gold during its first three months of operation and 88,420 ounces of gold in 2011. In November 2011, Coeur Mining Inc. announced the curtailment of production levels at Kensington to complete several key projects designed to improve operational efficiency and consistency. As a result of the lower production rates through the first half of the year, Kensington produced 82,125 ounces of gold in 2012, but in 2013, production had improved and 114,821 ounces of gold were recovered. Coeur anticipates the operation will recover roughly somewhere between 105,000 and 112,000 ounces of gold during 2014. The mine is reported to contain over 1.8 million ounces of gold in all resource categories (proven, probable, inferred, etc.). Exploratory projects on the site have resulted in a number of positive results and an increase in reserves and known resources is likely.

Commodity: Gold

Start Date: 2010

Duration of Project: 2022 based on current reserves

Jobs: About 250 workers

Total Project Costs: \$338 million

POGO GOLD MINE

Overview

The Pogo gold mine is located 110 miles southeast of Fairbanks and is the first overseas mine operated by Tokyo-based Sumitomo Metal Mining. The operation at Pogo includes an underground mine that feeds gold ore to a mill at a rate of approximately 2,500 tons per day. 352,000 ounces of gold were produced in 2013. There remains 2.4 million ounces of gold in reserves and another 2.4 million ounces in resources.

Sumitomo spent \$347 million on startup costs for the mine including the cost of infrastructure, electrical transmission and transportation construction costs. The facilities include an underground cut and fill mine with conveyor access to the surface, a surface ore mill, tailings preparations facilities, a 249 person upper camp and 126 person lower camp, a transmission line and onsite electrical distribution system, a 49 mile all season road and a water management system.

Two new zones of gold mineralization, North and East Deep, have been discovered adjacent to the Liese zone currently being mined at Pogo. Through the end of 2012, Sumitomo had outlined 936,000 ounces of high-grade gold reserves at East Deep. This initial resource, according to Pogo General Manager Chris Kennedy, could be the tip of the iceberg when it

comes to East Deep. The total extent of this zone is unknown and Sumitomo is continuing to expand the deposit to the west and north. In 2014, mining began in this expansion area and it is thought to have a high potential for long term mining.

Commodity: Gold

Start Date: 2007

Duration of Project: 2019 (This is expected to be extended by at least 10 years based on recent discoveries.)

Jobs: 329

Total Project Costs: \$347 million startup, \$255.3 million in 2012

RED DOG MINE

Overview

The Red Dog zinc-lead mine, located roughly 82 miles north of Kotzebue, is one of the world's largest producers of zinc concentrate. It currently supplies more than four percent of the world's zinc needs. This Northwest Alaska mine is an open-pit truck-and-loader operation that uses conventional drill and blast mining methods. The mineral processing facilities use grinding and sulfide flotation methods to produce zinc and lead concentrates. Developed under an agreement between NANA Regional Corp. and Teck Resources, Red Dog began operations in 1989 with an initial mine life of roughly 20 years. Today, there are an estimated 45.4 million metric tons of reserves averaging 15.8 percent zinc, 4.1 percent lead and 72.6 g/t silver – enough ore to sustain the operation until 2025. In 2013, the mine produced 551,300 metric tons of zinc. Tech believes it will be producing between 500,000 and 525,000 metric tons of zinc at Red Dog in 2014.

Anarraaq-Aktigiruiq, a deep zinc-rich prospect that lies about eight miles northwest of the current operation, is shaping up to be another massive zinc deposit with grades comparable to those currently being mined at Red Dog. Teck discovered Anarraaq in 1999, subsequently establishing an inferred resource of about 19 million metric tons grading 15.8 percent zinc, 4.8 percent lead, and 2.1 oz/t silver. In addition to continuing to expand Anarraaq, Teck is drilling a new region to the west of Red Dog called Noatak. These and other nearby deposits have the potential to extend the mine-life of Red Dog well into 21st Century.

Commodities: Zinc, lead and silver

Start Date: 1989

Duration of Project: 2031

Jobs: 475 full time and 80 temporary jobs

Total Project Costs: Unknown

USIBELLI COAL MINE (HEALY OPERATIONS)

Overview

Usibelli Coal Mines' Healy operation, located about 100 miles south of Fairbanks, is Alaska's longest lived large-scale mine. The mine produces roughly 2 million tons of coal per year, with around 1 million tons delivered to six power plants in Interior Alaska and the balance is shipped overseas. The mine provides about 130 jobs and has a projected commercial life of 350 years based on current production rates and reserve estimates of around 700 million tons of coal in

the Healy area. In December of 2013, Golden Valley Electric finalized its purchase of the Healy Clean Coal Power Plant for roughly \$44 million and has agreed to invest up to \$88 million to retrofit the plant with the latest emission controls. This plant will be supplied by Usibelli coal and is expected to add 50 megawatts of power to the Alaska Railbelt grid sometime in early 2015.

Commodities: Coal

Start Date: 1943

Duration of Project: 350 years at current production rates and reserve estimates

Jobs: About 130

Total Project Costs: Unknown



Source: Alaska Miners Association

APPENDIX A - 2013 RESOURCE EXTRACTION EXECUTIVE SUMMARY

In this year's report, unlike recent past editions, there is some optimism to our projection. That optimism is tempered by the many challenges that still face proposed mining and oil and gas projects in our state.

On the optimistic side, the Cook Inlet basin has seen what is being touted by many regional industry leaders as a renaissance in investment and activity. Estimates by many observers peg 2012 capital expenditures in the basin at nearly \$500 million with estimates for 2013 topping \$600 million in potential new spending. This renaissance is driven by both very favorable market conditions for crude oil and natural gas in the Railbelt region, combined with extremely favorable tax policies by the State of Alaska that have demonstrated a high level of attractiveness to smaller independent oil and gas explorers.

Oil and gas and related support industry employment in the Cook Inlet region have seen significant increases in the last 18 months, with a corresponding significant drop in the unemployment rates, particularly within the Kenai Peninsula Borough. This bodes well for the odds of future success for projects proposed for this region in the next decade; a number of challenges related to permitting, infrastructure, key industry support services and litigation – to name a few – could delay or derail many of these efforts.

Alaska's North Slope may see similar results in the coming decade, though this view is tempered to a significant degree as it is still too soon to judge the effect that recent passage of oil tax reduction legislation by the Alaska State Legislature. Opponents of the legislation are engaging in a repeal petition effort to place the tax reduction legislation on the ballot in August 2014, leaving the question of oil and gas taxation still not fully resolved. This continuing tax policy debate will maintain a level of uncertainty that could adversely affect industry investment if not resolved.

Even if this legislation ultimately withstands this potential vote to repeal, expectations must be controlled. Tax policy alone will not lead to another "Oil Boom" as was seen in the early days of the Prudhoe Bay discovery. Progress in stemming declines in North Slope oil production will likely be measured in inches in the next few years as proposed investments ramp up, projects are designed, permits are developed, litigation is overcome, drilling is completed, facilities are built or revamped, and actual new production is brought on line as a result.

It should be noted that in the last 12 months some permitting issues were addressed to varying degrees. Some progress was made in the effort to make permitting in Alaska more timely at the State level and Federal permitting has seen some administrative improvements in coordination between agencies. But the panoply of federal permitting regimes still remains a significant barrier to reasonable timeliness in obtaining vital federal permits, as does the seemingly endless litigation processes most projects face in federal courts.

If production declines are actually halted, longer term new production growth will require even larger investments, with all the same challenges but on a bigger scale. New technologies in exploration and drilling will be vital to bring about new production increases. Alaska resource development will likely be dependent on new technologies like those that have created the boom in natural gas and oil production in the Lower 48 states. Again, expectations must be tempered by the fact that we must change more than tax policy in Alaska if we are to remain competitive in our quest for new investment that will bring about increases in oil production.

As demonstrated by the historical and current resource data upgrades in this year's report, with the exception of ANWR, the odds of another Prudhoe Bay super field being discovered in the North Slope area are slim given our history of smaller new oil discoveries over the last 40 years. There is, however a massive known resource in the form of heavy oil that is measured in the billions of barrels that could be developed within the existing Greater Prudhoe Bay Field. But again, this requires new drilling and recovery technologies to make this massive resource viable. Tight oil prospects, similar in some aspects to those found in North Dakota, will also require new investments in new technologies if they are ever to be successfully developed.

The odds for a new super field being discovered improve in the offshore regions of northern Alaska, particularly in the federal waters of the Outer Continental Shelf (OCS). But as was clearly demonstrated by the challenges and misfortunes suffered by Shell in their efforts to drill in the Chukchi Sea in 2012, drilling and developing oil and natural gas resources in the OCS is a long-term effort that could take a decade or more to deliver the first barrel of oil to market.

Given current conditions, there are no likely short-term project opportunities in Alaska. Alaska has reached a point where the average project timeline is measured in decades. Given the rapidly changing marketplace Alaska finds itself doing business in, time is not Alaska's friend.

In just five years global oil and gas markets, particularly in the Lower 48, have become ever more competitive thanks to new technological innovations. Hydraulic fracturing and horizontal drilling have changed the face of U.S. energy markets. According to the U.S. Energy Information Administration projections, within the next 20 years the United States could reach a point of balance in the amount of energy it consumes as a nation versus the amount of energy it produces domestically, meaning the United States will no longer be reliant on imported crude oil.

This is a game changer for energy markets, regional economies and the global trade in oil and natural gas. These new technologies are driving down the costs and time required for exploration, development and production of oil and natural gas with resulting regional supply overbalances that are driving down prices as new reserves of oil and natural gas flood U.S. markets. Technology is making Alaska's already challenging cost and time environment even less competitive as it becomes cheaper to explore for and produce oil and natural gas in the Lower 48 and Canada.

In the mining sector, the momentum that Alaska seemed to have prior to 2009 in new projects being developed has slowed dramatically. Global economic demands for key mineral resources have changed significantly in the last year. The Gold market appears to be moving into a declining "Bear" cycle, resulting in dramatic declines in the commodity price for gold.

This trend has dried up much of the investment flows into new mine development. There has also been a sea change in corporate leadership over the last 18 months that has seen new CEO's installed at almost every major global mining company. Mining company shareholders have demanded that CEO strategies should shift from new project investments and growth seen in the last decade to strategies focused on dividends and cash returns to investors.

Most companies are now waiting for improved global economic stability before contemplating investments in new mine projects. In effect, venture capital in the global mining industry is significantly constrained at this time, creating serious headwinds for proposed projects. The net result is that projects in development before this shift in the global mining markets are still moving forward, but much more slowly. Brand new project proposals will likely be few and far between in the next couple of years until global market conditions improve.

Alaska is lucky that it has several projects already proposed that were well into the long-term development process. Projects are now estimated to take seven to 10 years to permit with a long-term outlook of 10 to 15 years from beginning proposal to first production. But like the oil and gas industry, these timelines are significantly out of line with timelines required in other regions of the world, including our neighbors in Canada. Again, Alaska is losing its competitive edge.

Why should Alaskans care about these issues? In the 2011 edition of the projection, AEDC described the current economic foundations of Alaska, the existing resource extraction based projects in place, the proposed resource extraction projects and the growing list of challenges those projects faced that made their development highly unlikely within the next 10 years. In the following 2012 edition, very little changed that mitigated those challenges. That story still holds true today.

As was the case in 2012, AEDC's perspective on the outlook for the majority of these projects is not optimistic. Alaska's competitiveness in the global markets remains challenged in many ways. Several related issues continue to diminish Alaska's competitiveness. Issues based in social compacts, taxation, permitting, litigation, commodity pricing, high costs related to project development and access to needed infrastructure have reached a point of, what is effectively, gridlock for many proposed projects. Compounding these challenges is a continuing lack of agreement among Alaskans on a common vision for Alaska's economic future.

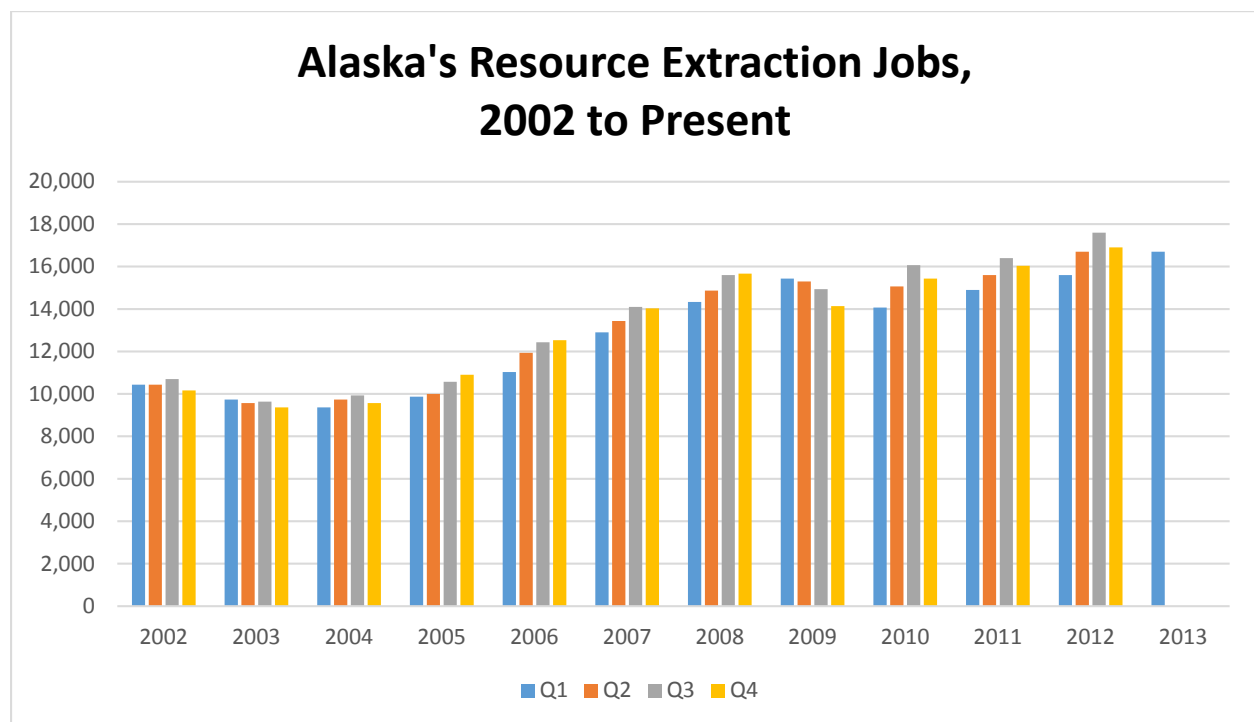
Resource extraction projects developed in the next seven to 10 years will be the foundation of a growing, more diversified economy based on new jobs and a lower cost of energy for all Alaskans. The wealth generated by these projects, combined with our existing industry base, will provide the needed capital to broaden our economy through investments in education, infrastructure, community and economic development. If we are unable to develop even a minority of the projects described in this report, there is a growing likelihood that Alaska will face a period of economic stress which will result in a growing trend of economic stagnation and decline for many areas of Alaska.

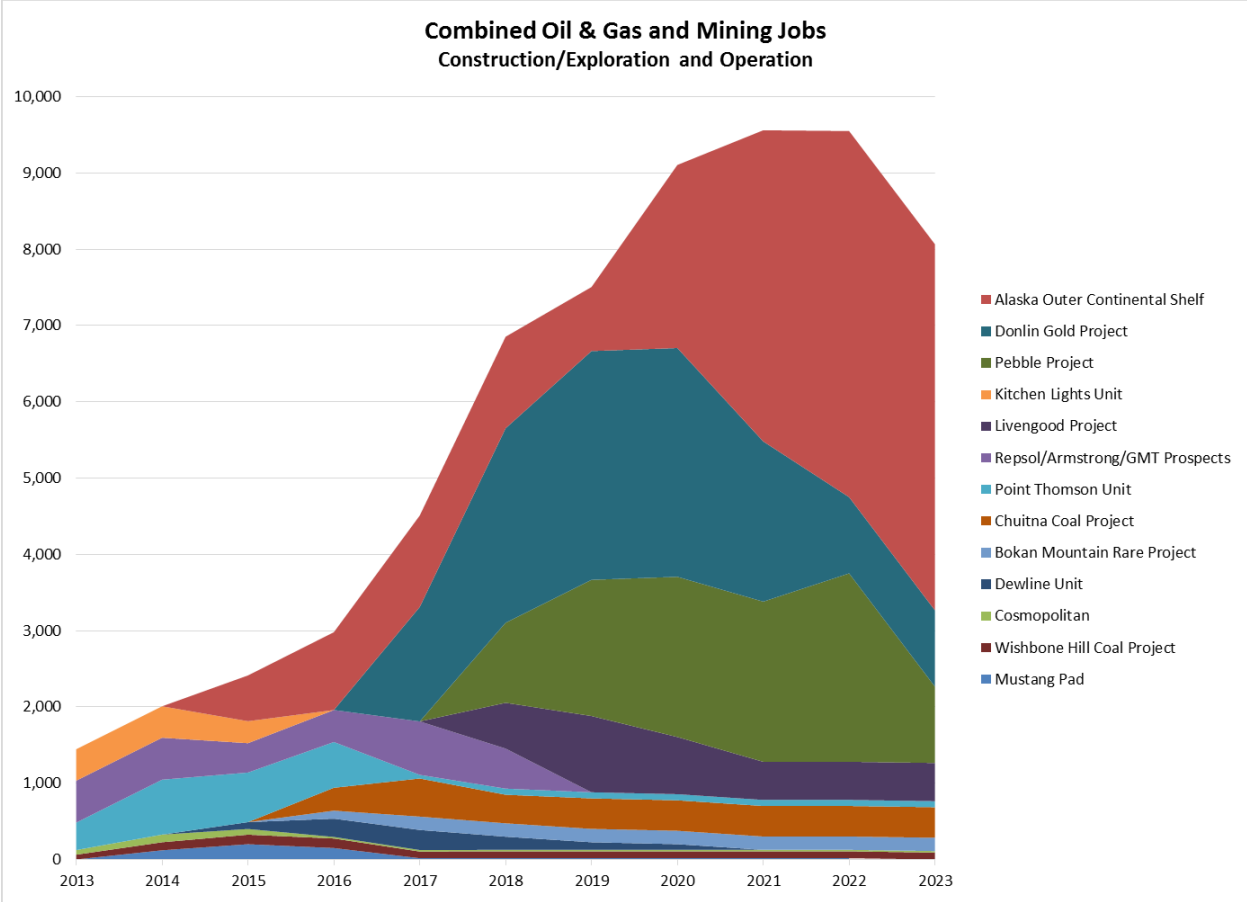
So what is the outlook for proposed projects in the next decade? For 2013, AEDC's updated projection shows Alaska has the potential to generate as many as 14,362 jobs at peak

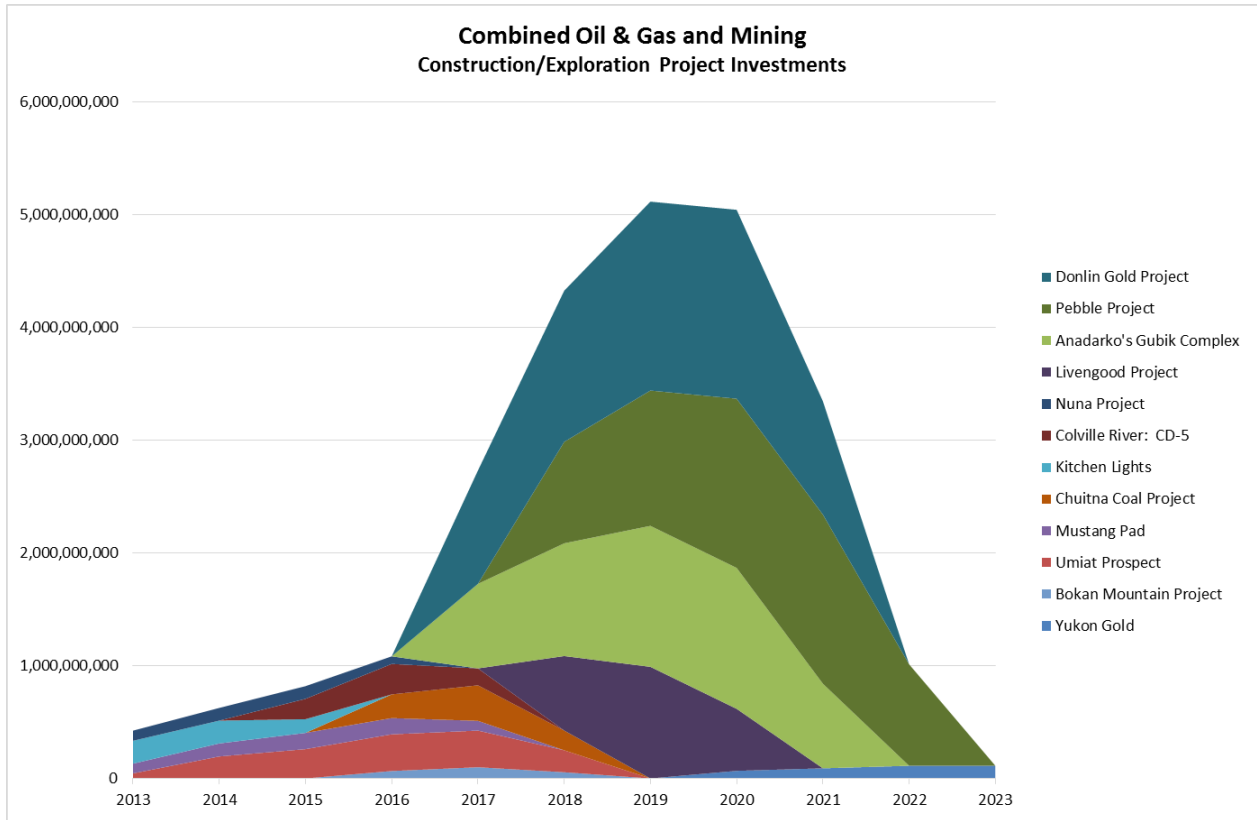
construction that would be created through \$24.6 billion of private sector investments in 18 resource extraction projects that are proposed for development within our state in the next decade.

The following are the graphed views of the projects profiled in this projection, along with a historical representation of resource extraction job levels in Alaska over the last 11 years to provide context. The first three graphs present a combined view of oil and gas and mining projects from two perspectives. The first shows the number of resource extraction jobs in Alaska by quarter since 2002. Next is the view of total jobs the proposed projects in this report could create and when. This is the earliest that these jobs/spending could occur and are based on favorable conditions. The third graph presents an overview of total spending on these projects and when that spending will take place.

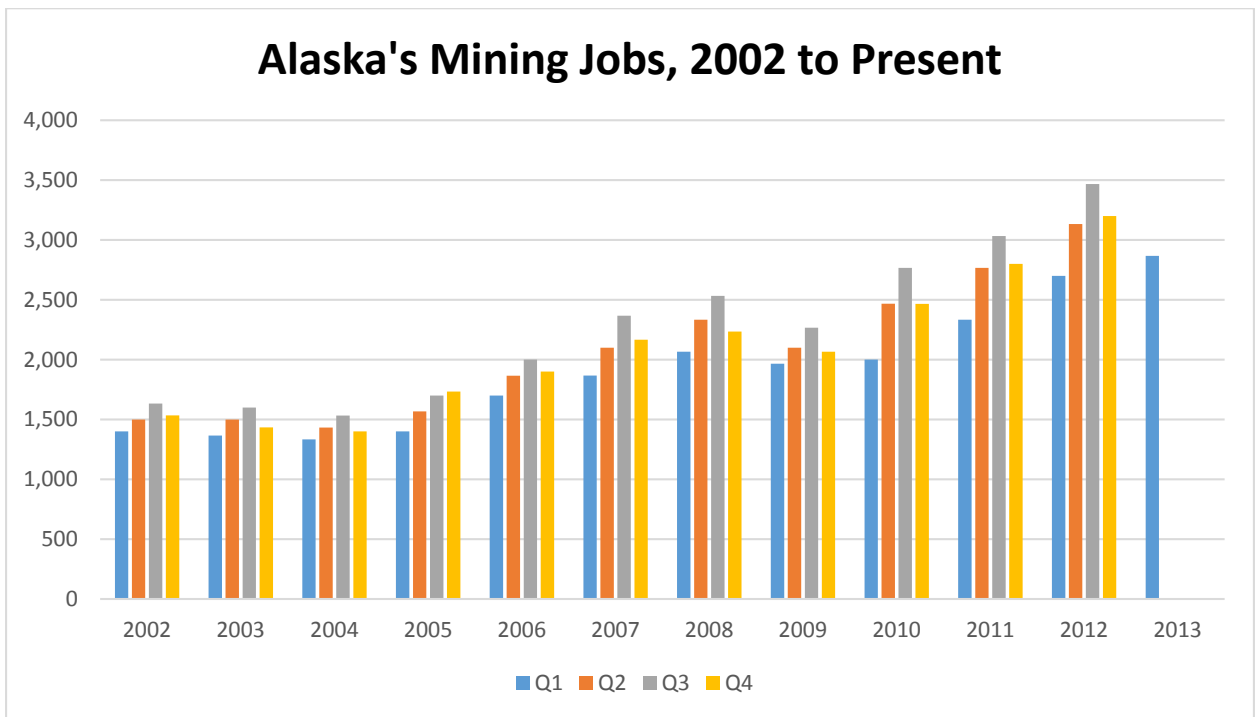
Please note that all graphs are based on available information and in some cases, projects only offer jobs numbers or capital investment figures, not both, and will be excluded from either the jobs or investment graph. It is inappropriate to interpret these graphs as firm commitments by the proposing companies. As discussed at multiple points in this report, all of these projects face significant challenges that must be overcome to initiate actual construction and operations.



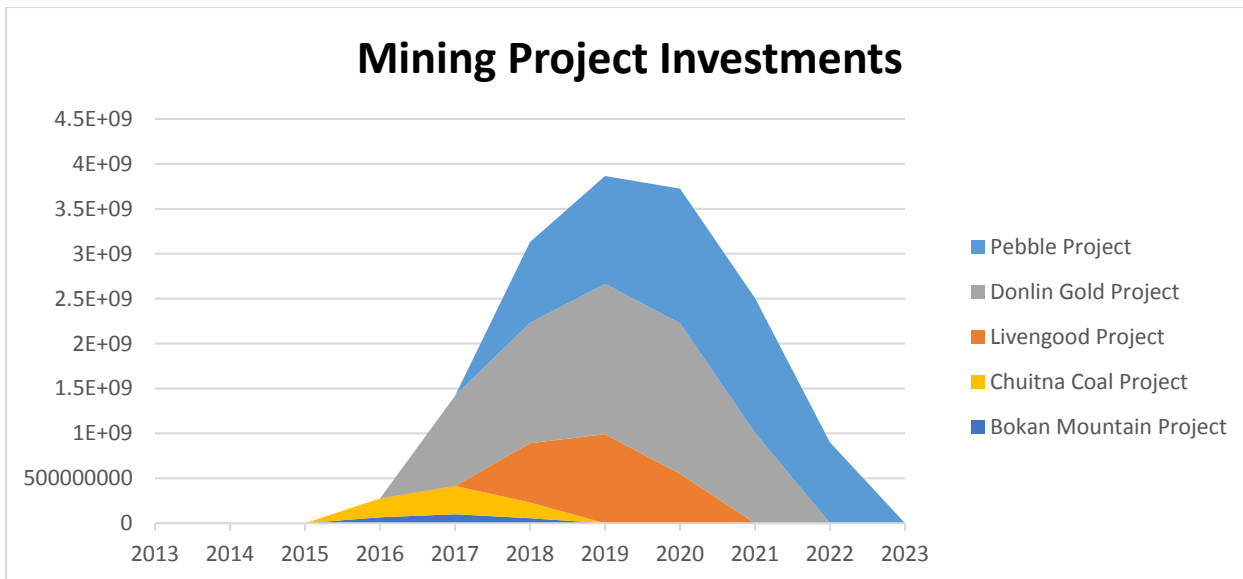
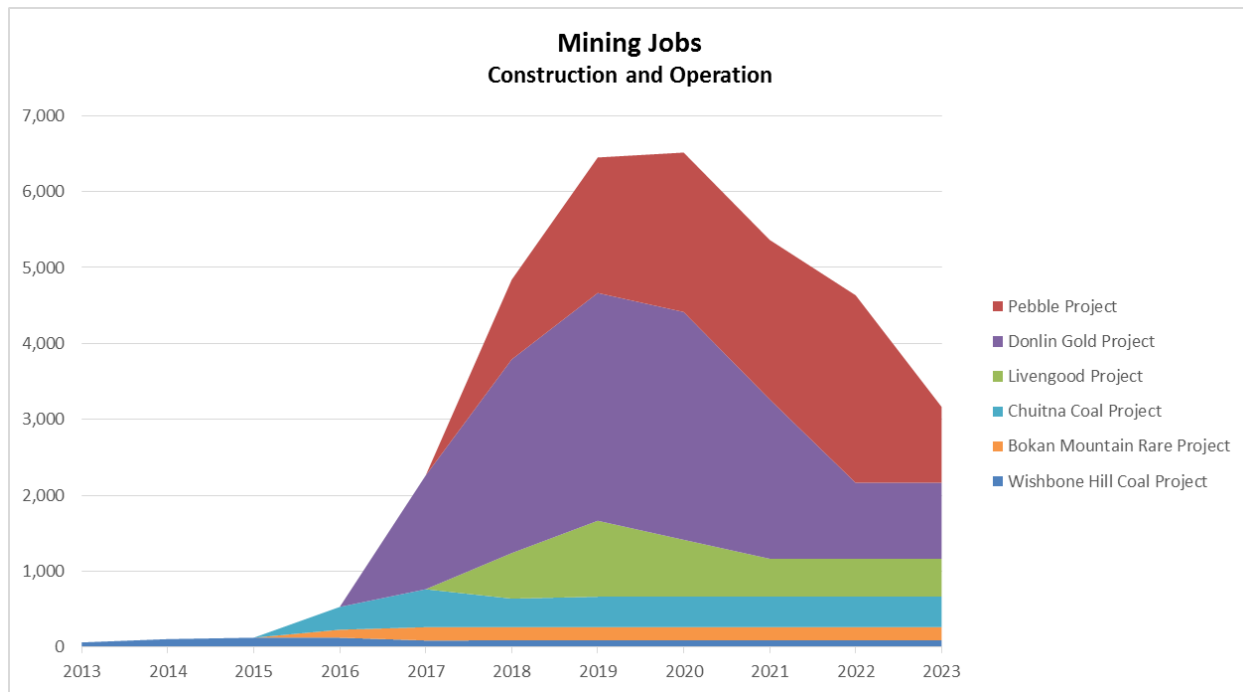




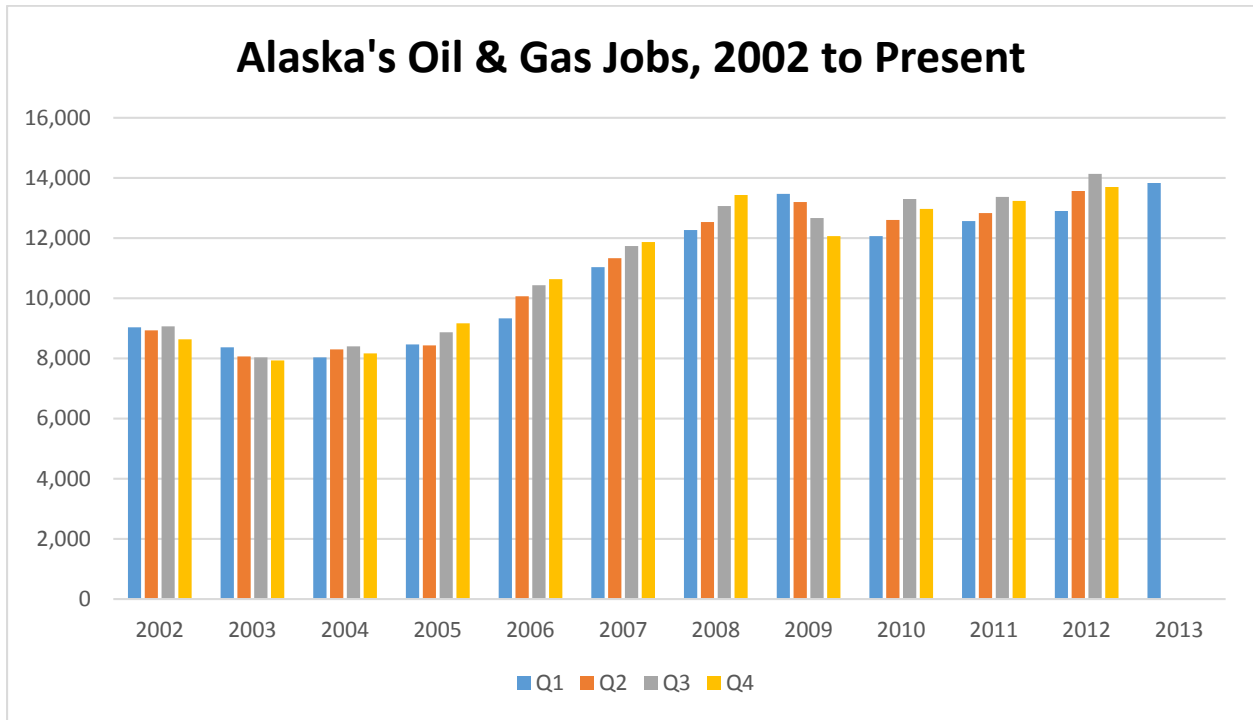
This graph represents the number of jobs in the mining industry in Alaska over the last eleven years.



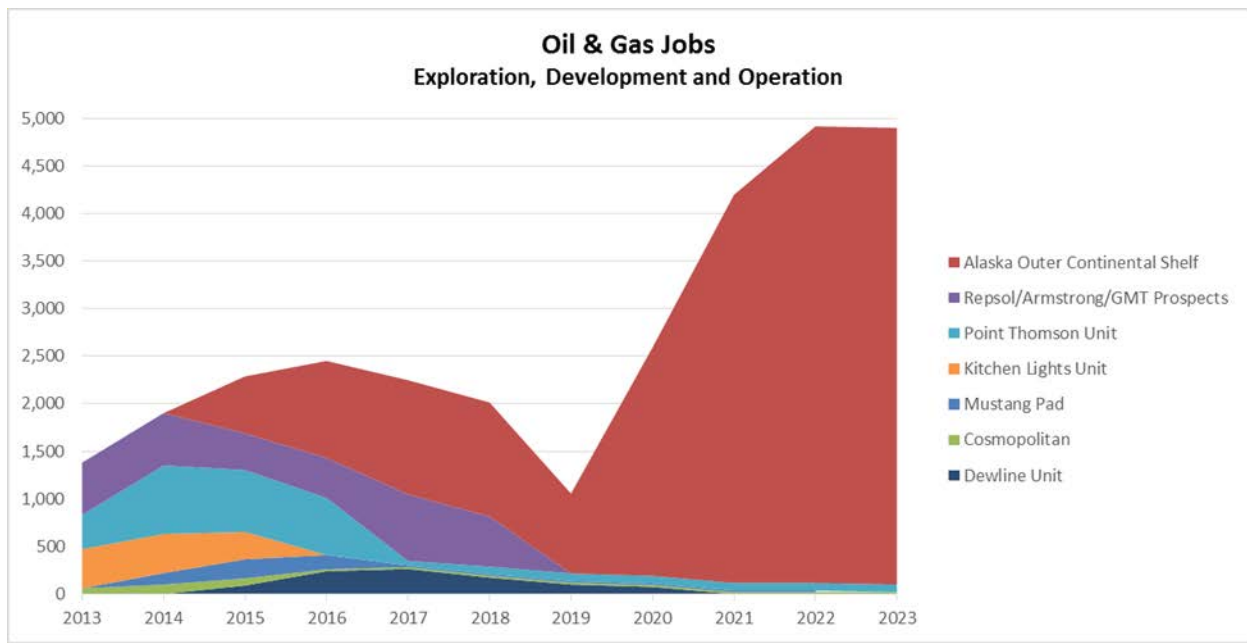
The next two graphs offer the narrow view of proposed mining projects only, and again address total jobs and spending related to those projects over the next decade.

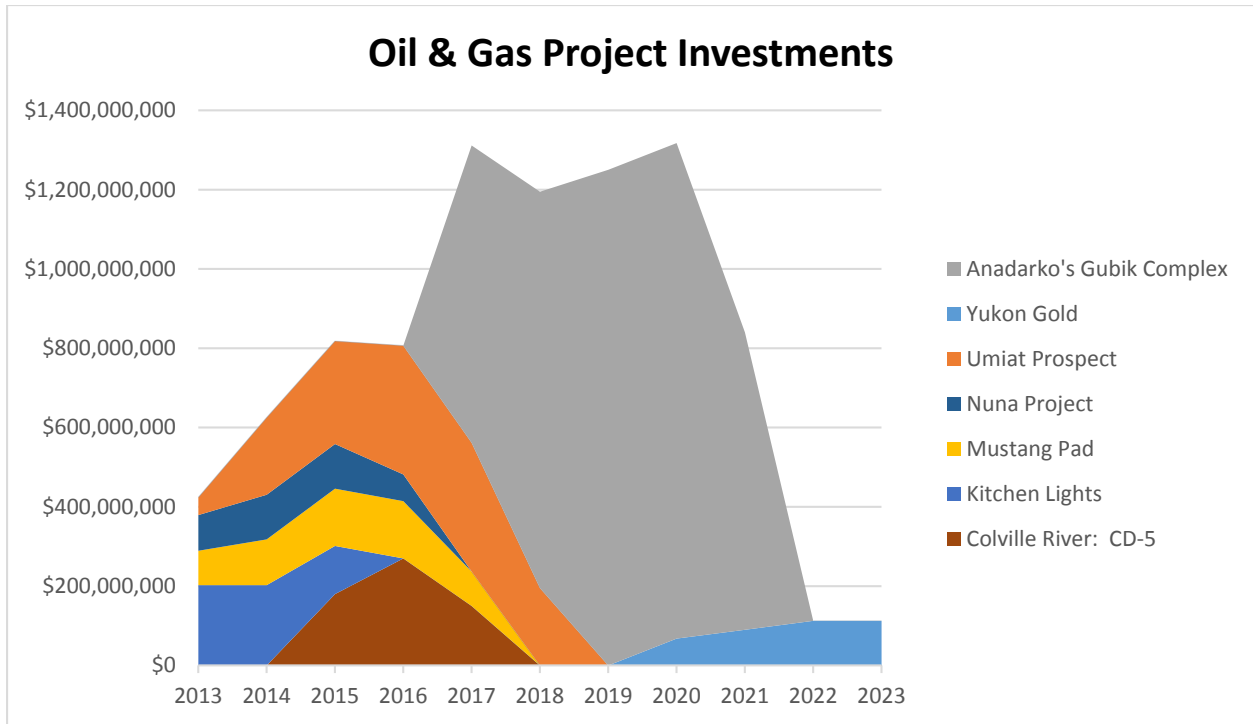


This graph represents the number of jobs in the mining industry in Alaska over the last eleven years.



The final two graphs offer the narrow view of proposed oil & gas projects only – and again address total jobs and spending related to those projects over the next decade.





Why are these projects so important? Aren't we doing just fine as an economy? The 2009 global recession hardly hurt our economy, so that means we have nothing to worry about, right? From AEDC's perspective, we have a lot to worry about. While the current economic trends appear to be positive for Alaska's economy over the next few years, there are definite storm clouds on the horizon that we must begin now to steer a course around if we are avoid the worst of the looming economic tempest Alaska could be caught up within by the end of this decade, if not sooner.

As we noted in last year's report, to understand our concerns, one need only examine the basics of Alaska's economy. We are a young state with a small population of 730,000 spread out over a vast geographic region. Our entire state population could fit within the boundaries of any number of mid-size cities in the Lower 48 and still have room left over. This small population base does not lend itself to the vision we all share of a more fully diversified economy. It will likely be decades before our population, infrastructure, and general economic conditions mature enough to realize this more diversified vision. This leaves us more vulnerable to large swings in the economy created by changes in our key economic components.

Alaska's economy is fundamentally based on three relatively equal valued broad components. Oil revenues, government spending and everything else. In terms of jobs, a recent study by the UAA Institute for Social and Economic Research noted that, out of an average 357,000 total jobs in Alaska between 2004 and 2006, the petroleum sector generated 31 percent of all jobs in Alaska, while the federal government accounted for 35 percent of Alaska jobs. All other

industry sectors, including tourism, fishing, mining, retail, health care, etc. combined generated the remaining 34 percent of jobs in Alaska.

If Alaska is to mitigate the looming cuts in federal spending, it must choose those strategies and efforts that focus on opportunities Alaska has the most control over. The development of oil, natural gas and mineral resources offer the only opportunities of a significant order of magnitude to not only offset federal spending cuts, but to actually grow the Alaska economy even in the face of declining federal spending. Given the continued decline in oil production from state lands, time is running out to embrace new development strategies.

As was noted in last year's projection, resource extraction projects in Alaska face an ever-growing list of individual challenges that, when combined to varying degrees are delaying or stifling many of the projects described in this year's projection. Those challenges and issues continue to include:

- Timely permitting reviews and awards
- Nonstop litigation
- Lack of key infrastructure such as roads, ports, communications and power
- Lack of social compacts with communities affected by proposed projects
- Taxation
- Commodity markets
- High costs associated with Alaska projects
- Lack of agreement among Alaskans on a vision for Alaska's economic future
- Time as a cost due to delays in development timelines caused by any combination of the challenges listed above

But when taken as a whole, most of the projects AEDC profiled in last year's projection made very little headway in the face of the numerous challenges they continue to face. In the view of AEDC, these are all lost or delayed opportunities to address Alaska's looming economic challenges. Some steps have already been taken by state government to reduce permitting delays and to more aggressively market Alaska's mineral and energy resources for development. There have been some victories on the federal side of government permitting and regulation. But more must be done. Alaska has resource development opportunities that most other states, regions and even countries can only dream of having. As a state, we have the ability to embrace these projects in order and move as many of them forward as reasonably possible. We need to seek ways to shorten the time it takes to develop these projects while protecting the interests of Alaskans to provide more certainty to energy and mining companies so that a decision can be made within a finite time period on whether or not they will be able to move their project forward. If even 25 percent of the projects described in this projection were to move forward and be developed as proposed, Alaska would see a period of investment and corresponding jobs growth not seen since the 1970s.

Ultimately, we as Alaskans must continue to seek common ground to the greatest degree possible on these proposed projects, as well as the existing oil and gas and mining projects in

our state. Until we can reach common ground on how to develop any of these projects, Alaska's opportunities for future economic growth will continue to be one more year away.

APPENDIX B - 2012 RESOURCE EXTRACTION EXECUTIVE SUMMARY

In the 2011 edition of the projection, AEDC described the current economic foundations of Alaska, the existing resource extraction based projects in place, the proposed resource extraction projects and the growing list of challenges those projects faced that made their development highly unlikely within the next 10 years. In 2012, very little has changed other than another year has gone by with only slight progress in moving the described projects forward. In effect, the opportunities and benefits those projects represent for Alaska's economy moved another year or more away from reality.

In the 2011 projection AEDC estimated a potential 10,460 jobs generated from \$33.7 billion in private sector investments into 18 proposed new projects in the coming decade. As a point of reference, AEDC has chosen to include last year's Executive Summary as an appendix in this year's projection. We encourage the reader to fully review last year's summary.

For 2012, AEDC's updated projection shows Alaska has the potential to generate as many as 19,341 jobs that would be created through \$30.4 billion of private sector investments in 16 resource extraction projects that are proposed for development within our state in the next decade.

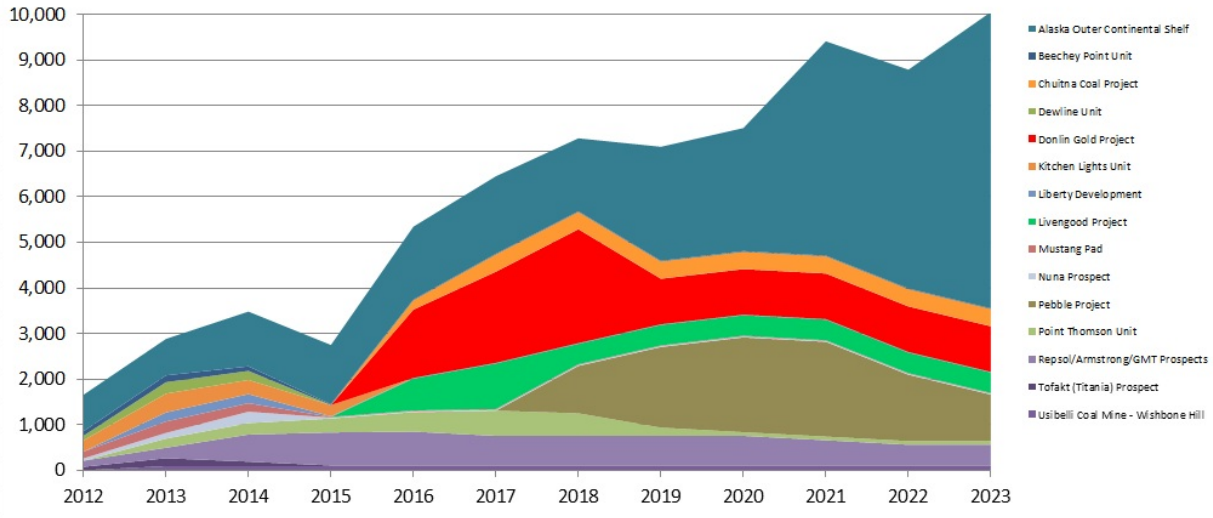
Since 2011, 4 projects were dropped from the Projection and 2 new projects were added this year. In oil and gas, the Great Bear Petroleum project is behind schedule and was moved to the "Projects to be Watched" section to allow the project to develop more fully. The Nikaitchuk Producing Unit successfully moved into production in 2011. Two additions to this year's oil and gas projection are the Nuna Project in the region south and southwest of the Ooguruk unit boundary on the eastern bank of the Colville River, and Shell's Chukchi Sea/Beaufort Sea project in Alaska's Outer Continental Shelf region. In mining, the Nixon Fork Mine moved into production again, while the Rock Creek Mine has been dropped completely.

As was the case in 2011, AEDC's perspective on the outlook for these projects is not optimistic. Alaska's competitiveness in the global markets within which we compete, is not favorable in many ways. Several related issues have created these circumstances for Alaska's competitiveness. Issues based in social compact, taxation, permitting, litigation, commodity pricing, high costs related to project development and access to needed infrastructure have reached a point of, what is effectively, gridlock for many proposed projects. Compounding these challenges is a clear lack of agreement among Alaskans on a common vision for Alaska's economic future.

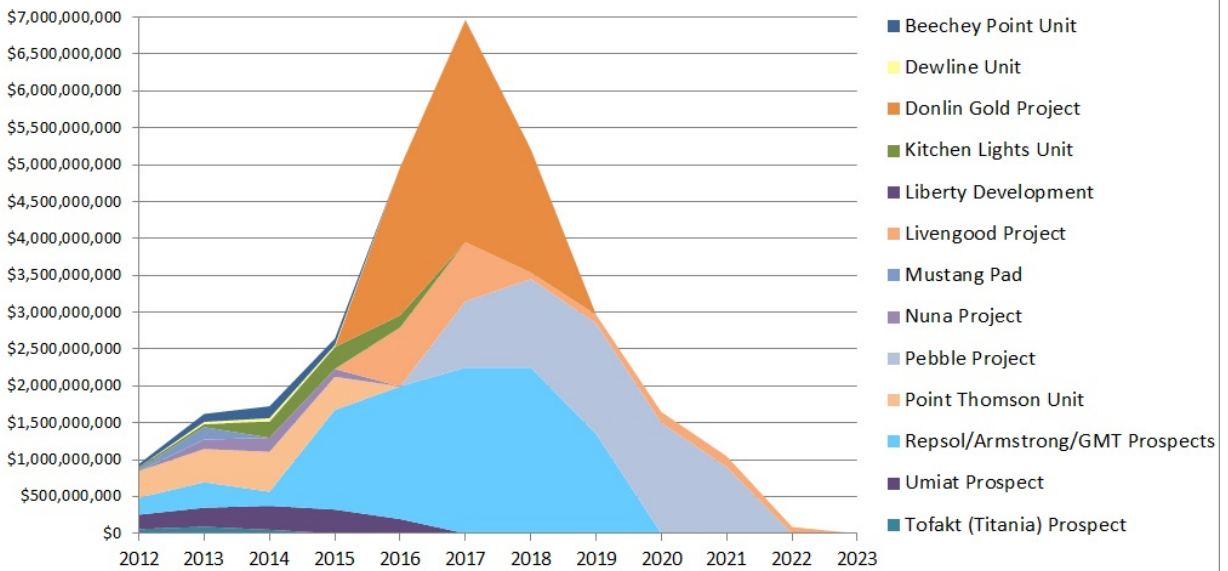
The following are the graphed views of the projects profiled in this projection. The first two graphs present a combined view of oil and gas and mining projects from two perspectives. The first is the view of total jobs these projects will create and when. This is the earliest that these jobs/spending could occur and are based on favorable conditions. The second graph presents an overview of total spending on these projects and when that spending will take place. Please note that all graphs are based on available information and in some cases, projects only offer jobs numbers or capital investment figures, not both, and will be excluded from either the jobs or investment graph.



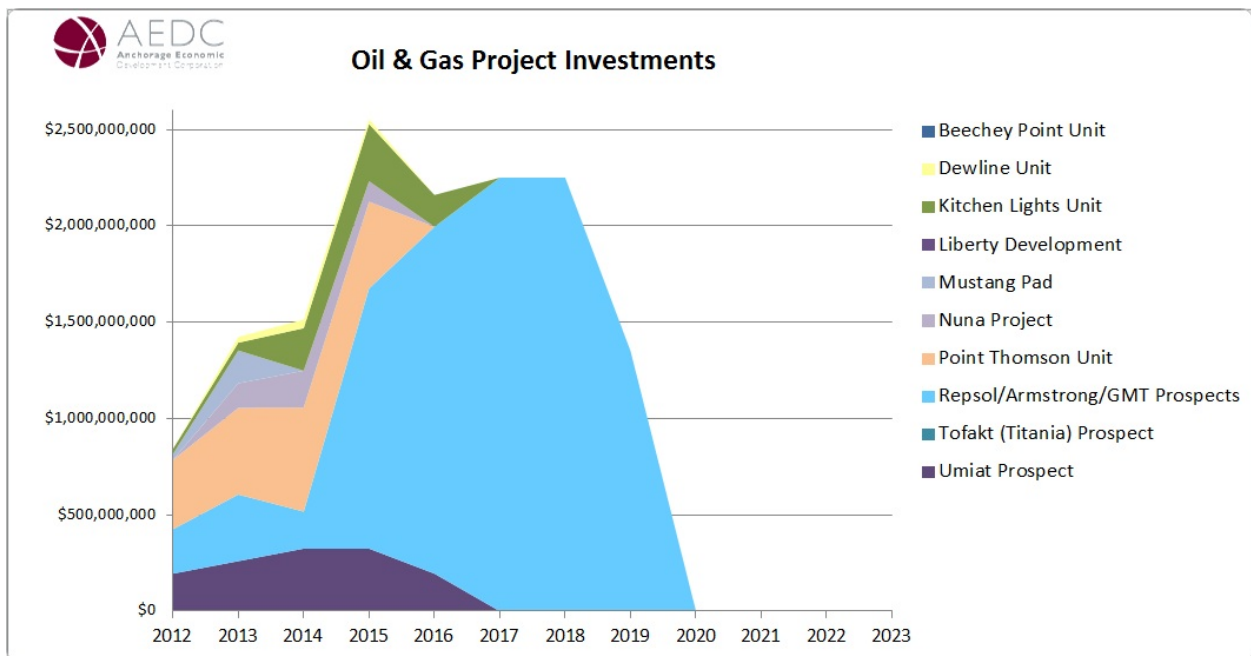
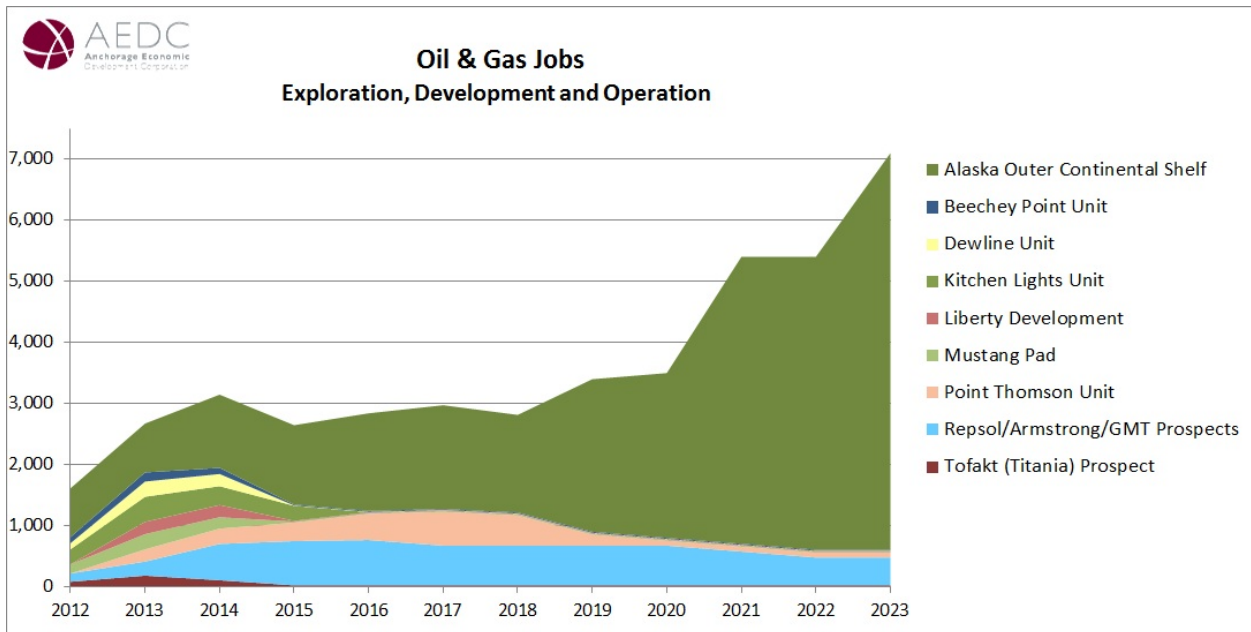
Combined Oil & Gas and Mining Construction/Exploration and Operation Jobs



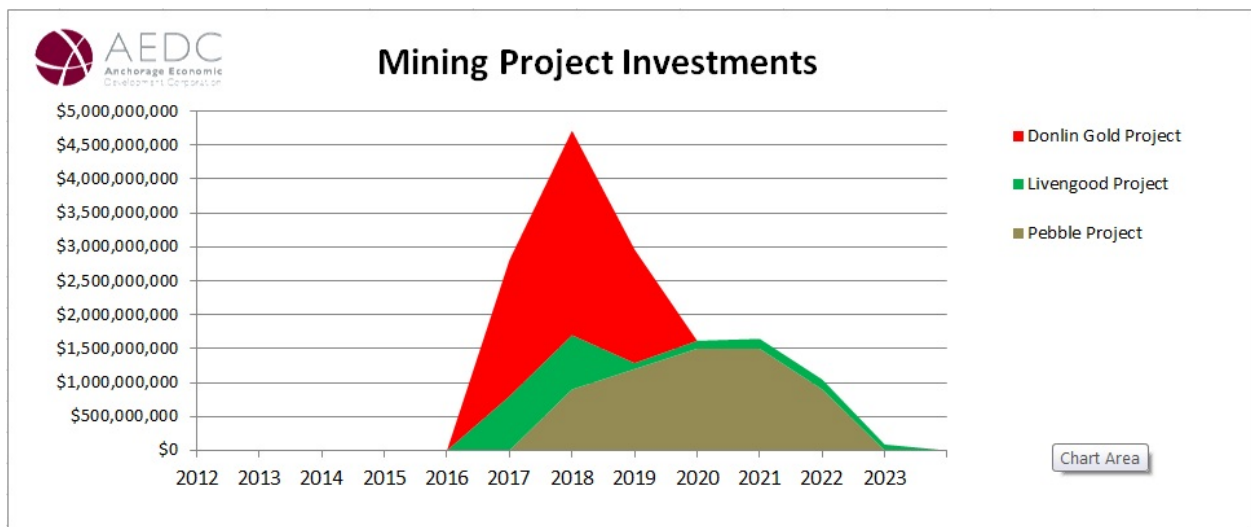
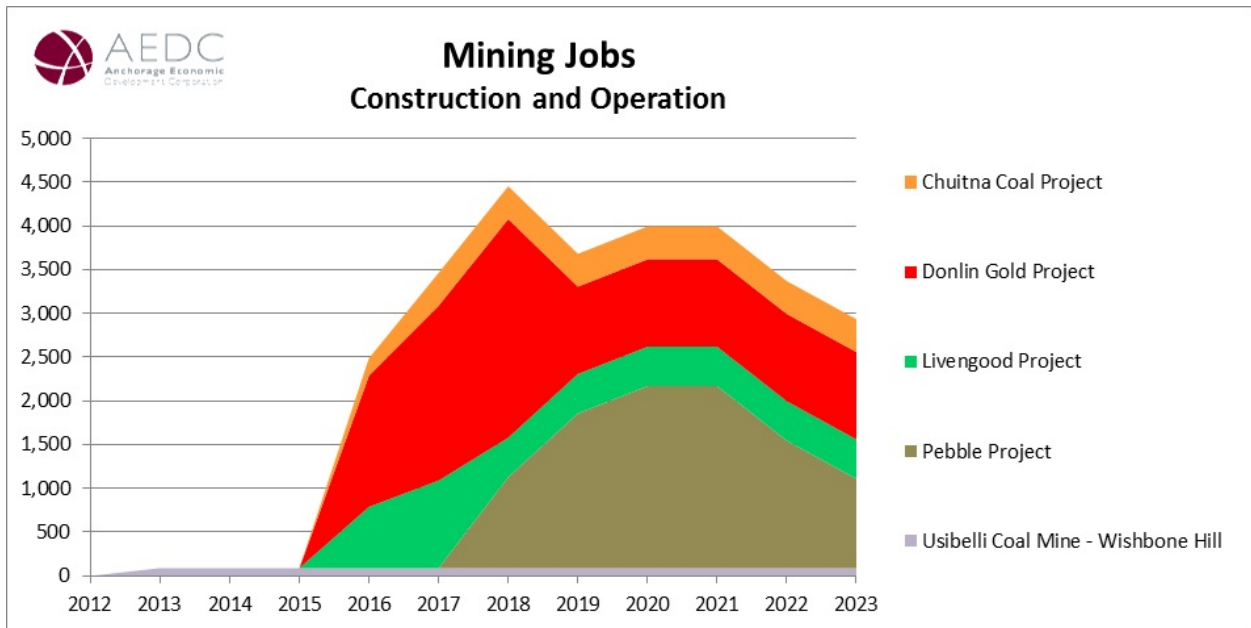
Combined Oil & Gas and Mining Construction/Exploration Project Investments



The next two graphs offer the narrow view of oil and gas projects only, and again address total jobs and spending related to those projects over the next decade.



The final two graphs offer the narrow view of mining projects only, and again address total jobs and spending related to those projects over the next decade.



There have been a few bright spots for some projects, in particular for projects in the Cook Inlet Basin. But in the aggregate, very little progress has been made to address the significant challenges that new oil and gas and mining projects face in Alaska. Another year has been lost and the bright economic future that Alaska should be getting closer to realizing has moved that much further out of reach.

Why are these projects so important? Aren't we doing just fine as an economy? The 2009 global recession hardly hurt our economy, so that means we have nothing to worry about, right?

From AEDC's perspective, we have a lot to worry about. While the current economic trends appear to be positive for Alaska's economy over the next few years, there are definite storm clouds on the horizon that we must begin now to steer a course around if we are to avoid the worst of the looming economic tempest Alaska could be caught up within by the end of this decade, if not sooner.

To understand our concerns, one need only examine the basics of Alaska's economy. We are a young state with a small population of 722,000 spread out over a vast geographic region. Our entire state population could fit within the boundaries of any number of mid-size cities in the Lower-48 and still have room left over. This small population base does not lend itself to the vision we all share of a more fully diversified economy. It will likely be decades before our population, infrastructure, and general economic conditions mature enough to realize this more diversified vision. This leaves us more vulnerable to large swings in the economy created by changes in our key economic components.

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As was noted in last year's projection, resource extraction projects in Alaska face an ever growing list of individual challenges that, when combined to varying degrees are delaying or stifling many of the projects described in this year's projection. Those challenges and issues continue to include:

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- Commodity markets
- High costs associated with Alaskan projects
- Lack of agreement among Alaskans on a vision for Alaska's economic future

- Time as a cost due to delays in development timelines caused by any combination of the challenges listed above

There have been a few small successes in moving projects forward in the last year. These include:

- ConocoPhillips finally gaining permission for the vital CD-5 bridge project in NPR-A
- Shell Exploration's recent successes in both court and in the agency review processes to gain needed permits to perform exploration drilling in Outer Continental Shelf region in the Arctic
- The likely start of the permitting process for the Donlin Creek Mine in 2012
- The discovery of two new ore bodies at the Pogo Mine that could extend the life of the project by an additional 10 years
- The accelerated interest and development efforts at the Bokan Mountain rare earths deposit that could see this strategic economic resource developed more quickly than the usual 10 to 15 years most mine projects now require to be developed in Alaska
- The Nikaitchuq Producing Unit, operated by ENI, has graduated from an exploration unit to producing unit in 2011 with a peak production estimate of 28,000 barrels per day

But when taken as a whole, most of the projects AEDC profiled in last year's projection made very little headway in the face of the numerous challenges they continue to face. In the view of AEDC, these are all lost or delayed opportunities to address Alaska's looming economic challenges. Some steps have already been undertaken by state government to reduce permitting delays and to more aggressively market Alaska's mineral and energy resources for development. And there have been some victories on the federal side of government permitting and regulation. But more must be done.

Alaska has resource development opportunities that most other states, regions and even countries can only dream of having. As a state, we have the ability to embrace these projects in order move as many of them forward as reasonably possible. We need to seek ways to shorten the time it takes to develop these projects while protecting the interests of Alaskans to provide more certainty to energy and mining companies so that a decision can be made within a finite time period on whether or not they will be able to move their project forward. If even 25% of the projects described in this projection were to move forward and be developed as proposed, Alaska would see a period of investment and corresponding jobs growth not seen since the 1970's.

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