

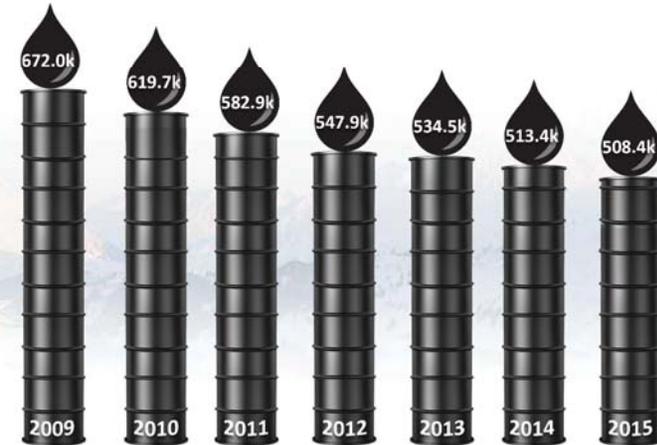
## Oil and Gas Production and Transportation

Oil and Gas Production and Transportation is a primary traded sector for the region. Based on analysis by the U.S. Cluster Mapping Project, this cluster has a high degree of employment specialization and share in comparison to other areas and national employment levels. A location quotient of one would indicate employment on par with that of the nation. For the Valdez-Cordova Census Area, the location quotient (LQ) for Oil and Gas Production and Transportation is 13.54, based on 2014 employment data. This is down from 2013 when the LQ was 15.59.

Valdez is the southern terminus and off-loading point for the Trans Alaska Pipeline System (TAPS), which is operated by the Alyeska Pipeline Service Company. Alyeska's Valdez Marine Terminal (VMT) occupies a 1,000-acre site across from the City of Valdez on Valdez Arm. Crude oil is measured and stored in 14 storage tanks with a combined capacity of 713 million barrels.<sup>19</sup> Two loading berths accommodate oil tankers, which arrive, load crude oil over the course of a day, and exit to deliver crude oil to west coast refineries.

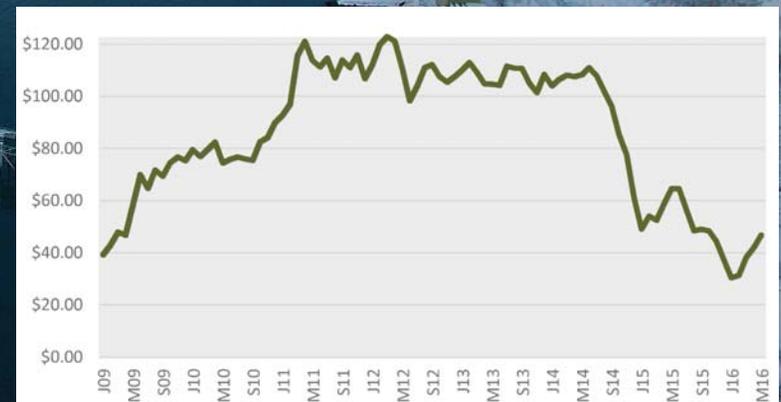
<b>Cluster Snapshot:</b>	2014
<b>Jobs</b>	455
<b>Location Quotient</b>	13.54
<b>Change 1998 - 2014</b>	-60
<b>Change 2010 - 2014</b>	+20
<b>Outlook</b>	⋮ ↓

Figure II.E.7. Trans Alaska Pipeline Average Daily Throughput in Barrels per Day 2009 - 2015



Source: Alaska Department of Natural Resources

Figure II.E.8. Alaska North Slope West Coast Average Spot Price January 2009 - May 2016



Source: Alaska Department of Natural Resources

# SOUND OPPORTUNITIES

Economic Growth for the Prince William Sound Region

Oil and Gas Production and Transportation Cluster

In addition to pipeline and marine terminal operations, Alyeska's role encompasses the Ship Escort/Response Vessel System (SERVS). The mission of SERVS is to prevent oil spills by assisting tankers in safe navigation through PWS and to provide effective response services to the Valdez Marine Terminal and crude oil shippers. SERVS has response centers in each of the five Prince William Sound communities, including more than 400 fishing vessels on contract under the Vessels of Opportunity program.

In Valdez, the Alyeska Pipeline Service Company has a workforce that averages between 200 and 260.<sup>19</sup> Alyeska also employs a significant number of contractors to support operations at the VMT and SERVS. This employment is captured in the Trade, Transportation and Utilities economic sector (see Figure II.E.4). Four of the top ten employers in Valdez are directly connected to the oil industry. Residents from other PWS communities also find employment at the VMT, SERVS, and support contractors.

After 40 years of operation, TAPS faces significant operational challenges, many brought about by declining throughput, changing operating conditions, and aging infrastructure. In 2012, throughput in TAPS averaged 548,000 barrels per day (BPD). By 2014, that volume had decreased to 513,400 BPD. Further declines were seen in 2015, with BPD averaging 508,400.<sup>20</sup> Historically, this volume totals eight percent of U.S. domestic oil production and more than 20 percent of West Coast refinery feedstock. Figure II.E.7 details average daily throughput from 2009 through 2015.

Production from historically-producing fields continues to decline at a sustained rate of five to six percent per year. BP Alaska recently announced plans to decrease production at Prudhoe Bay by an estimated 20 – 40,000 BPD. The decline in oil prices over the past three years threatens the investment climate in the oil and gas sector. However, a handful of new projects continues to move forward. In 2015 and 2016, ExxonMobil began production at Point Thomson and ConocoPhillips began production at the CD5 site in the National Petroleum Reserve. ConocoPhillips recently announced it will expand its CD5 operations; committing necessary capital to more than double the number of wells at the site.<sup>21</sup> Figure II.E.8. presents the prevailing spot price for Alaska North Slope Crude from January 2009 through May 2016. The U.S. Energy Information Administration recently revised its crude oil price forecast, increasing its average prevailing price per barrel up by \$6 through 2017.

Declining throughput presents ongoing operational challenges to Alyeska. Maintenance, modernization, and monitoring activities are a priority for sustaining TAPS operations.<sup>22</sup> The

company has implemented hundreds of maintenance and modernization projects across all of its operations. In recent years, these projects have averaged \$45 – 50 million in capital investment at the VMT. For 2016, Alyeska plans approximately \$80 million in capital improvements at the facility.<sup>23</sup>

Cooler, slower moving crude oil results in increased risk of corrosion and wax accumulation in the pipeline. Standard operational practices have been modified to address low throughput and the resulting operational challenges. Alyeska continues to adapt its operations as well as assess the future likelihood of intermittent flow scenarios.<sup>24</sup>

In March 2016, Alyeska announced that it would replace its longtime contractor for its SERVS unit. The company committed to a two-year transition process. The new contractor is Edison Chouest Offshore, based in Cut Off, Louisiana. This change will likely impact up to 250 direct jobs in Valdez. The transition will be complete by June 2018.

Additionally, Alyeska Pipeline Service Company, the Alaska Department of Environmental Conservation, and the Prince William Sound Regional Citizens' Advisory Council provide employment in preparing oil spill contingency plans. All communities share in oil spill prevention and emergency response drills.

## Vessel of Opportunity training in Cordova engages local boats in oil spill drills



Source: Alyeska Pipeline Service Company

# SOUND OPPORTUNITIES

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Oil and Gas Production and Transportation Cluster

Strengths	Weaknesses	Opportunities	Threats
New development at Prudhoe Bay, NPR-A, and Point Thomson fields has increased throughput in 2016	Throughput in the Trans Alaska Pipeline has been declining by a sustained 5 - 6 percent in the past five years	Ongoing maintenance and modernization projects create job and contracting opportunities	Weak oil prices and global instability in the oil and gas industry
Legacy fields are anticipated to continue production for another 40 - 50 years	Aging TAPS and VMT infrastructure requires substantial ongoing maintenance	Establish strong regional relationship with new SERVS contractor Edison Chouest; facilitate job fair in partnership with Job Center	Operating or production disruptions elsewhere in the system that would delay or prevent TAPS or VMT operations
High-wage occupations	Some nonresident workforce	Align training opportunities to emerging technical requirements	Throughput falling below low flow thresholds and leading to intermittent delivery scenarios
40-years of continuous operations in the region	Aging workforce	Support local efforts to diversify	Environmental damage resulting from spills or operating errors
High degree of labor concentration and specialization	Primary drivers of the sector are outside of the region	Concentration/specialization largely in one community	Increased technical and certification requirements in all occupations in the oil and gas sector
	Weak oil prices and global instability in the oil and gas industry		Emission control regulations and low sulfur standards impose costly requirements

