



THE STATE
of **ALASKA**
GOVERNOR BILL WALKER

Department of Revenue

TAX DIVISION

Juneau Office
333 Willoughby Ave, 11th Floor
Juneau, AK 00801
Main: 907.465.2320
www.tax.alaska.gov

March 30, 2018

The Honorable Neal Foster and the Honorable Paul Seaton
Alaska State Representatives
Co-chairs, House Finance Committee
State Capitol Rooms 410 and 505
Juneau, AK 99801

Dear Co-Chairs Foster and Seaton:

The purpose of this letter is to provide you with responses to the questions asked of the Department of Revenue during our presentation to the House Finance Committee on March 19, 2017 regarding the Spring Revenue Forecast update. Please see the request in italics and our response immediately below the request.

- 1. Provide revised employment estimates of the oil and gas industry on the North Slope.*

The Alaska Department of Labor (DOL) has recently published two articles in *Alaska Economic Trends* which discuss employment in the oil and gas industry.

The 2018 employment forecast, released in January, provides information on the oil and gas industry statewide. DOL's preliminary estimate for calendar year 2017 is an annual average of 9,800 jobs. This is a decline of over 30%, from 2015. DOL forecasts a further loss of 500 jobs in 2018.

The February issue of *Alaska Economic Trends* examines employment in the North Slope oil patch. It provides a broad historical perspective and includes information on employment, residency and wages.

I hope you find this information to be useful. Please do not hesitate to contact me if you have further questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ken Alper".

Ken Alper
Tax Division Director

Attachments:
Analyst Brent Price Forecast Backup

Brent Oil Price Forecasts by Bloomberg Analysts

Forecasting Firm	Forecast Date	Calendar Year				
		2018	2019	2020	2021	2022
Australia & New Zealand Banking Group Ltd/	27-Feb-18	67	68.625	67.5	65.875	
Banco Santander SA	7-Mar-18	60	55	55	55	55
Bank of Tokyo-Mitsubishi UFJ Ltd/The	1-Feb-18	64.4	58.2	61.9	63.4	
BMI Research	1-Mar-18	65	75	78	80	
BMO Capital Markets Corp/Toronto	22-Jan-18		58			
BNP Paribas SA	22-Jan-18	65				
Capital Economics Ltd	1-Mar-18	63.1	57.6			
Citigroup Inc	28-Feb-18	57	49			
Commerzbank AG	9-Feb-18	62	60			
Deutsche Bank AG	23-Jan-18	62	62	63	65	65
DNB ASA	21-Feb-18	62	69	81	77	
DZ Bank AG	16-Feb-18	62.5				
Emirates NBD PJSC	8-Feb-18	59.5	60			
Guggenheim Securities LLC	26-Jan-18	72	80	76		
HSBC Holdings PLC	26-Jan-18	65	70			
HSH Nordbank AG	24-Jan-18	64.5	57	53	52	50
Incrementum AG	23-Jan-18	70.6	81	102		
Intesa Sanpaolo SpA	27-Feb-18	65.5	70	75	80	85
Itau Unibanco Holding SA	14-Feb-18	63.3239	58	58	58	47
KLR Group LLC	23-Jan-18	65	67.5	67.5	67.5	67.5
Landesbank Baden-Wuerttemberg	26-Feb-18	66	75	80		
Natixis SA	26-Jan-18	64.5	68			
Nordea Bank Norge ASA	1-Mar-18	66	68			
Oxford Economics Ltd	2-Feb-18	67.75	65	65	67.7757	
Raiffeisen Bank International AG	2-Feb-18	65	67	70	75	
Raymond James & Associates Inc	24-Jan-18	70	65	65		
Sanford C Bernstein & Co Inc	22-Jan-18	56	60	65	70	
Societe Generale SA	19-Feb-18	66.2	60	60	62.5	65
Toronto-Dominion Bank/Toronto	2-Mar-18	65.75	62.75			
Wells Fargo Securities LLC	2-Mar-18	62.44	59	60	63	
Westpac Banking Corp	29-Jan-18	58.78	46.6803	50.2824		
Average:		64.13	63.87	67.66	66.80	62.07



THE North Slope Oil Patch

Jobs in some of the nation's largest oil fields

By NEAL FRIED

Prudhoe Bay, home to the nation's largest oil field, is what single-handedly transformed Alaska into an oil-producing powerhouse and became the source of the state's greatest wealth. According to historian Terrance Cole, "The balance sheet of Alaskan history is simple: One Prudhoe Bay is worth more in real dollars than everything that has been dug out, cut down, caught, or killed in Alaska since the beginning of time." And yet, it's a place few Alaskans ever visit.

Oil-related activity has since spread well beyond Prudhoe Bay, and this article uses the terms "oil patch" and "the Slope" to refer to the entire oil industrial complex in the area, including Prudhoe Bay and Kuparuk but also Moose's Tooth to the west, Point Thomson to the east, and any other area in the North Slope Borough that is touched by oil.

Because this article's focus is oil and gas-related activity, it excludes employment in the North Slope Borough's eight Inupiat communities. For more on those communities, see "When The North Slope is Home" in the September 2016 edition of *Alaska Economic Trends*.

Industry makeup of the Slope

Alaska began producing employment numbers for the Slope in 1986, seven years after oil began to flow down the Trans-Alaska Pipeline and 18 years after the field's discovery. (See Exhibit 1.) These numbers include both direct oil and gas industry jobs and all other employment in the oil patch because in this unique location, nearly everything is tied to oil and gas activity.

The oil industry represents 3 percent of Alaska's employment, and two-thirds of those jobs are on the Slope.

Many of those supporting jobs are categorized in professional and business services and include everything from engineering and geological firms to facility support services and waste management and remediation. The Slope also has a substantial number of jobs in the leisure and hospitality sector, employers that operate the camps and other facilities that feed and house the large workforce. (See Exhibit 2.)

Two other large categories of oil patch employers are construction and transportation companies, as there's plenty to build and maintain as well as thousands of workers and materials to transport.

Some industries are notably absent on the Slope. For example, there's almost no employment in retail or government. In contrast, these represent over a third of all jobs statewide.



Prudhoe Bay oil field, photo by Flickr user Pamela A. Miller

The oil patch's historical ebb and flow

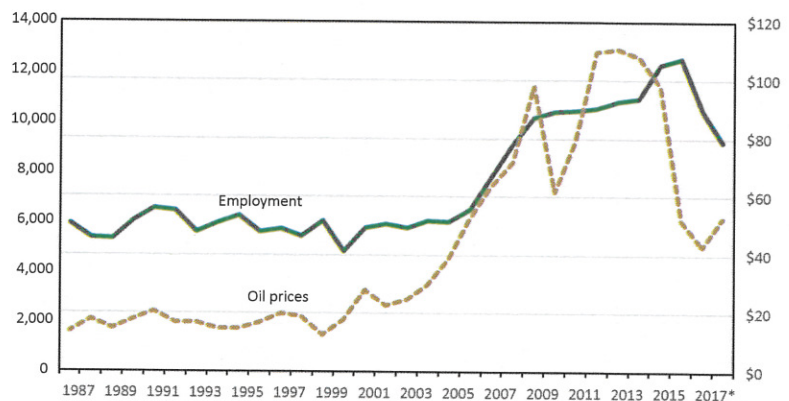
Over the last 30 years, employment levels have fluctuated from year to year, sometimes considerably. During the first two decades, Slope employment reached a high of 6,524 in 1990, two years after oil production peaked, then dwindled to 4,816 by 1999. (See Exhibit 1.)

At the time, this waxing and waning seemed dramatic and volatile, but in hindsight, the bandwidth of oil patch employment stayed mostly within a tight range of 5,000 to 6,000.

The overarching declining trend that began in the 1990s was punctuated by periods of recovery, but jobs remained below the 6,000 mark until 2003. In the early 2000s, with production declining, it seemed unlikely that Slope employment would ever top 6,000 again. Consequently, the oil industry's long-term job outlook was bleak. The 10-year industry forecast we published in 2006, for example, predicted no growth from 2004 to 2014.

Oil production was down to less than half its peak in 2006, and the downward trajectory was broadly accepted as permanent with employment levels expected to follow. But that didn't happen. Oil prices began to rise in 2003 and by 2005 had more than doubled.

1 Historical Oil Patch Employment AND OIL PRICES, 1986 TO 2017*



*Based on the first nine months of 2017

Note: Employment numbers include all industries.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

In 2006, the oil patch resumed adding jobs at a strong pace. In addition to the tonic provided by four years of above-average oil prices, maintenance and work on a number of new fields breathed life into the industry, and early that year a section of BP's pipeline sprung a leak that turned into the largest oil spill in North Slope history and resulted in millions spent on repairs.

This "mature" oil province was now the fastest-grow-

ing employment area in the state and oil was the fastest growing industry. In 2007, oil patch employment hit a new record of 7,781 — more than 1,000 jobs above the 1990 peak.

The price of oil soared to a record \$133 per barrel in 2008, and employment reached 10,000 that year for the first time. Prices softened some during the U.S. recession but remained above \$100 per barrel from 2011 to 2014.

After 2008, employment hit a new record each year until topping out at 12,540 average monthly jobs for 2015. Monthly employment hit a high of 13,485 that March. (See Exhibit 3.)

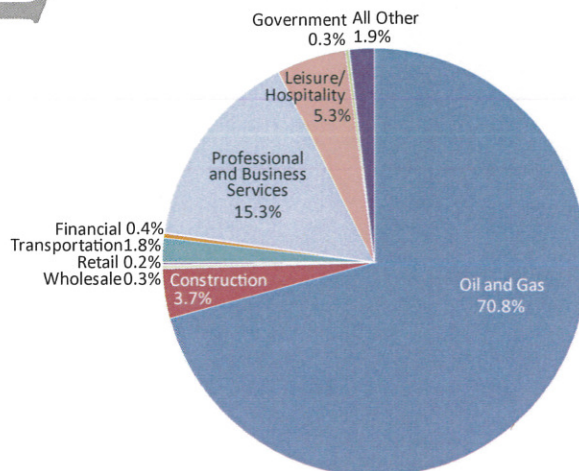
Less oil produced per worker

Employment was at an all-time high even as production continued a long-term declining trend in what had been North America's most productive oil field. (See Exhibit 4.) Most new fields were smaller, requiring more investment and more workers to produce a barrel of oil.

In terms of the production-to-worker ratio, the peak was 372 barrels a day per worker in 1988, which fell to less than half that by 2000 (163 barrels). The ratio continued to drop, dipping below 100 barrels per worker in 2005 and reached a low of 45 in 2016.

2 Jobs Mostly in Oil Production

OIL PATCH'S INDUSTRY MAKEUP, 2016



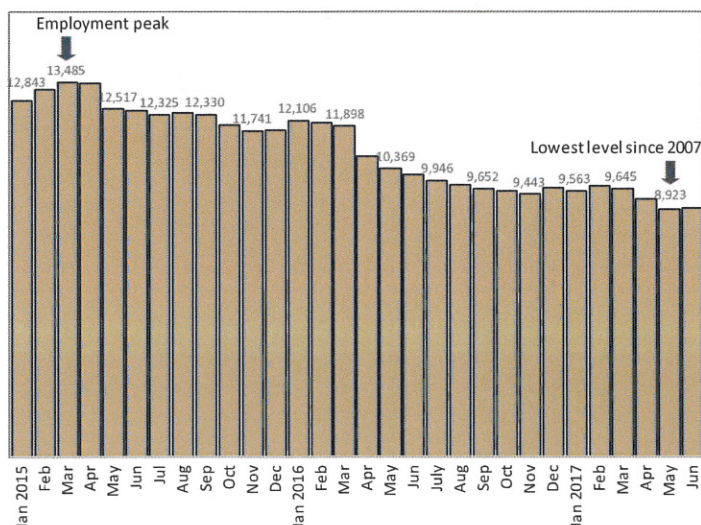
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

The high job levels didn't last

Oil prices began to fall in late 2014 and dropped to \$40 a barrel by 2015. Employment began to follow suit later that year. By the second quarter of 2017, employment had fallen to 2007 levels, erasing most of the past decade's gains.

3 Two-Year Job Decline from 2015 Peak

NORTH SLOPE OIL PATCH, 2015 TO 2017



Note: Employment numbers include all industries.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

About the data

This article's data include employment in all industries in the North Slope's oil patch, as running these virtually self-contained camps on the North Slope requires a range of support workers in addition to oil industry workers.

In this article, "the oil patch" and "the Slope" refer only to the oil fields and related oil activity and exclude North Slope Borough employment in its eight communities: Anaktuvuk Pass, Atkasuk, Utqiagvik (was Barrow), Kaktovik, Nuiqsut, Point Hope, Point Lay, and Wainwright. To learn more about these communities, see the September 2016 issue of *Alaska Economic Trends*.

National oil industry employment began to recover in late 2016, and Alaska's overall oil and gas job losses began to moderate in 2017. (See Exhibit 5.)

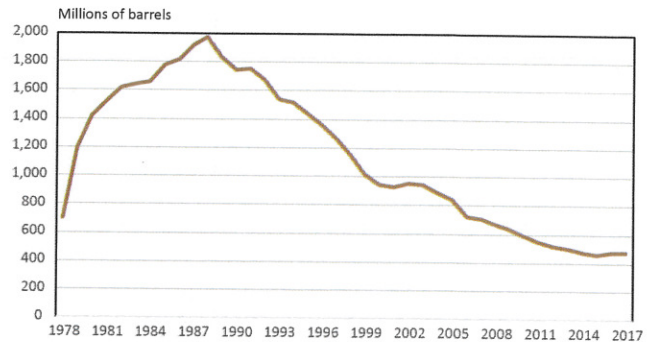
Prices have inched up to around \$70, possibly high enough to stabilize the industry, and planned exploration and maintenance on the North Slope in 2018 are also likely to stem further losses. Another positive for the industry is that oil production has increased over the past two years.

A mostly imported workforce

One of the most striking aspects of the oil patch workforce is that it's almost entirely imported from other parts of the state and nation. Slope workers stay in camps that house thousands of people and work shifts such as one or two weeks on before flying home to other parts of Alaska or the Lower 48.

Although data for residency and work location aren't available for just the oil patch, looking at numbers for the entire North Slope Borough still show how unusual the oil patch workforce is. Statewide, 67 percent of workers live and work in the same area. In the North Slope Borough, less than one in five workers also live there. Nearly half make the long commute from other parts of Alaska and 35 percent commute from out of state. (See Exhibit 6.)

4 Long Decline in Production NORTH SLOPE OIL, 1978 TO 2017

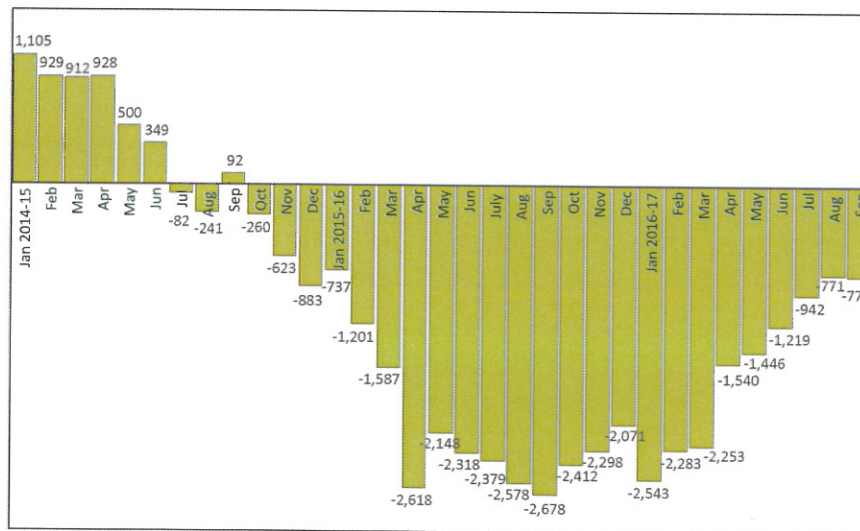


Source: Alaska Department of Revenue

Wages are a major attraction

Although Alaska has the most seasonal workforce in the nation and no other place in the U.S. has winters as harsh as the North Slope, oil-related work there carries on year-round and is much less seasonal than in other parts of the state. There's less construction and maintenance in the winter, but ice road building and exploration continue through the winter and early spring.

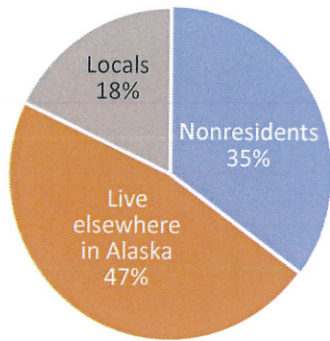
5 Alaska's Oil Job Losses Taper After Hard Fall CHANGE FROM SAME MONTH IN PRIOR YEAR, 2015-17



Note: Employment in this exhibit is for the oil and gas industry only, and covers the industry statewide.
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

6 Mostly Imported Workforce

NORTH SLOPE BOROUGH WORKERS, 2016



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Tough and remote conditions and the need for a highly skilled workforce mean high wages. In 2016, average earnings in the oil patch were more than double the statewide average of \$53,000. (See Exhibit 7.) The Slope’s average is driven up even further by the long hours — usually 60 to 70 or more per week.

Earnings are highest for those employed by the oil producers, at \$192,283 on average in 2016. For those in construction and transportation, wages averaged \$118,773 and \$106,858, respectively — over 50 percent higher than their statewide industry averages.

Wages for support work were considerably lower but still well above their industry averages statewide. For example, leisure and hospitality jobs in the oil patch averaged \$56,251, but just \$23,316 Alaska-wide.

Nonresident share grows

As noted, these high wages attract workers from all over the country. Over the past decade, the share of oil industry workers who aren’t Alaska residents has grown, ranging from 28 percent nonresident in 2009 to 37 percent in 2016. While no breakout exists for the Slope, which represents two-thirds of Alaska’s oil industry, its nonresident percentage is likely even higher because of the work schedules that allow

7 Slope Wages Top The List

ANNUAL AVERAGE BY AREA, 2016

	2016	Percent of state avg
Alaska	\$53,160	100%
North Slope oil patch	\$107,361	202%
North Slope Borough	\$96,324	181%
Northwest Arctic Borough	\$64,464	121%
Southeast Fairbanks Census Area	\$64,332	121%
Aleutians West Census Area	\$55,896	105%
Anchorage, Municipality	\$55,668	105%
Valdez-Cordova Census Area	\$53,160	100%
Bristol Bay Borough	\$51,624	97%
Juneau, City and Borough	\$51,012	96%
Aleutians East Borough	\$50,772	96%
Fairbanks North Star Borough	\$50,508	95%
Nome Census Area	\$47,376	89%
Kenai Peninsula Borough	\$46,908	88%
Ketchikan Gateway Borough	\$45,264	85%
Denali Borough	\$44,268	83%
Sitka, City and Borough	\$43,392	82%
Kodiak Island Borough	\$42,480	80%
Dillingham Census Area	\$42,456	80%
Matanuska-Susitna Borough	\$41,808	79%
Petersburg Census Area	\$41,040	77%
Skagway, Municipality	\$40,680	77%
Bethel Census Area	\$40,452	76%
Yakutat, City and Borough	\$39,540	74%
Prince of Wales-Hyder Census Area	\$39,168	74%
Yukon-Koyukuk Census Area	\$38,748	73%
Wrangell, City and Borough	\$37,776	71%
Lake and Peninsula Borough	\$36,696	69%
Hoonah-Angoon Census Area	\$35,832	67%
Haines Borough	\$35,748	67%
Kusilvak Census Area	\$26,100	49%

Note: The Slope’s average wage includes all industries.
Source: Alaska Department of Labor, Research and Analysis Section

people to commute such long distances.

The numbers of residents and nonresidents in the oil industry both declined in 2016, however. Resident employment fell by 18 percent and nonresident employment by 14 percent.

Neal Fried is an economist in Anchorage. Reach him at (907) 269-4861 or neal.fried@alaska.gov.