



Revenue Sources Book Fall 2017

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Alaska Department of Revenue • Tax Division • www.tax.alaska.gov

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Errata – March 6, 2018

For Appendix Table A-3, four numbers for the FY 2027 forecast, including two totals, were revised.

Errata – Jan. 29, 2018

For the narrative on Page 52, two numbers were revised.

Errata – Dec. 14, 2017

For Table 2-2, two numbers were revised; totals did not change.

For Table 5-8, two numbers were revised; totals did not change.

For Appendix E, two numbers were revised.

Cover photo: Pikka Unit exploration activity on the North Slope. Photo by Judy Patrick, courtesy of Repsol.



THE STATE
of **ALASKA**
GOVERNOR BILL WALKER

Department of Revenue

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December 12, 2017

The Honorable William Walker, Governor of Alaska
P.O. Box 110001
Juneau, Alaska 99811-0001

Dear Governor Walker,

I am pleased to present to you the Department of Revenue's Fall 2017 *Revenue Sources Book*. This publication provides a history and projection of state revenues and is a collaborative effort among the Department of Revenue, the Permanent Fund Corporation, the Office of Management and Budget, and several other state agencies.

General fund unrestricted revenues totaled only \$1.35 billion in FY 2017, the lowest level for unrestricted revenue since the late 1990's. The department is forecasting unrestricted revenue of \$2.1 billion and \$2.0 billion for FY 2018 and FY 2019, respectively.

Meanwhile, the State of Alaska received an estimated total of \$12.3 billion in revenue in FY 2017 from all sources, more than double the FY 2016 total. The big increase was mostly due to strong investment returns as the Alaska Permanent Fund returned over 12% for the fiscal year. The Department of Revenue forecasts total revenue of \$10.3 billion in FY 2018 and \$11.0 billion in FY 2019.

Given our budget requirements and the low levels of unrestricted revenue which are expected to continue for the foreseeable future, I continue to believe that using a portion of Permanent Fund earnings for government operations is both prudent and necessary, provided that use of Permanent Fund earnings is limited to a level that is sustainable over time.

The revenue forecast is based on an annual average ANS oil price of \$56.00 per barrel for FY 2018 and \$57.00 per barrel for FY 2019. Actual Alaska North Slope oil prices averaged \$49.43 in FY 2017. Oil markets appear to have come into balance over the past year, and the Department of Revenue projects that annual average prices will stabilize around \$60 per barrel in real terms going forward. In nominal terms, this means that oil prices are expected to increase to \$75 per barrel by the end of the ten year forecast period. Chapter Three of this year's *Revenue Sources Book* is dedicated to an in-depth focus on the medium and long term outlook for oil prices.

For FY 2017, Alaska North Slope crude oil production averaged 526,500 barrels per day, an increase of 11,600 barrels per day over FY 2016. The Department of Revenue forecasts North Slope production of 533,400 barrels per day in FY 2018 and 525,700 barrels per day in FY 2019.

We hope you find the information provided in the Fall 2017 *Revenue Sources Book* to be interesting and useful. The department will provide a forecast update in the spring of 2018.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Fisher".

Sheldon Fisher
Commissioner

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Preface

Introduction

Purpose

The *Revenue Sources Book* (RSB) provides Alaskans with a report of historical, current, and estimated future state revenue. The governor uses the information in this publication to formulate the proposed budget and financial plan before presenting it to the Alaska Legislature. Over the years, the RSB has become an educational tool to inform the general public of how the state's revenues are structured.

Each year, the RSB's Chapter 3 is used to provide in-depth coverage on a topic relevant to current or future state revenues. This year's chapter focuses on mid-term and long-term oil prices and reviews the reasonableness of the department's price forecast including comparisons to other sources of oil price forecasts.

This publication is prepared by the Department of Revenue, in accordance with AS 37.07.060 (b)(4). Forecasts of state revenue are made using models developed by the department's Economic Research Group and other state agencies.

The department expresses its gratitude to those state agencies and the individuals in those agencies who have provided information, assistance and analysis for this RSB.

Throughout this book, unless stated otherwise, information is presented based on a fiscal-year basis. The state's fiscal year runs from July 1 through June 30. For example, Fiscal Year 2017 began July 1, 2016, and concluded June 30, 2017.

Forward-Looking Statements

All figures and narratives in this document that are not based on events that have already occurred constitute forecasts or "forward-looking statements." These numbers are projections based on assumptions regarding uncertain future events and the responses to those events. Such figures are, therefore, subject to uncertainties and actual results will differ, potentially materially, from those anticipated.

The department attempts to capture these uncertainties in order to provide policymakers and the general public with a general understanding of the scale and scope of future revenue streams. The official forecast process takes into account many possible outcomes and attempts to minimize deviations from what is likely to happen. These figures do not necessarily represent a single scenario of a future path.

The department will update the estimates in this forecast book in the spring of 2018, as more information is received. This forecast supersedes all prior estimates or forecasts as the official forecast of the State of Alaska. Therefore, all prior forecasts should be used only for comparison purposes.

Defining Revenue Categories

Chapter 1 describes revenue that is available for appropriation for any current-year funding need, regardless of customary uses or restrictions. This approach gives a complete view of the state's ability to meet its obligations.

Revenue available for current-year appropriation for any purpose includes all general fund revenue, whether unrestricted or designated, as well as certain customarily restricted revenues, such as revenue that flows into the Constitutional Budget Reserve Fund, and realized earnings of the Permanent Fund.

The remainder of the RSB utilizes revenue categories consistent with budget conventions. Revenues are divided into categories in two ways: by revenue source (where the revenue comes from), and spending restriction or designation (how the revenue may be used).

There are three basic revenue sources: 1) funds collected from in-state activities, 2) funds received from the federal government, and 3) earnings from investments. Due to the importance of revenues from oil production, in-state activities are further divided into a) petroleum revenue and b) non-petroleum revenue.

Revenue is also categorized by the level of restrictions regarding its use. Those categories are "unrestricted"

(available to fund general state activities and capital projects) or “restricted” (placed into reserves or used for a specific purpose, either by a requirement or historical practice).

Any revenue that is not restricted by the Alaska Constitution, state or federal law, trust or debt restrictions, or customary practice is considered “general fund unrestricted revenue” or simply “unrestricted revenue.” Historically, most legislative and public discussion has centered on the unrestricted category of revenue, and it has been the figure most commonly referenced in budget discussions.

Restricted revenues are divided into three types: “designated general fund,” “other restricted revenue,” and “federal revenue” to aid in the budget process. Some of these revenues are restricted by budget convention only, and are technically available for appropriation even though they are shown as restricted in this RSB.

Changes

This Fall 2017 RSB represents the second forecast book since the state transitioned to a new accounting system. The department has been working to create revenue reports to extract complete and accurate revenue information from the new accounting system, known as IRIS.

For purposes of reporting FY 2017 actual revenues, the department relied on a combination of IRIS reports and information provided by the appropriate agencies to form a best estimate for each revenue type. The department has also made adjustments to certain FY 2016 totals based on updated information. As this process continues, the department anticipates making minor adjustments to the FY 2016 and FY 2017 revenue numbers presented in future RSBs.

In consultation with the Office of Management and Budget in the Governor’s Office, and the legislative agency, Division of Legislative Finance, changes were made to how several revenue sources are depicted in this forecast, specifically to whether those sources are considered unrestricted or restricted revenue. These changes were made for consistency with budget documents and the budget process.

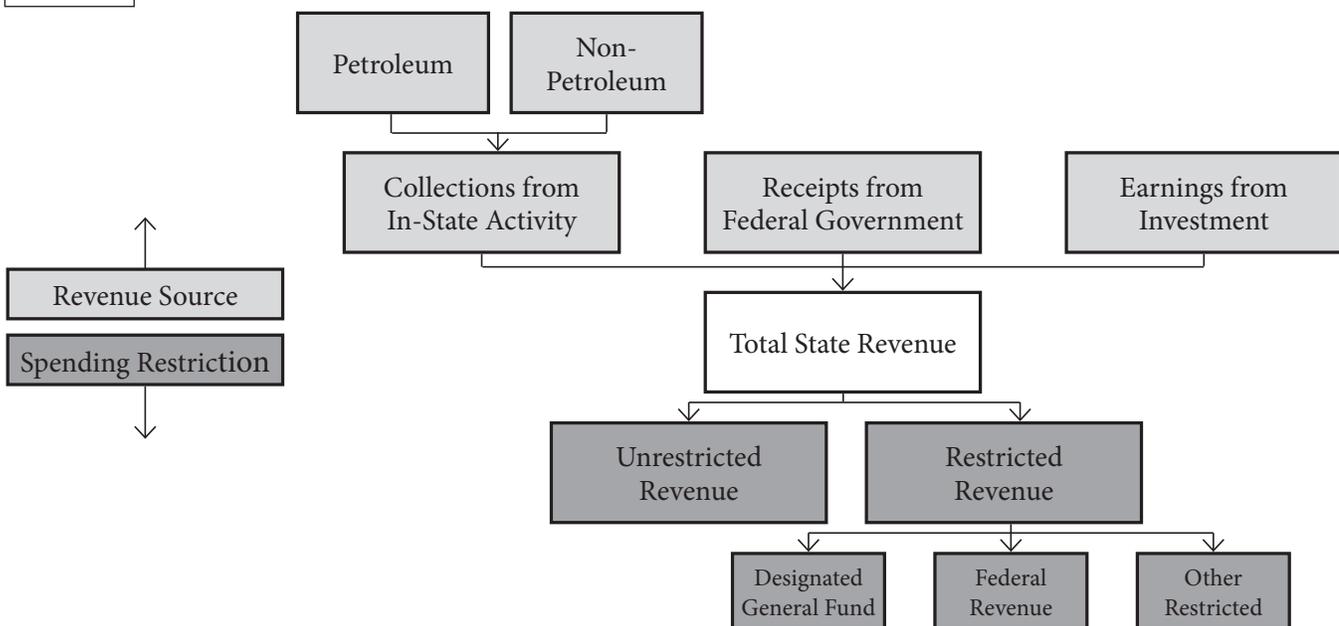
The revenue sources impacted include: environmental compliance fees, insurance premium taxes, motor fuel taxes, and Ocean Ranger fees. Additionally, transfers of earnings from the Alaska Capital Income Fund are now being reported as general fund revenue. More information about these changes can be found in Chapter 5.

Chapter 4 again includes two significant changes relating to petroleum revenue.



Revenue Categories

The sources and restrictions on spending



First, another change to the production tax was implemented with House Bill 111, which passed in 2017. This change is addressed in the narrative, in forecast modeling, and in a comparison table showing this year's changes compared to the previous system as revised last year.

Second, further refinements were made to the oil production forecast methods to provide a better forecast to policymakers. This latter change is also addressed in the narrative, in forecast modeling, and in a comparison table.

In Chapter 8, the oil and gas tax credit information has been revised to reflect changes to credits enacted by HB 111.

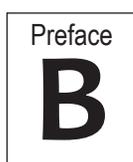
QR Codes

Quick response (QR) codes are included on the first page of each chapter so that the data tables are accessible online in the Microsoft Excel format.

To access them, use a QR code recognition application with your mobile phone, smartphone or tablet to take a picture of the QR code, which looks similar to Figure P-B.

The Figure P-B QR code will take you to the RSB directory on the Tax Division website. The device will display a website with the link to download the Microsoft Excel workbook containing the tables found in the corresponding chapter.

If you are reading the RSB in PDF form, the QR code images are hyperlinked to their corresponding web addresses.



QR Codes

Access data tables online



Forecast Methods Note

At times, the department's forecast numbers may appear to vary between analyses, even if they come from the same data source. This can happen for many reasons and does not necessarily discount other analyses, nor should it be considered an error.

One example is in petroleum revenue forecasting, where results can differ depending on whether the department uses confidential company-specific data versus statewide aggregated summary data.

Another instance where differences can occur is in how uncertainty is incorporated. Depending on the analysis, uncertainties can be addressed by applying risk factors to the data, incorporating probability into the analysis and results, or providing a narrative disclaimer about the uncertainty.

Therefore, even though all the department's models start with the same set of data, the results can differ depending on data handling and how uncertainty is handled in the analysis.

To help address the uncertainty in the revenue forecast, ranges of potential revenues are presented in different ways throughout the *Revenue Sources Book*. They are often presented in terms of a P90 low case (a 90% chance of the value exceeding the number) and a P10 high case (a 10% chance of the value exceeding the number).

For example, in Chapter 4, a low and high case are presented for oil price and oil production forecasts. In Chapter 5, a low (P90) and high (P10) case are provided in the narrative for many tax types. In Chapter 7, a range of uncertainty for investment returns is provided. Finally, Appendix Table A-1 shows how total unrestricted revenue would vary with different oil price assumptions.

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Chapter 1

Revenue Available for Appropriation for Any Purpose

General Discussion

Historically, most of the discussion on Alaska’s budget has focused on the “unrestricted general fund” category of revenue, which in times of deficiency is supplemented by “funding from reserves.” At the same time, certain current-year revenue available for appropriation for any purpose is added to reserves.

This way of defining revenue has served Alaska well by automatically placing categories of revenue in reserves. However, it is also important to accurately define revenue that is available for appropriation for any purpose so that both the Alaska Legislature, in deliberations on potentially shifting how revenue is categorized, as well as people outside the Legislature in analyzing Alaska’s budget, are able to determine the state’s true revenue potential.

Table 1-1 provides an accounting of current-year revenue available for appropriation for any purpose for Fiscal Year 2017, as well as a forecast for FY 2018 – FY 2027.

The State of Alaska has historically categorized certain revenues that are available for appropriation for any purpose as “restricted.” The primary use of these “customarily restricted” revenues has been largely to fund reserves.

For purposes of the current budget process, revenues are categorized as one of the following four categories: “unrestricted general fund,” “designated general fund,” “other restricted,” or “federal.” Chapter 2 has the definitions and more detail on these categories, which are agreed upon by Office of Management and

Budget (OMB) in the Governor’s Office, and the Alaska Division of Legislative Finance, a legislative agency.

Examples of revenues customarily treated as restricted, but available for appropriation for any purpose include:

- Realized earnings of the Alaska Permanent Fund, which reside in the Earnings Reserve of the Permanent Fund.
- Settlement revenue deposited into the Constitutional Budget Reserve Fund (CBRF), as well as the investment earnings of the CBRF.
- Royalty revenue deposited into the Alaska Permanent Fund beyond the 25% constitutional dedication.
- Most revenue deposited into subfunds or sub-accounts of the general fund. For example, 50% of alcohol tax revenue is designated for the Alcohol and Other Drug Abuse Treatment and Prevention Fund.

The Permanent Fund, and Constitutional Budget Reserve Fund

Alaska receives investment earnings from a number of internal funds. Primary sources of investment income for the state are two constitutionally mandated funds, the Permanent Fund and the CBRF.

The Permanent Fund had an unaudited fund balance (principal and the earnings reserve) of ap-

Current-Year Revenue Subject to Appropriation

FY 2017 and FY 2018-2027 Forecast

Millions of Dollars

Fiscal Year	History	Forecast									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Petroleum Revenue											
Unrestricted General Fund	876.4	1,561.1	1,436.8	1,440.1	1,518.6	1,565.2	1,599.5	1,604.3	1,716.7	1,913.7	2,093.4
Royalties to Alaska Permanent Fund beyond 25% dedication ¹	79.1	0.0	53.4	53.7	54.9	55.7	55.5	59.8	68.2	76.9	83.8
Tax and Royalty Settlements to CBRF ²	481.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Subtotal Petroleum Revenue	1,437.4	1,661.1	1,590.2	1,593.8	1,673.5	1,720.9	1,755.1	1,764.2	1,884.9	2,090.6	2,277.2
Non-Petroleum Revenue											
Unrestricted General Fund	456.9	497.3	562.3	568.8	576.6	587.0	602.6	613.4	624.5	635.8	647.3
Designated General Fund	395.0	415.9	365.5	369.4	372.5	374.7	377.0	379.4	381.9	384.4	387.1
Royalties to Alaska Permanent Fund beyond 25% dedication ¹	2.5	0.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Tax and Royalty Settlements to CBRF	-1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Subtotal Non-Petroleum Revenue	853.4	914.6	931.7	942.2	953.1	965.7	983.6	996.8	1,010.4	1,024.2	1,038.3
Investment Revenue											
Unrestricted General Fund	17.3	23.2	48.0	54.3	60.5	66.8	73.1	79.3	85.6	91.8	98.1
Designated General Fund	59.4	44.5	36.7	37.3	37.9	38.4	39.0	39.5	40.1	40.6	41.2
Constitutional Budget Reserve Fund	94.2	65.2	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alaska Permanent Fund – Realized Earnings ³	3,239.3	4,422.8	3,978.1	4,140.0	4,305.0	4,466.0	4,629.0	4,802.0	4,982.0	5,169.0	5,364.0
Subtotal Investment Revenue	3,410.2	4,555.6	4,077.8	4,231.6	4,403.4	4,571.2	4,741.0	4,920.8	5,107.7	5,301.5	5,503.3
Total Revenue Subject to Appropriation	5,701.0	7,131.4	6,599.7	6,767.6	7,030.0	7,257.8	7,479.7	7,681.9	8,002.9	8,416.3	8,818.8

¹ Estimate based on deposit to Permanent Fund minus 25% of total royalties. In FY2018, only the constitutionally required 25% of royalties were deposited into the Permanent Fund.

² CBRF is an acronym for Constitutional Budget Reserve Fund.

³ Investment revenue from the Permanent Fund available for appropriation is based on realized gains, a portion of which has been used to inflation-proof the fund historically.

proximately \$59.8 billion as of June 30, 2017. The CBRF had an unaudited net asset value of approximately \$3.9 billion as of the same date.

The balance of the CBRF is available for appropriation for any purpose with a three-fourths vote of each house of the Legislature, as is the amount of any investment earnings, and tax and royalty settlement deposits to the CBRF.

The Earnings Reserve Account balance in the Permanent Fund is available for appropriation for any purpose with a majority vote of the Legislature. This is different from an appropriation of the Permanent Fund's principal balance, which would require an amendment to the Alaska Constitution.

For accounting purposes, the Permanent Fund is divided into two parts: principal (the non-spendable funds) and the Earnings Reserve (assigned funds). The Earnings Reserve contains both realized earnings from all the fund's investments, and unrealized gains on assets in that portion of the Permanent Fund that is accounted for in the Earnings Reserve. The total balance of assigned funds as of Sept. 30, 2017, was \$12.7 billion.

Other Customarily Restricted Revenues

Because Alaska is dependent on taxes, royalties, fees, and other revenues that can be volatile, the State of Alaska has developed a framework of constitutionally and statutorily restricted revenue that is held in a variety of reserve funds to provide long-term and short-term options to address cash flow mismatches and budgetary needs.

The Alaska Constitution provides that, with three exceptions, the proceeds of state taxes or licenses "shall not be dedicated to any special purpose." The three exceptions are when required by the federal

government for state participation in federal programs, any dedication existing before statehood, and when provided for by the Alaska Constitution.

Many state revenues are classified as "customarily restricted," meaning they are designated for a specific purpose even though the Constitution does not allow a dedication of funds. This includes most revenue deposited into subfunds or subaccounts of the general fund. The State of Alaska has historically restricted these revenue sources based on custom or by statutory direction, even though neither of these structures limits the ability of a future Legislature to appropriate the revenue for any purpose. Statutory language typically suggests that revenue from a certain source "may be appropriated" by the Legislature for a specific purpose. Such revenue is nonetheless subject to annual appropriation, even if the State of Alaska by historical practice has followed customary restrictions.

Meeting State Obligations

Understanding the customary nature of many sources of restricted revenue is important, because the ability of the state to meet its obligations is not truly reflected by the general fund unrestricted revenue category in budget documents. The state's ability to meet its obligations is provided by adjusting for customary restrictions and looking at all current-year revenues that are subject to appropriation for any purpose.

All revenues subject to appropriation for any purpose can be used by the Legislature to fund government services or obligations, including the use of funds in the CBRF and the Earnings Reserve of the Permanent Fund.

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Chapter 2 Executive Summary

Introduction

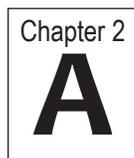
Chapter 1 provided a summary of revenue available for appropriation for any purpose. This chapter, and the remainder of the *Revenue Sources Book*, presents revenues in accordance with current budget categories and conventions as agreed upon by the Office of Management and Budget (OMB) in the Governor's Office, and Division of Legislative Finance, a legislative agency.

The State of Alaska received an estimated total of \$12.3 billion in revenue in Fiscal Year 2017 from all

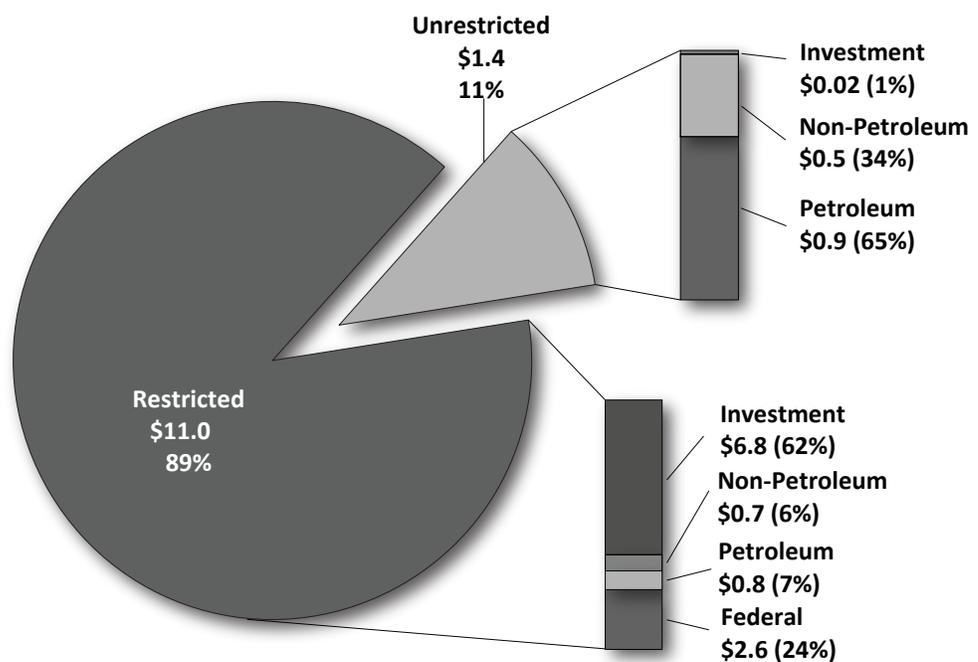
sources, a 109% increase in total revenue from FY 2016. The Department of Revenue forecasts total revenue as \$10.3 billion in FY 2018 and \$11.0 billion in FY 2019. Figure 2-A graphically illustrates the composition of total revenue by restriction and type.

General Fund Unrestricted Revenue

In FY 2017, general fund unrestricted revenues (GFUR) totaled \$1.4 billion, with oil and gas revenues accounting for 65% of all unrestricted revenue. As depicted in Table 2-1, the department is forecasting unrestricted revenue of \$2.1 billion and \$2.0 billion



FY 2017 Total State Revenue By restriction and type, in billions of dollars



Total State Revenue

By restriction and type

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
Unrestricted Revenue Sources			
Unrestricted General Fund Revenue			
Petroleum Revenue	876.4	1,561.1	1,436.8
Non-Petroleum Revenue	456.9	497.3	562.3
Investment Revenue	17.3	23.2	48.0
Federal Revenue	0.0	0.0	0.0
Total Unrestricted Revenue	1,350.6	2,081.6	2,047.1
Restricted Revenue Sources			
Designated General Fund Revenue			
Non-Petroleum Revenue	395.0	415.9	365.5
Investment Revenue	59.4	44.5	36.7
Subtotal Designated General Fund Revenue	454.4	460.4	402.2
Other Restricted Revenue			
Petroleum Revenue	822.4	393.0	451.4
Non-Petroleum Revenue	301.1	254.3	258.0
Investment Revenue	6,773.4	3,383.7	3,982.6
Subtotal Other Restricted Revenue	7,896.8	4,031.0	4,692.0
Federal Revenue			
Petroleum Revenue ¹	1.4	12.1	5.6
Federal Receipts	2,640.1	3,743.8	3,826.5
Subtotal Federal Revenue	2,641.5	3,755.9	3,832.1
Total Restricted Revenue	10,992.7	8,247.2	8,926.2
Total State Revenue	12,343.3	10,328.8	10,973.3

¹Petroleum revenue shown in the federal category includes the state share of rents, royalties, and bonuses received from the National Petroleum Reserve in Alaska.

for FY 2018 and FY 2019, respectively. This is a revision to the department's forecast of unrestricted revenue from the previous forecast, reflecting among other variables, revised expectations for oil price, oil production, and company investment.

Also, unrestricted revenue for FY 2017 was reduced by transfers to the Constitutional Budget Reserve Fund (CBRF), which is restricted revenue, as shown in Table 2-3. Certain funds were received and accounted for as unrestricted revenue in previous fiscal years, but identified as CBRF revenue in FY 2017 and transferred

to the CBRF the same fiscal year. This accounting phenomenon reduced the total unrestricted revenue reported for FY 2017.

Table 2-2 provides an overview of the FY 2017 composition of general fund unrestricted revenue as well as forecasts for FY 2018 and FY 2019.

Restricted Revenue

Restricted revenue is revenue that has historically been used or is required to be used for a specific

Unrestricted General Fund Revenue

By source and type

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
Unrestricted Petroleum Revenue			
Petroleum Taxes			
Petroleum Property Tax	120.4	117.2	110.8
Petroleum Corporate Income Tax ¹	-59.4	130.0	170.0
Oil & Gas Production Tax	134.4	457.8	338.8
Subtotal Petroleum Taxes	195.4	705.0	619.6
Royalties (including Bonuses, Rents, and Interest)			
Mineral Bonuses and Rents	15.5	14.1	14.1
Oil & Gas Royalties	676.2	837.8	798.9
Interest	-10.7	4.2	4.2
Subtotal Royalties	680.9	856.1	817.2
Total Unrestricted Petroleum Revenue	876.4	1,561.1	1,436.8
Unrestricted Non-Petroleum Revenue			
Non-Petroleum Taxes			
Excise Tax			
Alcoholic Beverage	20.1	20.4	20.7
Tobacco Product – Cigarette	30.0	26.5	25.6
Tobacco Product – Other	13.4	14.3	15.1
Electric and Telephone Cooperative	0.2	0.2	0.2
Insurance Premium Tax ²	0.0	0.0	56.7
Marijuana	0.9	4.6	9.0
Motor Fuel ³	34.7	0	0
Motor Fuel (conservation surcharge)	6.6	6.3	6.3
Tire Fee	1.4	1.4	1.4
Subtotal Excise Tax	107.3	73.7	134.9
Corporate Income Tax	86.5	145.0	145.0
Fisheries Tax			
Fisheries Business	15.5	21.1	21.6
Fishery Resource Landing	4.9	4.2	4.3
Subtotal Fisheries Tax	20.3	25.3	25.9
Other Tax			
Charitable Gaming	2.5	2.5	2.6
Estate	0.0	0.0	0.0
Large Passenger Vessel Gambling	8.2	8.4	8.7
Mining	41.4	45.8	46.4
Subtotal Other Tax	52.0	56.8	57.7
Subtotal Non-Petroleum Taxes	266.2	300.8	363.6

(Table continued, next page.)

Unrestricted General Fund Revenue

By source and type *(Continued)*

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
Unrestricted Non-Petroleum Revenue			
Charges for Services			
General Government	12.8	12.8	12.8
Natural Resources	1.4	1.4	1.4
Other	7.3	7.3	7.3
Subtotal Charges for Services	21.5	21.5	21.5
Fines and Forfeitures	13.2	13.2	13.2
Licenses and Permits			
Motor Vehicle	38.9	34.9	35.0
Other	3.2	3.2	3.2
Subtotal Licenses and Permits	42.1	38.1	38.2
Rents and Royalties			
Mining Rents and Royalties	11.8	15.8	13.2
Other Non-Petroleum Rents and Royalties	15.6	15.0	15.0
Subtotal Rents and Royalties	27.4	30.8	28.2
Miscellaneous Revenues and Transfers			
Miscellaneous	21.6	20.4	21.6
Alaska Capital Income Fund ⁴	25.1	32.0	28.0
Alaska Housing Finance Corporation	13.5	18.4	30.0
Alaska Industrial Development & Export Authority	6.3	12.9	10.0
Alaska Municipal Bond Bank Authority	0.0	0.0	0.0
Alaska Student Loan Corporation	0.0	1.2	0.0
Alaska Energy Authority	0.0	0.0	0.0
Alaska Natural Gas Development Authority	0.0	0.0	0.0
Mental Health Trust	0.0	0.0	0.0
Unclaimed Property	20.0	8.0	8.0
Subtotal Miscellaneous Revenues and Transfers	86.5	92.9	97.6
Total Unrestricted Non-Petroleum Revenue	456.9	497.3	562.3
Unrestricted Investment Revenue			
Investment Revenue			
Investments	15.7	21.6	46.4
Interest Paid by Others	1.6	1.6	1.6
Subtotal Unrestricted Investment Revenue	17.3	23.2	48.0
Total Unrestricted Revenue	1,350.6	2,081.6	2,047.1

¹Petroleum corporate income tax collections for FY 2017 were negative due to large refunds of prior-year estimated taxes and low estimated taxes for FY 2017.

²Under current law, insurance premium tax is considered designated restricted revenue and will revert to unrestricted revenue beginning in FY 2019.

³Starting with FY 2018, the non-aviation portion of the motor fuel tax is considered designated restricted revenue.

⁴Beginning with the fall 2017 forecast, transfer revenue from the Alaska Capital Income Fund is considered unrestricted revenue.

Restricted Revenue

By source and type

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
Designated General Fund Revenue			
Non-Petroleum Revenue			
Taxes	98.5	138.7	88.3
Charges for Services	262.1	244.8	244.8
Fines and Forfeitures	9.2	7.1	7.1
Licenses and Permits	1.5	1.5	1.5
Rents and Royalties	4.2	4.2	4.2
Other	19.5	19.5	19.5
Subtotal Non-Petroleum Revenue	395.0	415.9	365.5
Investment Revenue			
Investments – Designated General Fund	1.7	2.2	4.1
Other Treasury-Managed Funds	57.7	42.3	32.6
Subtotal Investment Revenue	59.4	44.5	36.7
Total Designated General Fund Revenue	454.4	460.4	402.2
Other Restricted Revenue			
Petroleum Revenue			
Royalties to Alaska Permanent Fund and Public School Trust Fund (includes Bonuses and Rents)	340.5	293.0	351.4
Tax and Royalty Settlements to Constitutional Budget Reserve Fund	481.9	100.0	100.0
Subtotal Petroleum Revenue	822.4	393.0	451.4
Non-Petroleum Revenue			
Taxes	92.8	100.0	100.9
Charges for Services	134.2	85.7	85.7
Fines and Forfeitures	24.2	15.9	15.7
Licenses and Permits	37.6	42.4	42.7
Rents and Royalties	5.5	3.5	6.1
Other	6.8	6.8	6.8
Subtotal Non-Petroleum Revenue	301.1	254.3	258.0
Investment Revenue			
Investments – Other Restricted	3.6	4.4	8.4
Constitutional Budget Reserve Fund	94.2	65.2	14.9
Alaska Permanent Fund (realized earnings) ¹	3,239.3	4,422.8	3,978.1
Alaska Permanent Fund (unrealized earnings) ¹	3,436.3	-1,108.7	-18.8
Subtotal Investment Revenue	6,773.4	3,383.7	3,982.6
Total Other Restricted Revenue	7,896.8	4,031.0	4,692.0

(Table continued, next page)

Restricted Revenue

By source and type *(Continued)*

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
Restricted Federal Revenue			
Federal Receipts	2,640.1	3,743.8	3,826.5
Petroleum Revenue			
NPR-A Royalties, Rents and Bonuses	1.4	12.1	5.6
Total Restricted Federal Revenue	2,641.5	3,755.9	3,832.1
Total Restricted Revenue	10,992.7	8,247.2	8,926.2

¹ While payouts are limited to realized revenues, both unrealized and realized are shown per Generally Accepted Accounting Principles (GAAP).

² Oil revenue shown in the Federal category includes the state share of rents, royalties, and bonuses received from the National Petroleum Reserve in Alaska.

purpose. In general, revenue that is restricted by the Alaska Constitution, state or federal law, trust or debt restrictions, or customary practice is considered “restricted revenue.”

Restricted revenues are divided into three types: “designated general fund,” “other restricted revenue,” and “federal revenue” to aid in the budget process. As described in Chapter 1, some of these revenues, while categorized as restricted by custom, are still available for appropriation for any purpose.

In FY 2017, restricted state revenue totaled \$11.0 billion. As depicted in Table 2-1, the department is forecasting restricted revenue of \$8.2 billion and \$8.9 billion for FY 2018 and FY 2019, respectively. Restricted revenue is a combination of federal receipts, investment earnings, constitutionally mandated petroleum revenue deposits, and non-petroleum revenue sources that are used for specific purposes.

Petroleum Revenues

Petroleum revenues come from four components – production tax, royalties, corporate income tax, and petroleum property tax. Production tax statutes were changed with the passage of House Bill 247 in 2016, and again with the passage of House Bill 111 in 2017. Another change in this forecast is that the Department of Revenue, in collaboration with the Alaska Department of Natural Resources, made further refinements to its methods for projecting oil produc-

tion, building on work done last year. Both changes are described in detail in Chapter 4.

Unrestricted petroleum revenue amounted to \$0.9 billion in FY 2017 and is forecast to be \$1.6 billion in FY 2018. Petroleum revenue provided 65% of FY 2017 unrestricted revenues, and is projected to provide between 70% and 75% of unrestricted revenues over the next 10 years as shown in Table 2-5.

Restricted petroleum revenue is forecast at \$405 million in FY 2018, while actual FY 2017 revenue for this category was \$824 million. The primary sources of restricted petroleum revenue are royalties deposited in the Alaska Permanent Fund, and Public School Trust Fund, as well as settlements of tax and royalty disputes deposited in the CBRF.

And, corresponding to the transfer of funds to the CBRF that decreased unrestricted revenue mentioned earlier in this chapter, restricted revenue for FY 2017 was increased by transfers to the CBRF. Therefore, the accounting shift increased reported restricted revenue.

Four elements are critical to the determination of these revenues: price, production, lease expenditures, and transportation costs. These components are briefly summarized below and are explained in detail in Chapter 4.

Alaska North Slope (ANS) oil prices averaged \$49.47 in FY 2017. The revenue forecast is based on an

Total State Revenue, Actual and Forecast

FY 2008 to FY 2027

Billions of Dollars

Fiscal Year	History									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total State Revenue										
Petroleum	11.3	6.1	6.2	8.1	9.9	7.6	5.7	2.4	1.6	1.7
Non-Petroleum	1.1	0.9	0.9	1.0	0.9	0.9	0.9	0.9	1.0	1.2
Investment	-1.3	-6.6	4.5	8.0	0.2	5.0	8.1	2.7	0.6	6.9
Federal	1.9	2.1	2.4	2.4	2.5	2.4	2.5	2.5	2.6	2.6
Total State Revenue	13.1	2.5	13.9	19.5	13.5	15.9	17.2	8.5	5.9	12.3

Total Unrestricted General Fund Revenue

A 10-year forecast

Millions of Dollars

Fiscal Year	History	Forecast									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Petroleum	876.4	1,561.1	1,436.8	1,440.1	1,518.6	1,565.2	1,599.5	1,604.3	1,716.7	1,913.7	2,093.4
Non-Petroleum	456.9	497.3	562.3	568.8	576.6	587.0	602.6	613.4	624.5	635.8	647.3
Investment	17.3	23.2	48.0	54.3	60.5	66.8	73.1	79.3	85.6	91.8	98.1
Total Unrestricted Revenue	1,350.6	2,081.6	2,047.1	2,063.2	2,155.7	2,218.9	2,275.2	2,297.1	2,426.8	2,641.3	2,838.8
Percent from Petroleum	65%	75%	70%	70%	70%	71%	70%	70%	71%	72%	74%

assumption of a modest recovery in price, with an annual average ANS oil price of \$56 per barrel for FY 2018 and \$57 per barrel for FY 2019. The department projects, based on fundamental analysis of the structure of oil markets, that annual average prices will increase to \$75.00 (nominal) within the 10-year forecast period.

Total crude oil production from Alaska's North Slope increased for the second consecutive fiscal year, rising from 514,900 barrels per day in FY 2016 to 526,500 barrels per day in FY 2017. Meanwhile, oil production in the Cook Inlet basin again decreased, from 16,600 barrels per day in FY 2016 to 14,100 barrels per day in FY 2017. The current oil production forecast expects North Slope production to remain relatively stable in coming years, with production of 533,400 barrels per day in FY 2018 and 525,700 barrels per day in FY 2019, declining slightly to 492,900 barrels per day by FY 2027.

In FY 2017, oil and gas lease expenditures amounted to an estimated \$5.4 billion statewide, including \$4.8 billion of spending on the North Slope. Lease expenditures are expected to decline in FY 2018 to about \$5.1 billion statewide, including \$4.6 billion of spending on the North Slope, as companies adjust to lower oil prices and reduced state incentives.

In FY 2017, average transportation costs for North Slope oil averaged \$9.70 per barrel; they are expected to average \$9.80 in FY 2018 and \$9.86 in FY 2019, before increasing to \$11.49 by FY 2027. Transportation costs are subtracted from the ANS price to determine the wellhead value and value at point of production, and these form the basis for tax and royalty calculations. In general, transportation costs are a function of production – lower production corresponds to higher transportation costs – as well as overall inflation.

Total State Revenue, Actual and Forecast

FY 2008 to FY 2027 (Continued)

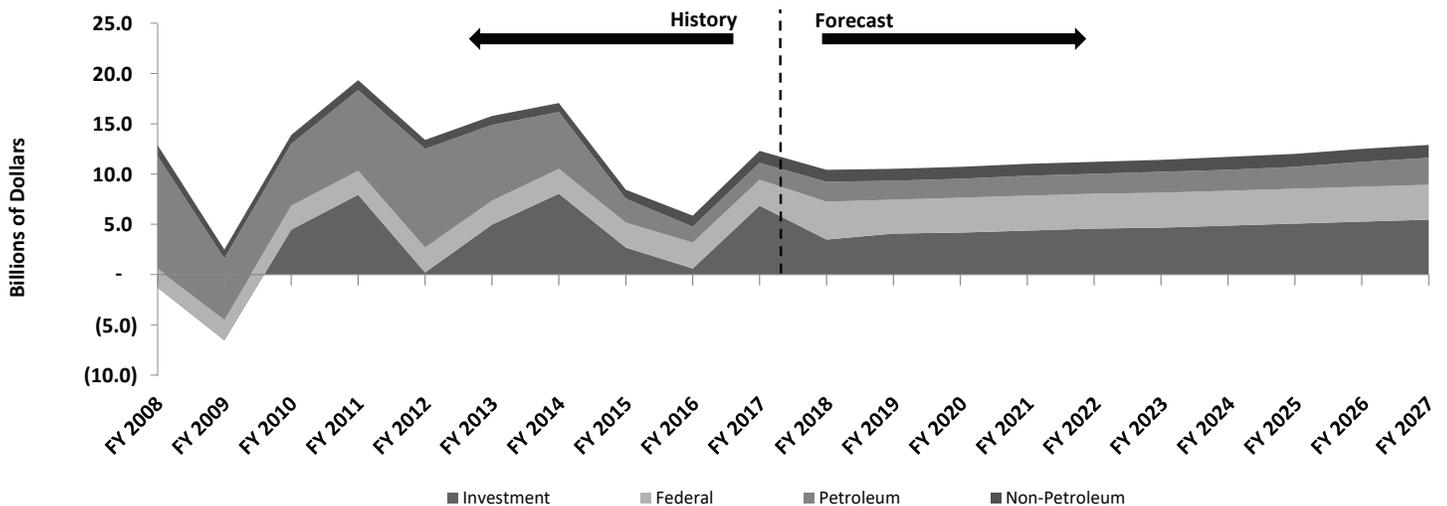
Billions of Dollars

Forecast

Fiscal Year	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Total State Revenue										
Petroleum	2.0	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.5	2.7
Non-Petroleum	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3
Investment	3.5	4.1	4.2	4.4	4.6	4.7	4.9	5.1	5.3	5.5
Federal	3.7	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Total State Revenue	10.3	11.0	11.1	11.4	11.7	11.9	12.1	12.4	12.9	13.3

Total State Revenue

A look back and a forecast



Non-Petroleum Revenue from In-State Activity

Revenue from corporate income taxes from non-petroleum related businesses, excise taxes, consumption taxes, charges for services, fines, forfeitures, licenses, permits, non-petroleum rents and royalties, transfers, and other miscellaneous revenue are referred to as "non-petroleum revenues from in-state activity." This does not include federal and investment revenues. Unrestricted non-petroleum revenues from in-state activities are expected to be \$497 million in FY 2018, representing 24% of all unrestricted revenues. By FY

2027, these revenues are projected to rise to \$647 million. Restricted non-petroleum revenues from in-state activities are expected to be \$670 million in FY 2018. Details regarding these revenue sources can be found in Chapter 5.

Federal Revenue

All federal funds the state receives are considered restricted for purposes of this forecast. Federal funds include revenues for highways, medical care, education, and other designated purposes. The state received an estimated \$2.6 billion in FY 2017, and is

forecasting \$3.7 billion in federal payments to the state for predetermined uses in FY 2018. However, consistent with practice in prior years, the forecast represents the maximum possible federal revenue contribution, while actual revenues received routinely come in below forecast. More detail regarding federal revenue can be found in Chapter 6.

funds. In FY 2017, the state earned \$6.9 billion in total investment revenue. The department is forecasting investment income of \$3.5 billion in FY 2018 and \$4.1 billion in FY 2019. The majority of investment revenue is considered restricted revenue. More information about investment revenue can be found in Chapter 7.

Investment Revenue

Investment income is the earnings generated from certain assets such as the Permanent Fund, the Constitutional Budget Reserve Fund, and other

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Chapter 3

Oil Prices: A Long-Term Outlook

Introduction

For the past several years, the State of Alaska has wrestled with how to adjust the state's revenue stream and expenditures in response to lower oil prices. As policymakers continue to evaluate components of a sustainable fiscal plan, the outlook for oil prices and oil revenue is a key variable in that decision-making process.

In Fiscal Year 2017, 65% of the state's unrestricted revenue was provided directly by the oil and gas industry. Additionally, the oil industry provided hundreds of millions of dollars of restricted revenue in the form of royalties and other payments that go to the Permanent Fund, Constitutional Budget Reserve Fund, and Public School Trust Fund. Looking forward, the future price of crude oil is the most sensitive variable in the revenue forecast.

From FY 2012 to FY 2014, Alaska North Slope (ANS) oil prices had an annual average of over \$100 per barrel. Then prices fell precipitously, bottoming out below \$30 per barrel in early 2016. Since then, prices have nearly doubled and now have been trading in a range between the mid-\$40s and mid-\$50s for most of the past year, recently rising to the low-\$60s in early November 2017.

The fall 2017 forecast is based on the expectation that oil markets are likely to stabilize around the \$60 per barrel range, in real terms, for the foreseeable future. This forecast has significant implications for long-term planning. This chapter presents the rationale behind this forecast, including an examination of the assumptions underlying the forecast, a comparison to other

price forecasts, and an examination of factors that could lead to higher or lower prices than the Department of Revenue is forecasting.

Background

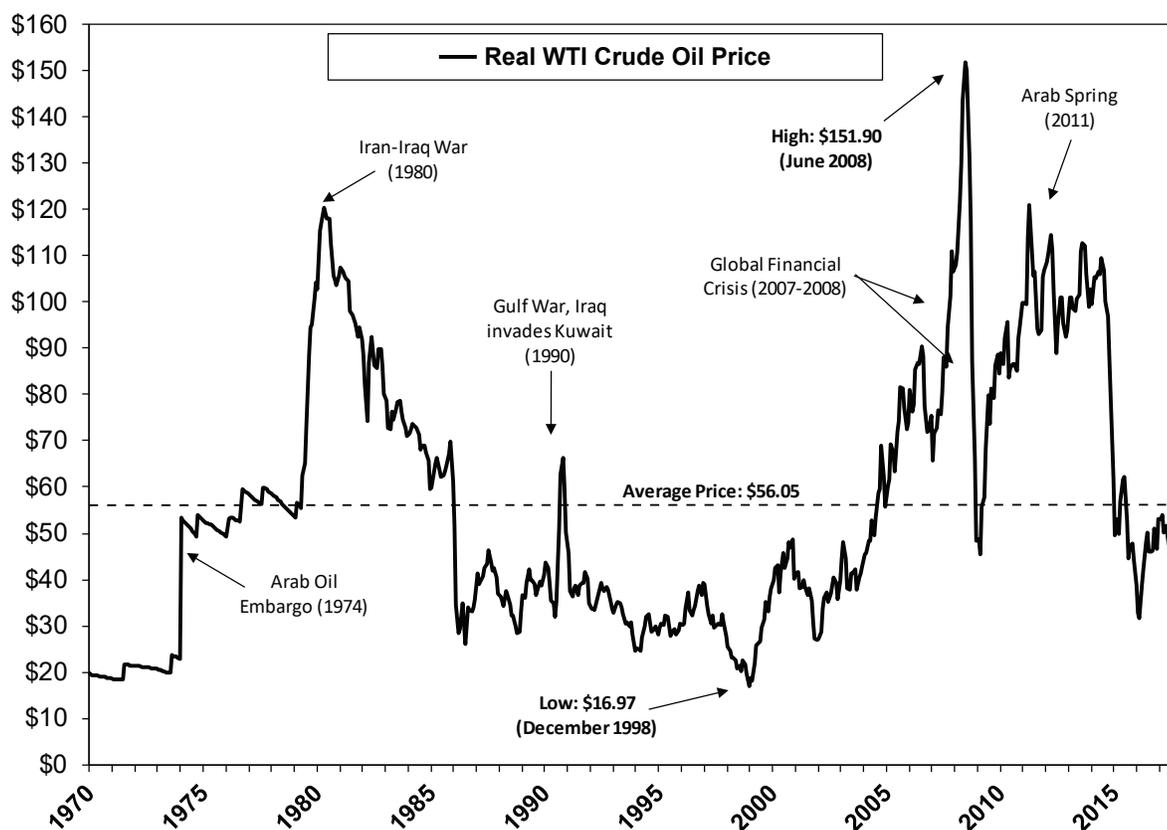
Oil Price Benchmarks

There are nearly 200 unique varieties of crude oil. However, there are only a few major benchmark crude oils used to gauge international oil prices. Benchmarks are used as a reference point, mainly for buyers and sellers of the commodity to help navigate the crude oil marketplace and its many grades and blends. Although there are many different oil benchmarks that represent crude oil sourced from different regions throughout the world, most blends of crude oil are pegged to one of three pricing benchmarks:

- Dubai crude is used for pricing most crude oil that is extracted from the Persian Gulf and exported to Asia. Although the Middle East is known for its oil production and most of the OPEC nations center around the Persian Gulf, Dubai crude is not the most widely used benchmark.
- In the United States, West Texas Intermediate (WTI) crude oil is known as an important benchmark. This U.S. produced oil is used as the baseline price for New York Mercantile Exchange (NYMEX) futures contracts.
- Brent crude oil from the North Sea is an international benchmark oil used to price two-thirds of

WTI Crude Oil Price

1970 to 2017 presented in real 2017 dollars



internationally traded crude oil supplies. Brent crude is a waterborne crude and has historically priced higher than Dubai or WTI, due to being a slightly higher quality of oil.

The price of ANS crude oil is based on delivery of a specific quality of oil, typical of North Slope crude, in Long Beach, California. ANS is not widely traded on international markets, so pricing is typically based on an international benchmark crude, with an adjustment or “differential” made for quality and location. Historically, ANS was traded based on WTI prices, with a small differential accounting for the fact that ANS is a slightly lower quality oil. However, WTI’s value as a benchmark has decreased over the past decade due to logistical issues at the WTI pricing point in Cushing, Oklahoma. In particular, the rapid rise of shale oil production has at times put downward pressure on WTI prices as there has been extra supply at the pricing hub and inadequate means to move that oil to market. As a result, the price of WTI has fluctuated in ways that are not representative of the global oil market, leading many market participants to rely less on WTI as a benchmark.

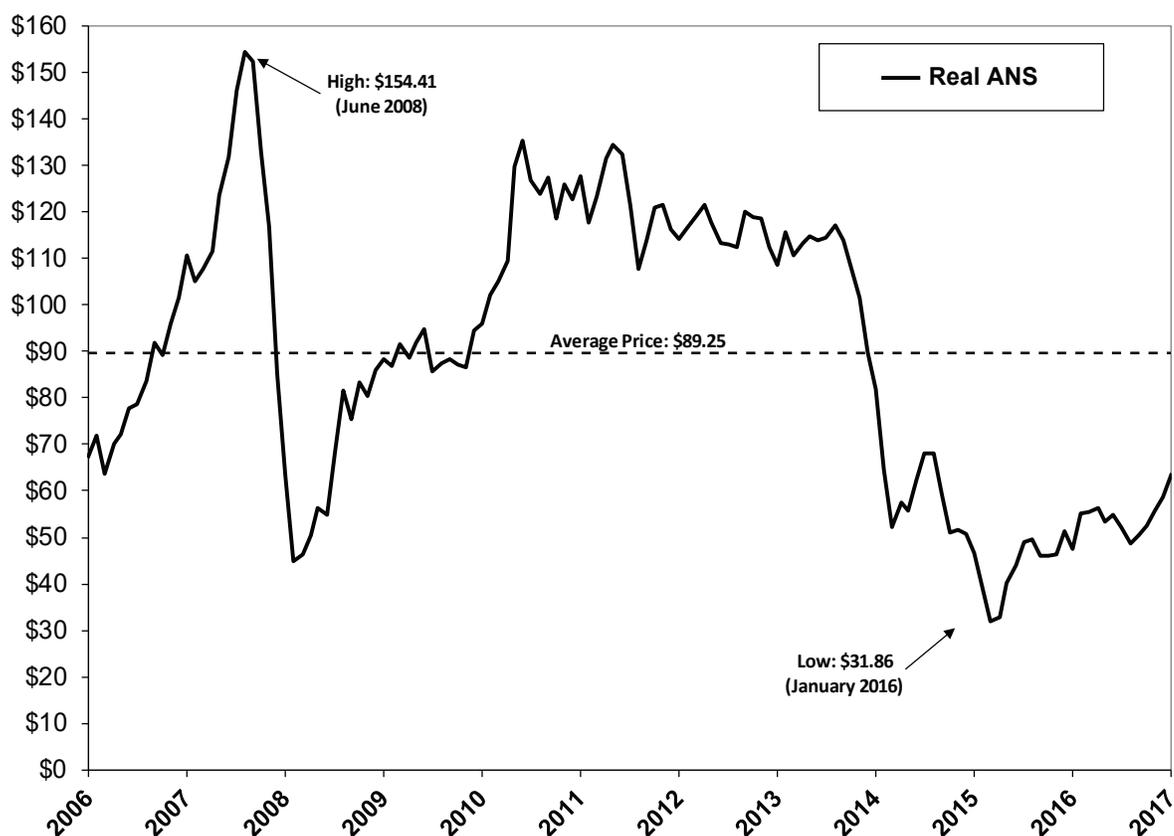
For the last few years, the ANS crude oil price has tracked very closely to the Brent pricing benchmark with ANS pricing at a small discount, on average, to Brent. While Brent has long been the European benchmark crude, over the past several years it has become essentially a global benchmark. Given their status as waterborne crudes, Brent and ANS haven’t had the oversupply and storage distresses that the WTI price market has dealt with since the shale revolution. Both Brent and ANS are waterborne, meaning they can be moved by tanker, and both have access to the Asian market. As a result, the department has gradually shifted toward using Brent as the primary benchmark comparison for oil prices instead of WTI.

Real versus Nominal Prices

Oil price forecasts can be presented in either “real” or “nominal” terms. The nominal oil price is the actual price in a given year, regardless of changes in inflation. This can cause difficulty comparing prices over time. For example, in the early 1970s, oil prices were less than \$3.00 per barrel, which seems very low, because there has been much inflation since then.

ANS Crude Oil Price

2006 to 2017 presented in real 2017 dollars



Real prices attempts to back out inflation to allow a more “apples to apples” comparison to current prices. For example, adjusting for inflation, that \$3.00 oil price in the early 1970s is more like \$19.50 in today’s dollars. This concept is important when considering oil price forecasts over time. In the current forecast, the department projects that oil prices will rise to \$75 per barrel over the coming decade in nominal terms. However, backing out the impact of expected inflation, the projection is for stable real prices around \$60 per barrel. That is, the expected price appreciation is due almost entirely to general inflation and not a change in the fundamental value of a barrel of oil.

Oil Price History

For many decades until about 1970, real oil prices had been fairly stable, at prices that would be considered “low” by recent standards. However, since 1970 there have been several periods of price spikes for various reasons. Examples of inflection points occurred in March 1974, December 1979, October 1990, and December 1998. The early 2000s saw a period of

rising prices, with prices spiking well over \$100 per barrel in mid-2008. Prices tumbled with the Great Recession, but rapidly rose again, with high prices returning for a sustained period. The sustained high prices helped make massive reserves of new types of oil and technology economic, directly leading to the shale oil boom. Eventually, rising U.S. shale production unbalanced world oil markets, and prices began falling in 2014, reaching a low below \$30 per barrel in January 2016. There has been a modest recovery since then, with prices rising steadily to their current value around \$60 per barrel.

Figure 3-A shows a chart of long-term oil prices for the WTI benchmark, while Figure 3-B shows a history of ANS oil prices over the past decade.

State of Alaska’s Approach to Forecasting

The department uses a “Modified Delphi” method to forecast oil prices. This approach utilizes a group

of participants who review various information and outside forecasts, and synthesize all that information to develop a price outlook for ANS crude. The primary benefits of this approach are that it allows consideration of a variety of viewpoints and outside forecasts, and that it does not allow one person to unduly impact the state's oil price expectation.

The day-long forecasting session, held annually, is used as an instrument to bring experts together where valuable insight related to oil price forecasting can be shared, discussed, and explored. DOR economists, other state economists, and outside analysts and experts from the public sector, private sector, and academia attend this session. Presentations are given regarding pertinent information required to make a price forecast. These presentations include information on global commodity markets, oil markets, market structure, world events, and technological breakthroughs that could potentially impact oil markets, as well as review of a range of outside forecasts.

At the end of the forecasting session, each participant submits individual ANS price forecasts for up to 10 years into the future. For each year, a low, median, and high forecast is given by each participant. When all participants' inputs are combined, these define a range of potential future prices. The expected price path and official ANS price forecast are then taken from this price distribution.

In addition to providing a data set for the price forecasting exercise, the price session also serves as a valuable learning opportunity for state economists and other participants. Through the work of preparing for the session, as well as the presentations and discussions in the session itself, agency staff develop expertise in oil market dynamics and pricing issues. This knowledge base supports other modeling and analysis throughout the year and provides a framework through which to structure analysis and evaluate subsequent developments.

History of DOR Forecasts

Oil price forecasts by DOR have generally been conservative indicators of trends to come, until recently when the forecasts did not anticipate the dramatic drop in price that occurred in late 2014 through 2016. A detailed analysis of Alaska's oil price forecasts in 2009 found that while Alaska DOR price forecasts were generally conservative, they were also generally consistent with other mainstream forecasts, like that of the U.S. Energy Information Administration (EIA), and industry analysts.

Oil Market Fundamentals

As a price-taker in the global market, Alaska cannot exert any significant pressure on the future price of oil by altering its level of production. Alaska's production represents about one-half of one percent of the global oil market, with total production and consumption of nearly 100 million barrels per day.

Oil Supply

Oil markets were in a glut, with an excess of supply, from about mid-2014 to late-2016. This oversupply was largely attributable to earlier high prices. The high price of oil at the beginning of the decade led to large investments by oil companies in new production. Much of the new production came from shale oil, which benefited from a large share of the capital investments that were made during the high-price years. Shale oil is more costly to produce than conventional oil, but the high price environment and the faster return on investment from shale oil development provided incentive for companies to add a lot of crude oil production in a relatively short time span.

Lower prices helped curtail some shale projects; however, improved technology and increased efficiency in shale production have allowed many producers to remain competitive in the market even at current prices. OPEC has attempted to limit the glut brought on by the shale oil boom by cutting the amount of oil that its member countries supply to the market. Large OPEC cuts in the last 1½ years have curbed the growth in supply, allowing demand to exceed supply in the last few months.

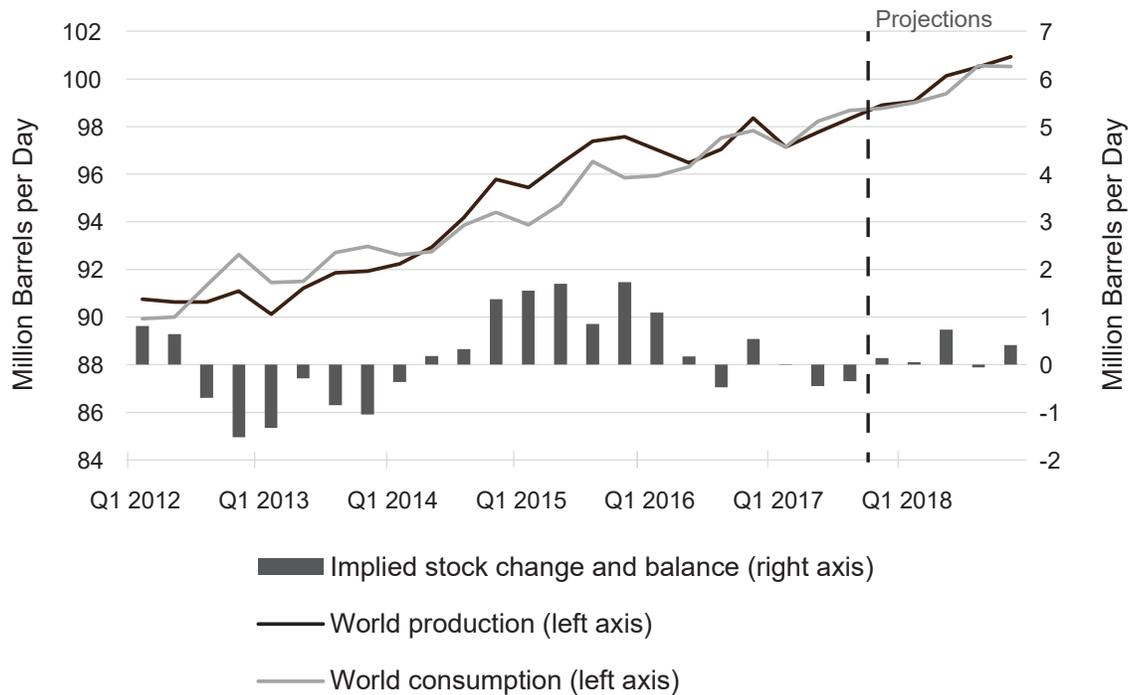
Oil Demand

Global oil demand has continued to grow steadily since 2009. Demand from the developed world has been higher than expected and demand growth from the developing world has held steady. International agencies have been forecasting increasing demand through the end of this year and expect steady demand going into the future. Large Asian economies have been key to steadily rising crude oil demand. China, India, and Russia make up a sizable portion of the increased demand in recent years and are projected to do so going forward.

Across the world, economies have been getting more efficient in terms of oil use – that is, less and less oil is needed for a given level of economic activity. Thus far, oil demand has continued to grow because economic activity has grown fast enough to offset efficiency gains. Looking forward, however, advances in technology and the adoption of green energy

World Liquid Fuels

Production and consumption balances



Source: Short-Term Energy Outlook (November 2017), U.S. Energy Information Administration.

infrastructure have the potential to moderate or even reverse this trend. In particular, increasing market penetration by electric vehicles could signal a shift to the paradigm of continued demand growth. China for example has proposed phasing out internal combustion engines by 2030, and several European countries have announced similar initiatives.

Concerns about demand are real enough that several analysts have warned about the possibility of a “peak demand” in the near future. For example, in a July 2017 research note, Goldman Sachs called for oil to remain in the \$50 range for the foreseeable future, and suggested that in an extreme case global oil demand could peak in 2024. This scenario assumes faster adoption of energy-efficient vehicles, combined with a slowdown in economic growth. At the least, oil demand should be expected to show slower growth in the future than has been the case historically.

Oil Market balance

Figure 3-C shows an analysis of global supply and demand by the U.S. Energy Information Administration. From 2012 to mid-2014, global consumption of oil exceeded supply, and markets were drawing from inventories to meet demand. This undersupplied market

put upward pressure on prices, which exceeded \$100 per barrel for much of this time. Then, as the shale oil boom took off, supply exceeded consumption for several years, helping build up oil inventories and putting downward pressure on prices with an oversupplied market. Recently, since about late-2016, production and consumption have been roughly balanced. The EIA and others expect this market balance to continue, which should help support stability in prices.

Shale Oil Impact

In a balanced market, the risk for a price spike in any direction has lessened, and it is probable that oil prices will stay relatively flat, at least in the medium term. With shale oil now serving as the “swing” producer of oil, any significant increases or decreases in price are likely to be temporary and self-correcting. If markets are oversupplied and prices fall by \$20, drillers will cut back on production, bringing markets back into balance. Likewise, if prices increase by \$20, drillers can quickly add new production, again bringing markets back into balance. The key difference between the current market and historical markets is that shale oil production can be ramped up or down much quicker than conventional fields in response to market signals. Whereas a conventional field takes years to

develop and can produce for decades, a shale well can be brought online in a matter of months with the majority of production coming in the first year.

Price Forecast Comparisons

Alaska's oil price forecast in this fall 2017 forecast assume that prices will stabilize around \$60 in real terms over the long run. Adjusting for inflation, this means that prices are expected to rise to around \$75 over the next decade. Several other sources of oil price forecasts are reviewed for comparison purposes to the department's forecast. In general, these sources provide credence to the department's current outlook.

Other states and countries

Many other jurisdictions rely on oil revenue for government operations. Following are a few examples.

- Texas publishes a forecast every other year, generally in November. The State of Texas has forecasted the WTI oil price to be \$50 for FY 2018, increasing to \$53 per barrel in FY 2019, and increasing to about \$70 per barrel by FY 2027 (in nominal terms). Adjusting for the current ANS / WTI differential, Alaska's forecast is very similar to Texas'.
- Louisiana uses data and empirical equations for its forecast. The price forecast is based on an average of WTI projections completed by Moody's, EIA, and the Louisiana Department of Natural Resources' projection of the spot price of oil. Louisiana has forecasted the price of oil to be \$51.41 per barrel for FY 2018 and \$51.12 per barrel in FY 2019, increasing nominally to just over \$52 per barrel by FY 2022. Adjusting for the current ANS / WTI differential, Alaska's forecast is actually somewhat higher than Louisiana's.
- As of mid-2017, Russia planned to stick to a conservative assumption for oil prices in order to draft the country's budget for the next three years. The Russian government made a \$40 per barrel forecast that has been reaffirmed for the near-term with Economy Minister Maxim Oreshkin naming supply as the main culprit of the downward pressure on price. Also Oreshkin stated while speaking at a government meeting in context of their fiscal plan, "Keeping the level of \$40 per barrel in real terms over the next three years looks more than reasonable." Russia's forecast is rather conservative compared to Alaska's current forecast.

U.S. Energy Information Administration

The U.S. Energy Information Administration publishes both the Annual Energy Outlook and the Short-Term Energy Outlook, providing annual and monthly forecasted oil prices, respectively. The EIA releases both a WTI and a Brent price forecast. Given that Alaska crude has traded much closer to Brent for the past several years, EIA's Brent forecast is viewed as the most useful comparison to the department's forecast. As of November 2017, the EIA forecasts the Brent crude oil price to be about \$51 per barrel in FY 2018, and the agency expects that price to rise to around \$55 per barrel by the end of 2018.

The EIA also provides long-term projections. These projections are estimated using an in-depth econometric model that takes into account forecasts of domestic and international market factors, projected demand of petroleum end products by consumers and industries, and other macroeconomic variables. The EIA has projected the long-term Brent crude oil price to be about \$90 per barrel in real terms (in 2017 dollars) by FY 2027. However, this forecast is likely somewhat "stale" as it was released in January 2017, which means the actual forecast was made sometime in 2016 – more than a year ago. The next EIA long-term forecast will be released in January 2018.

Alaska's current price forecast is in a similar range as the EIA's for the next couple years, but it is quite a bit lower than the EIA's long-term forecast. This long-term discrepancy is likely due to timing; the EIA's more recent short-term forecasts suggest a lower price than the agency's older, long-term forecast.

Futures Market

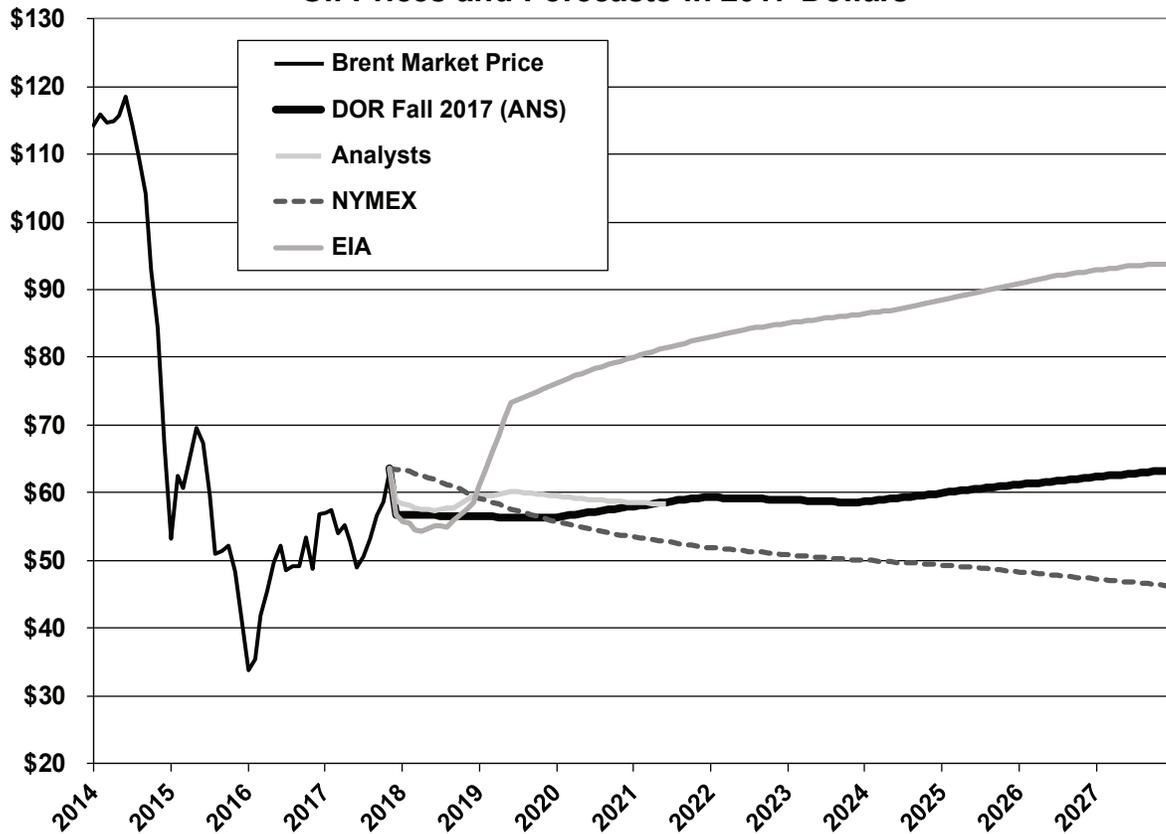
The New York Mercantile Exchange (NYMEX) and other exchanges provide the ability to trade crude oil contracts for future delivery. Futures contracts for the next year or two are widely traded on a daily basis and are a great indicator of oil market conditions. Looking out several years, futures contracts are also available, but are traded more thinly and may not be as reliable of an indicator of future prices. Current NYMEX pricing for Brent as of mid-November 2017 suggests prices will steadily fall in the near term, from a current price of \$63 per barrel to \$56 by 2020. The futures market has real Brent prices falling to about \$52 per barrel by 2022, and further decreasing to \$50 per barrel in real terms by the end of 2024.

Compared to the futures market, the department's current price forecast is slightly below the futures market for the near term, then slightly above the futures market for the long term.

A Comparison of Crude Oil Price Forecasts

In real 2017 dollars

Oil Prices and Forecasts in 2017 Dollars



Sources: Analyst forecast is an average of 12 firms from a Bloomberg survey as of Nov. 16, 2017. Futures prices are from the New York Mercantile Exchange (NYMEX) as of Nov. 20, 2017. The U.S. Energy Information Administration (EIA) forecast is a combination of November 2017 Short-Term Energy Outlook (through 2018) and 2017 Annual Energy Outlook (2019-2027). Forecasts are adjusted using Alaska Department of Revenue's 2.25% inflation assumption.

Oil Market Analysts

Numerous financial firms employ market analysts who regularly make forecasts of oil prices. Looking at a survey of analyst forecasts provides a general view of where the analyst community sees prices trading in the future. As of mid-November 2017, the average analyst forecast for the price of Brent crude oil is about \$53 per barrel in FY 2018, rising to \$55 per barrel in FY 2019. On average, analysts have forecasted the price of Brent crude to level out at \$60 per barrel in real terms by the end of FY 2022. While price forecasts vary, there seems to be a general consensus among many analysts that oil prices will not substantially exceed \$60 per barrel for a number of years, due to the capabilities of dynamic shale production.

One prominent example is Goldman Sachs, well known for successfully predicting "lower for longer"

a few years back; Goldman now sees prices averaging in the \$50s for the "foreseeable future." The company's rationale is that the ability to rapidly add shale production with any price increase, combined with slower global economic growth, will limit the possibilities for any prolonged upward movements in oil prices.

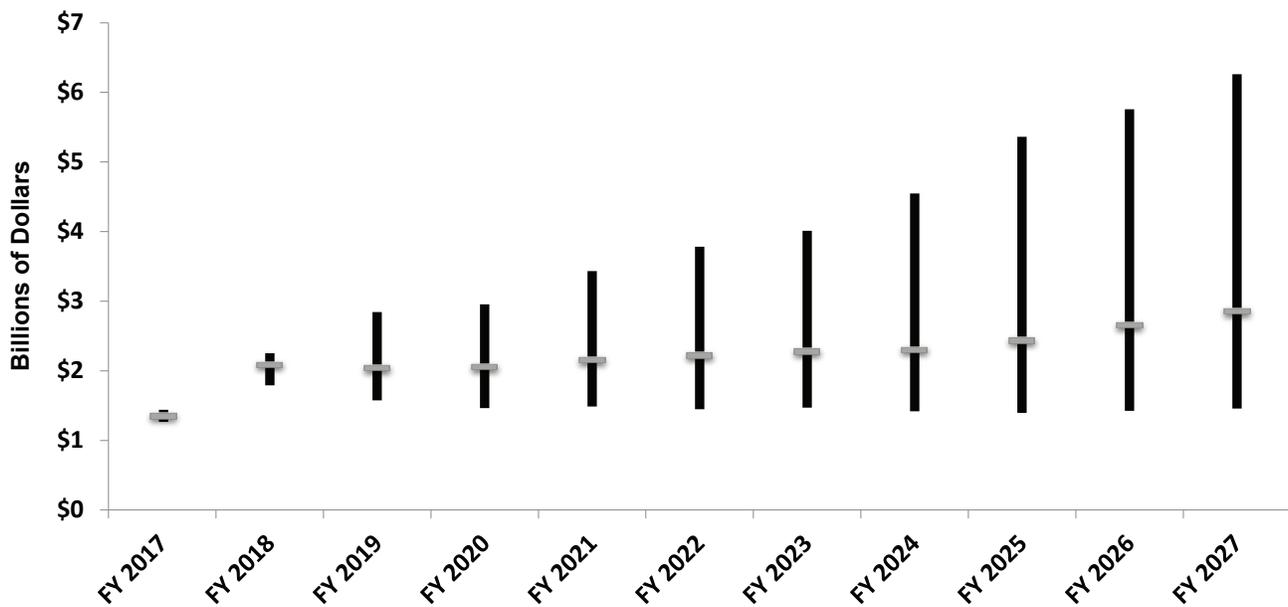
The department's current oil price forecast is roughly in line with analyst expectations for the next several years. Most analysts only forecast for a few years out, however, so long-term comparisons are challenging to make.

Oil Executives

From the point of view of oil companies and their representatives, their outlook for the oil industry appears to be cautiously optimistic. A report by Deloitte produced in 2016 surveyed leadership at numerous

General Fund Unrestricted Revenue Sensitivity

Range of outcomes with higher or lower oil prices,¹ FY 2017-FY 2027



¹This chart shows estimated unrestricted revenue at forecast oil prices as well as a high (P90) and low (P10) case, holding all other variables constant.

oil companies to evaluate the oil and gas industry for 2017 and beyond. In addition to a price expectation, the report identified several factors that would influence future pricing.

Positive factors:

- Supply and demand imbalances seem to be tightening.
- Most outlooks called for supply and demand equilibrium starting by early 2017.
- OPEC announced production cuts.
- Global and U.S. oil demand continues to show moderate but steady growth.
- Oil companies have learned how to operate in a lower price environment, returning to a healthier focus on capital and operating cost discipline.

Dampening factors:

- Iran could bring more production online.
- U.S. production could begin to ramp back up.
- Massive crude oil and refined product inventories have been built up during this downturn that may take time to go down even when demand exceeds supply.
- Confidence in big capital projects will likely take more time to reestablish.

It's true that most of these factors have been seen in 2017 to varying degrees, which has led to a steady increase in price. However, Deloitte also mentioned longer-term issues beyond the dampening factors identified above. From the Deloitte report, "Big picture issues often cloud the longer term of the industry. Climate change concerns, the rise of the electric vehicle, self-driving vehicles, and ride sharing make historical estimates of perpetual demand growth seem less likely than they once did. Some large oil companies are even predicting peak demand within the next 20 years."

In a more recent development, Deloitte published a survey in October 2017 polling more than 250 oil and gas executives. According to the survey, 64% of those polled believe that oil prices will be between \$40 and \$50 per barrel for 2017 and 2018, and that the overall sentiment toward the price of oil has switched to one of caution, compared to overwhelming optimism just a year ago.

That is, while oil companies obviously benefit from the recent run-up in oil prices, there is concern that prices will moderate in the future. This view is shared by the Department of Revenue; while recent prices have been in the low- to mid-\$60s in mid-November 2017, it is expected that prices will not advance much further and may even decline somewhat over the next year.

Implications of Oil Price Forecast

Oil Price Impact on Revenue

Alaska's revenue is dominated by oil, and oil price is still the most sensitive variable for determining state revenue. At current prices, and those expected over the next several years, each \$1 increase or decrease in price translates to approximately \$30 million in state unrestricted revenue. At higher prices, the relationship becomes stronger, and each \$1 change in price translates to an \$80 million to \$90 million change in unrestricted revenue. The difference has to do with progressive elements in the production tax system. Below about \$65 to \$70 per barrel, Alaska's production tax is essentially a gross tax of 4% of value, while above that "crossover point," the 35% net profits tax (offset by a per-taxable barrel credit) is paid. See Chapter 4 for more discussion of the production tax.

Figure 3-E shows a comparison of unrestricted revenues under the fall 2017 forecast, with prices settling to around \$60 in real terms (in 2017 dollars), as well as under a "high case" price that reaches \$95 in real terms by FY 2027, and a "low case" price that reaches \$30 in real terms by FY 2027. While outside forecasts and fundamental changes to the oil market lend support to the department's expected price path, the high- and low-case prices show a range of possible revenue levels going forward. Users of any forecast should be cognizant that it represents one possible scenario amongst a range of possible outcomes.

Uncertainty

Oil price forecasting remains extremely uncertain, especially in the long term. As mentioned earlier in this chapter, the EIA projects oil prices well into the long term, about 30 years into the future. The agency lays out a reference case, a high-price case, and a low-price case. These cases each represent a different environment in which oil prices evolve. The EIA's reference case has the Brent price increasing to \$90 per barrel by 2027. EIA's high-price case, which illustrates the impact of higher world demand for petroleum products, lower OPEC upstream investment, and higher non-OPEC exploration and development costs, has a potential high price of \$195 by 2027. The low-price case, illustrating the impact of lower world demand for petroleum products, higher OPEC upstream investment, and lower non-OPEC exploration and development costs, projects a minimum low price of \$32 per barrel.

The likelihood of shock events, such as natural disasters, military escalation, or unexpected changes in the global economy, adds to the uncertainty

around worldwide supply and demand for crude oil. Wood Mackenzie, a large consultancy group, recently warned that an open military conflict with North Korea could disrupt trading of more than one-third of global waterborne crude oil. The 2017 hurricane season dealt several blows to oil markets, especially those on the U.S. Gulf Coast. Hurricane Harvey alone caused overall U.S. oil production to drop 1.5% in the month of September. As miniscule as these events may seem when compared to long-term trends, geopolitics and unforeseen disasters always have the potential to greatly affect the price of crude oil, at least temporarily.

Over the medium and long term, however, the fundamentals of supply and demand should determine the path of oil prices, and one must look at the marginal cost of bringing on additional supply. Currently, there exists significant additional supply that becomes economic in the \$50 to \$60 per barrel range, and most analysts believe that this price environment is the new market equilibrium for the foreseeable future. While upside risk exists due to market shocks and events, there also exists downside risk with further reductions in cost for new supplies or demand switching away from oil. An economic recession could also lead to a drop in prices for a period of time.

Conclusion

By relying so heavily on oil revenues, Alaskans are at the mercy of the global forces and factors that determine oil prices. Participants who help set the price forecast cited concerns about long-term demand coupled with a persistent supply as main drivers of future oil prices. This falls into line with the overall global consensus on what crude oil price behavior will be in the future. Oil prices are quite likely to remain range-bound around the mid-\$50s up to \$60 per barrel in real terms for the foreseeable future. Of course, volatility will likely continue with prices moving higher or lower for periods of time.

While prices are expected to remain around current levels, it would also be prudent for the State of Alaska to make contingency plans to survive an even lower long-term price that could be brought about by decreasing demand. Developments in alternative energy and efficient technologies are cause for serious concern about future demand destruction. While we certainly can't plan on it, Alaska could also see higher prices for a period of time. But, given concerns about demand and robust unconventional oil reserves, any windfall from a significant upward price move will likely be temporary and self-correcting.

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Chapter 4 Petroleum Revenue

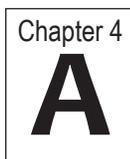
General Discussion

The four major sources of state revenue from oil and gas production are severance tax, royalties, property tax, and corporate income tax. This chapter describes each of these sources, discusses the methods used to create the forecast, and provides a forecast of each source.

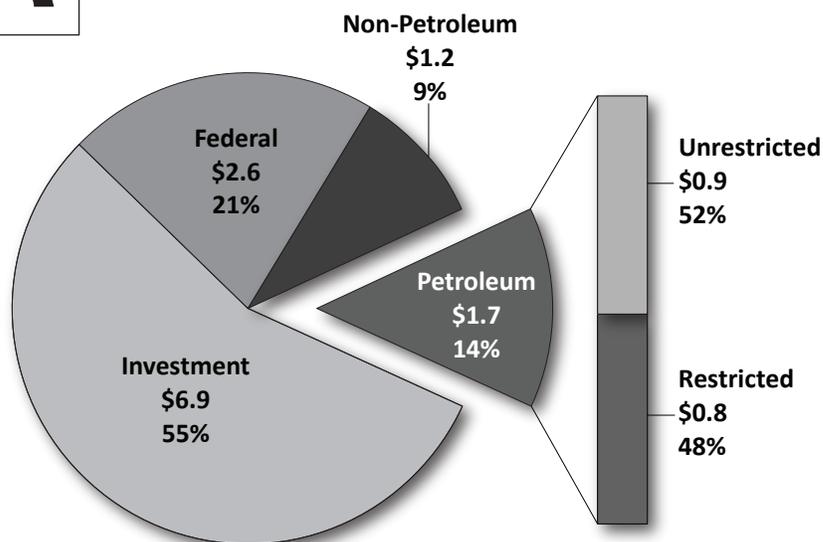
Severance tax (often referred to as a production tax) is imposed on a producer when the resource is severed (or extracted) from land in Alaska. Royalties are payments to the owners of the land and represent a percentage of production. Property tax is collected as a percentage of the value of taxable oil and gas property. Corporate income tax is levied on oil and gas C-corporations as a percentage of their worldwide net income apportioned to Alaska.

As shown in Figure 4-A, revenue from petroleum accounted for 14% of total state revenue in Fiscal Year 2017. Petroleum revenue was a combination of unrestricted general fund revenue, which is available for the Alaska Legislature to appropriate for general operations and capital projects (52% of petroleum revenue), and restricted revenue, which has some limitation on its use (48% of petroleum revenue).

Most of the revenue from production tax is unrestricted, while a portion of royalty revenue is placed into funds that are restricted. The Public School Trust Fund receives 0.5% of royalty revenue. The Alaska Constitution requires that 25% of royalty revenue be deposited into the Permanent Fund, and in FY 2018 only this constitutionally required portion of royalty was appropriated to the Permanent Fund per legislative action. However, AS 37.13.010(a) specifies that



FY 2017 Petroleum Revenue By restriction and type, in billions of dollars



Total Petroleum Revenue

By restriction and type

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
Unrestricted Petroleum Revenue			
Petroleum Property Tax	120.4	117.2	110.8
Petroleum Corporate Income Tax	-59.4	130.0	170.0
Oil and Gas Production Tax	134.4	457.8	338.8
Royalties (including Bonuses, Rents and Interest)	680.9	856.1	817.2
Total Unrestricted Petroleum Revenue	876.4	1,561.1	1,436.8
Increase/Decrease from Prior Period	-233.2	684.8	-124.3
Percent Change from Prior Period	-21.0%	78.1%	-8.0%
Restricted Petroleum Revenue			
Other Restricted			
Royalties, Bonuses and Rents to the Alaska Permanent Fund	334.5	287.3	345.6
Royalties, Bonuses and Rents to the Public School Trust Fund	6.0	5.7	5.8
Tax Settlements to Constitutional Budget Reserve Fund	481.9	100.0	100.0
Subtotal Other Restricted	822.4	393.0	451.4
Federal			
NPR-A Royalties, Rents and Bonuses	1.4	12.1	5.6
Total Restricted Petroleum Revenue	823.7	405.1	457.0
Increase/Decrease from Prior Period	305.9	-418.6	51.9
Percent Change from Prior Period	59.1%	-50.8%	12.8%
Total Petroleum Revenue	1,700.1	1,966.2	1,893.8
Increase/Decrease from Prior Period	72.7	266.1	-72.4
Percent Change from Prior Period	4.5%	15.7%	-3.7%

50% of royalty revenue from certain mineral leases be deposited into the Permanent Fund, and in years in which the appropriation follows this statute, roughly 31% of oil and gas royalty revenue is deposited into the Permanent Fund.

The state also receives payments from the federal government representing a share of the bonuses, rents, and royalties derived from federal oil and gas leases in the National Petroleum Reserve-Alaska (NPR-A). These funds are deposited into a special NPR-A fund and are considered "federal revenue."

The state periodically receives settlements from tax and royalty disputes between the state and taxpayers. These payments are deposited into the Constitutional Budget Reserve Fund (CBRF), after accounting for any applicable share of royalty settlements de-

posited into the Permanent Fund and Public School Trust Fund.

Table 4-1 shows both restricted and unrestricted petroleum revenue collected from each source in FY 2017 and forecasts for FY 2018 and FY 2019. Table 4-2 shows the 10-year forecast of unrestricted revenue from these sources.

Production Tax

Oil and natural gas produced and sold from lands within Alaska are subject to a severance tax as the resources leave the land. This severance tax is commonly referred to as the "production tax." The production tax applies to oil and gas produced from any area within the boundaries of the state, including lands

Unrestricted Petroleum Revenue

FY 2017 and FY 2018-2027 Forecast

Millions of Dollars

Fiscal Year	History		Forecast								
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Petroleum Property Tax	120.4	117.2	110.8	108.1	106.3	104.9	103.3	101.5	99.6	97.3	94.8
Petroleum Corporate Income Tax	-59.4	130.0	170.0	180.0	225.0	240.0	250.0	255.0	260.0	270.0	285.0
Oil and Gas Production Tax ¹	134.4	457.8	338.8	343.9	356.5	364.9	392.4	381.5	448.0	592.0	717.2
Royalties-Net ²	680.9	856.1	817.2	808.1	830.8	855.3	853.8	866.3	909.1	954.5	996.4
Total Oil Revenue	876.4	1,561.1	1,436.8	1,440.1	1,518.6	1,565.2	1,599.5	1,604.3	1,716.7	1,913.7	2,093.4
Increase/Decrease from Prior Period	-233.2	684.8	-124.3	3.3	78.5	46.5	34.4	4.8	112.4	197.0	179.7
Percent Change from Prior Period	-21.0%	78.1%	-8.0%	0.2%	5.5%	3.1%	2.2%	0.3%	7.0%	11.5%	9.4%

¹ Includes hazardous release and conservation surcharge revenues.

² Includes bonuses, rents, and interest.

that are owned by the State of Alaska, the federal government (like NPR-A), or private parties, such as Native corporations. State ownership of submerged lands extends 3 miles from the shore. Production tax applies only to oil and gas that the producer sells, so it excludes state royalties, gas used in lease operations or flared for safety reasons, and any production that is re-injected into the reservoir.

In 2013, the Legislature passed Senate Bill 21, which is the existing production tax regime applicable to oil and gas production in the state, including North Slope oil production. Adjustments and refinements to the production tax system were made in both 2016 with House Bill 247, and in 2017 with House Bill 111. Table 4-3 lists the major provisions of the production tax and how those provisions were changed or maintained with the most recent tax change. The following narrative describes the current production tax system for various areas of the state and types of production, and includes changes made by HB 247 and HB 111.

North Slope

For North Slope oil and export gas, the tax uses the concept of “production tax value” (PTV), which is the gross value at the point of production minus lease expenditures. PTV is similar in concept to net profit, but different in that all lease expenditures can be deducted in the year incurred; that is, capital expenditures are not subject to a depreciation schedule. The

production tax rate is 35% of PTV with an alternative minimum tax of 0% to 4% of gross value, with the 4% minimum tax applying when average ANS oil prices for the year exceed \$25 per barrel. Lower rates would apply if the yearly average price is below \$25 per barrel.

Several tax credits and other mechanisms are available for North Slope oil production to incentivize additional investment. A Per-Taxable-Barrel Credit is available, which is progressively reduced from \$8 per barrel to \$0 as wellhead value increases from \$80 per barrel to \$150 per barrel. A company that chooses to take this credit may not use any other credits to reduce tax paid to below the gross minimum tax.

An additional incentive applies for qualifying new production areas on the North Slope. The so-called gross value reduction (GVR) allows a company to exclude 20% or 30% of the gross value for that production from the tax calculation. Qualifying production includes areas surrounding a currently producing area that may not be otherwise commercial to develop, as well as certain new oil pools. Oil that qualifies for this GVR receives a flat \$5 per-taxable-barrel credit rather than the sliding-scale credit available for most other North Slope production. As a further incentive, this \$5 per-taxable-barrel credit can be applied to reduce tax liability below the minimum tax. Effective Jan. 1, 2017, the GVR is only available for the first seven years of production, and ends early if ANS prices exceed

\$70 per barrel for any three years. An estimate of how much oil might be eligible for the GVR incentive is included in Table 4-7 in the production portion of this chapter.

Effective Jan. 1, 2022, for North Slope export gas, the tax rate will be 13% of the gross value at the point of production. Currently only a very small amount of gas is technically export gas, which is sold for field operations in federal offshore leases. However, this tax rate would apply to a major gas export project. Senate Bill 138, passed in 2014, allows for the state to accept payment of this 13% gross tax as gas in-kind.

For the North Slope, a Net Operating Loss (NOL) Credit in the amount of 35% of losses is available until Dec. 31, 2017. This credit can be carried forward to offset a future tax liability or in some cases transferred or repurchased by the state. Beginning Jan. 1, 2018, the NOL credit will be replaced with a new carried-forward annual loss provision. In lieu of credits, a company may carry forward 100% of lease expenditures not applied against tax, and may apply all or part in a future year. A carried-forward annual loss may not reduce tax below the minimum tax, and can only be used upon commencement of regular production from the area in which the expenditures were incurred. This provision is known as “ring fencing” of the loss. An unused carried-forward annual loss will reduce in value by one-tenth each year beginning in the eighth or 11th year after it is earned, depending on whether the carried-forward annual loss was earned from a producing or non-producing area.

Cook Inlet

Cook Inlet oil production is officially subject to the same tax rate of 35% of PTV. However, prior to Jan. 1, 2017, the tax was limited to a maximum of zero dollars per barrel; after Jan. 1, 2017, the tax is limited to a maximum of \$1.00 per barrel.

For Cook Inlet gas production, the tax rate is 35% of PTV, and the tax is limited to a maximum value averaging 17.7 cents per 1,000 cubic feet. This rate also applies to North Slope gas used for qualifying in-state uses, commonly referred to as non-export gas. Cook Inlet tax incentives include the Qualified Capital Expenditure (QCE) Credit, the Well Lease Expenditure (WLE) Credit and the Net Operating Loss (NOL) Credit. With HB 247 passed in 2016, these credits are being phased out for Cook Inlet. The QCE credits were reduced from 20% to 10% on Jan. 1, 2017; the WLE credits were reduced from 40% to 20% on Jan. 1, 2017; and the NOL credits were reduced from 25% to 15% on Jan. 1, 2017. All three credits are eliminated on Jan. 1, 2018, for Cook Inlet.

Middle Earth

Areas outside the North Slope and Cook Inlet are commonly referred to as “Middle Earth.” Middle Earth currently has no production and a relatively small amount of exploration activity. For Middle Earth, the QCE and WLE credits were reduced for 2017 along with Cook Inlet credits as part of HB 247. However, these credits remain in place at the reduced rates beyond Jan. 1, 2018 (10% QCE and 20% WLE). For Middle Earth, the 15% NOL credit is eliminated on Jan. 1, 2018, and replaced with a carried-forward annual loss provision similar to North Slope.

Should oil or gas be produced from Middle Earth, it would nominally be subject to the statewide tax rate of 35% of PTV. However, a tax ceiling of 4% of gross value would apply for the first seven years of production, as long as production begins prior to Jan. 1, 2027.

Other Provisions

A Small-Producer Credit of up to \$12 million per company is available for certain companies statewide; however, as of mid-2016, this credit will gradually phase out as it can only be taken for nine years from first production. New companies are no longer eligible to take the credit.

Statewide, for oil produced from private lands, the state levies a production tax on the value of private landowner royalty interest, in the amount of 5% of gross value for oil and 1.667% for gas. Tax credits cannot be used to offset this portion of the tax.

The production tax includes several other nuances and provisions beyond the brief description provided here. For more information about the various tax credits, including a 10-year forecast, see Chapter 8.

Revenue from production tax is estimated on a company-specific basis by forecasting the components used in the tax calculation, then subtracting estimated tax credits. Under a net value tax regime, these components include the price of oil, cost of transportation, cost of production, and volume of production for each field.

Based on a number of assumptions, the Department of Revenue develops reasonable estimates for how the components of the production tax calculation might behave in the future. There is a high degree of uncertainty in forecasting the components, and small deviations from the forecast values in any one component can result in large variations in total reve-

Production Tax: Before and After House Bill 111

A look at key provisions and changes

North Slope

Provision	Senate Bill 21 ¹	House Bill 111 (Current Law)
Base Tax Rate (applied to Production Tax Value)	35%	No change.
Minimum Tax Floor (applied to Gross Value at Point of Production)	Up to 4%. 4% rate applies when the Alaska North Slope price is more than \$25/barrel. Some credits can apply against minimum.	No change.
Gross Value Reduction	20% or 30% of gross value excluded from the tax calculation; limited to first seven years of production; benefit ends early if the average ANS price exceeds \$70 for any three years.	No change.
Per-Taxable-Barrel Credit for Non-GVR Production	Sliding scale \$0/barrel to \$8/barrel. \$8 credit applies when wellhead price is less than \$80/barrel. Cannot apply against the minimum tax.	No change.
Per-Taxable-Barrel Credit for GVR Production	\$5/barrel, no sliding scale. Can apply against minimum tax.	No change.
True-Up of Per-Taxable-Barrel Credit	Unused Per-Taxable-Barrel Credits <u>can</u> be used to offset tax liability in other months of the calendar year.	No change.
Net Operating Loss Credit	35%; amount of loss <u>cannot</u> be increased by GVR.	Credit eliminated Dec. 31, 2017, no state purchase of credits earned after July 1, 2017.
Lease Expenditures Carryforward	None.	Beginning Jan. 1, 2018, a company may carry forward lease expenditures not deducted against tax, and may apply in future year to reduce liability to minimum tax, contingent on the production from the area earned. Carryforwards reduce in value by one-tenth each year beginning in the eighth or 11th year after it is earned.

Cook Inlet

Provision	Senate Bill 21 ¹	House Bill 111 (Current Law)
Base Tax Rate (applied to PTV)	35%.	No change.
Tax Ceiling – Oil	\$1/barrel, permanent tax ceiling.	No change.
Tax Ceiling – Gas	Average 17.7 cents/thousand cubic feet (mcf), permanent tax ceiling.	No change.
Qualified Capital Expenditure Credit	10% for 2017, then repealed Jan. 1, 2018.	No change.
Well Lease Expenditure Credit	20% for 2017, then repealed Jan. 1, 2018.	No change.
Net Operating Loss Credit	15% for 2017, then repealed Jan. 1, 2018.	15% for 2017, then repealed Jan. 1, 2018; no state purchase of credits earned after July 1, 2017.

Production Tax: Before and After House Bill 111

A look at key provisions and changes

Middle Earth

Provision	Senate Bill 21 ¹	House Bill 111 (Current Law)
Base Tax Rate (applied to PTV)	35%.	No change.
Tax Ceiling	4% of gross value for the first seven years of production, if production begins before 2027.	No change.
Capital, Well Lease, Expenditure Credits	Credits maintained at 2017 rates (10% QCE, 20% WLE).	No change.
Net Operating Loss Credit	15%.	15% for 2017, then repealed Jan. 1, 2018; no state purchase of credits earned after July 1, 2017.
Lease Expenditures Carryforward	None.	Beginning Jan. 1, 2018, a company may carry forward lease expenditures not deducted against tax, and may apply in a future year to reduce liability to zero, contingent on production from the area earned. Carryforwards reduce in value beginning in the 8th or 11th year after earned.
Exploration Tax Credits	30% or 40% for qualifying exploration, expires Jan. 1, 2022. For qualifying new areas, 75% credit for seismic sunsetted July 1, 2016, but 80% well credit applies to wells drilled or spudded prior to July 1, 2017.	30% or 40% for qualifying exploration, expires Jan. 1, 2022, does not apply to seismic after Jan. 1, 2018. For qualifying new areas, 80% well credit applies to certain wells drilled or spudded prior to July 1, 2017. Credits can be applied against a company's own corporate tax liability.

Statewide/Other

Provision	Senate Bill 21 ¹	House Bill 111 (Current Law)
Tax Ceiling for "Gas Used in State"	Qualifying gas is taxed at Cook Inlet rate, permanent tax ceiling.	No change.
Interest Rate on Delinquent Taxes	7% above the Federal Reserve discount rate, compounded quarterly, for first three years; zero interest thereafter.	5.25% above the Federal Reserve discount rate, compounded quarterly, for all tax types.
Credits for Tax-Exempt Entities	Credits earned only for lease expenditures subject to tax.	No change.
Small-Producer Credits	Up to \$12 million per company for first nine years of production, can apply against minimum tax; must begin production before May 1, 2016.	No change.
Retroactive Use of Credits	Credits can only be used against current or future tax liabilities.	Tax credit certificates (including transferred) may be used to offset certain prior-year taxes.
Alaska-Hire Preference for Tax Credits	DOR must give credit purchase priority based on ranking of Alaska-hire percentage, including contractors.	No change.
Production and Per-Company Limits for Repurchased Credits	\$70 million per company per year. First \$35 million at full value; next \$35 million may be purchased at 75% of value at company option. Only companies with less than 50,000 barrels of oil-equivalent production are eligible.	No change.
Phase-Out of Oil and Gas Tax Credit Fund	None.	Eliminates eligibility for state purchase for any credits earned after July 1, 2017, except for Refinery, and LNG Storage Credits.

¹As modified by HB 247 in 2016.

Chapter 4
4

ANS Oil and Gas Production Tax

Data summary

Fiscal Year	History	Forecast	
	2017	2018	2019
North Slope Price (dollars per barrel)			
ANS West Coast	49.43	56.00	57.00
Transit Costs and Other	9.70	9.80	9.86
ANS Wellhead	39.73	46.20	47.14
North Slope Production (thousand barrels per day)			
Total ANS Production	526.5	533.4	525.7
Royalty and Federal ¹	68.4	64.2	62.6
Taxable Barrels	458.1	469.2	463.1
North Slope Lease Expenditures^{2,3} (millions of dollars)			
Total North Slope Lease Expenditures			
Operating Expenditures (OPEX)	2,925.3	2,746.0	2,845.2
Capital Expenditures (CAPEX)	1,875.2	1,811.6	2,572.1
Total North Slope Expenditures	4,800.5	4,557.5	5,417.2
Deductible North Slope Lease Expenditures			
Operating Expenditures (OPEX)	2,835.6	2,688.8	2,774.9
Capital Expenditures (CAPEX)	1,646.8	1,547.0	1,753.6
Deductible North Slope Lease Expenditures	4,482.4	4,235.9	4,528.6
State Production Tax Revenue⁴			
Tax Revenue (millions of dollars)	134.4	457.8	338.8
Production Tax Collected per Taxable Barrel (dollars per barrel)	0.8	2.7	2.0
Statewide Production Tax Credits^{2,5} (millions of dollars)			
Credits Used Against Tax Liability	493.0	1,080.0	1,062.0
Credits for Potential Purchase	30.5	77.0	818.0

¹ Royalty and Federal barrels represent the Department of Revenue's best estimate of barrels that are not taxed. This estimate includes both state and federal royalty barrels, and barrels produced from federal offshore property.

² Lease expenditures and credits used against tax liability for FY 2017 were prepared using unaudited company-reported estimates.

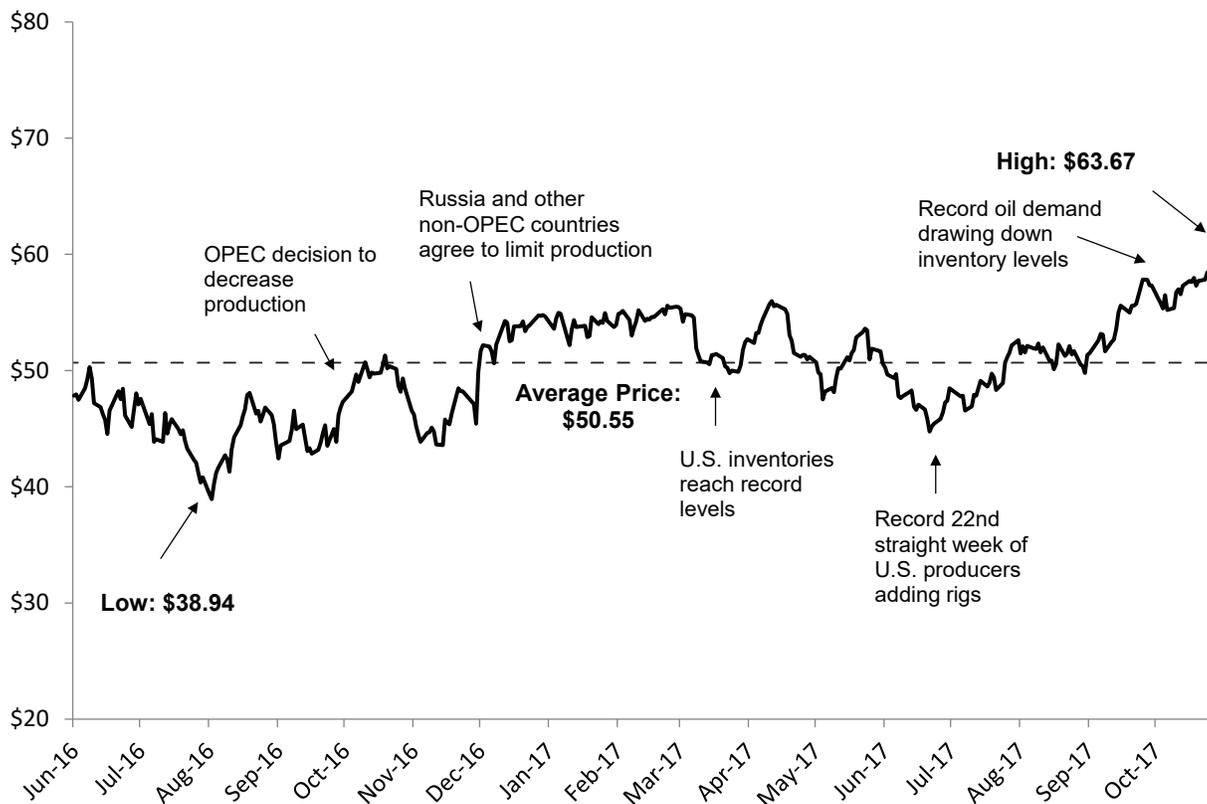
³ Expenditure data for FY 2018 and FY 2019 are compiled from company-submitted expenditure forecast estimates and other documentation as provided to the department. Expenditures are shown here in two ways: (1) total estimated expenditures including for those companies with no tax liability; and (2) estimated deductible expenditures for only those companies with a tax liability.

⁴ Production tax is calculated on a company-specific basis, therefore the aggregated data reported here will not generate the total tax revenue shown. For an illustration of the tax calculation, see Appendix Tables E-1, E-2, and E-3.

⁵ Production tax credits shown include all production tax credits and all areas of the state. Assumptions for the \$12 million credits for small Alaska producers are included in the table. Per-Taxable-Barrel Credits for oil not eligible for the gross value reduction may not reduce a producer's liability below the minimum tax; that limitation is reflected in these estimates.

Alaska North Slope Crude West Coast Price

Paired with associated market events



nue. What follows is a description of each component and the method used to forecast that component. These component forecasts are used to develop the forecast of revenue from oil and gas production tax for the next 10 years as seen in Table 4-2. Various tax credits that are subtracted in arriving at this calculation, as well as estimates of additional tax credits eligible to be purchased by the state, are discussed in Chapter 8.

Crude Oil Prices

The future price of crude oil is the most sensitive variable in the revenue forecast and is also the most prone to uncertainty. As a price-taker in the global market, Alaska cannot exert any significant pressure on the future price of oil by altering its level of production. Rather, oil prices are determined on a global basis, reflecting fluctuations in supply and demand.

A 10-year forecast of Alaska North Slope (ANS) oil prices, along with the inferred wellhead values, can be found in Table 4-5. Appendix B includes a 10-year history and a 10-year forecast of these values in nominal

and real terms, as well as comparisons to the spring 2017 forecast.

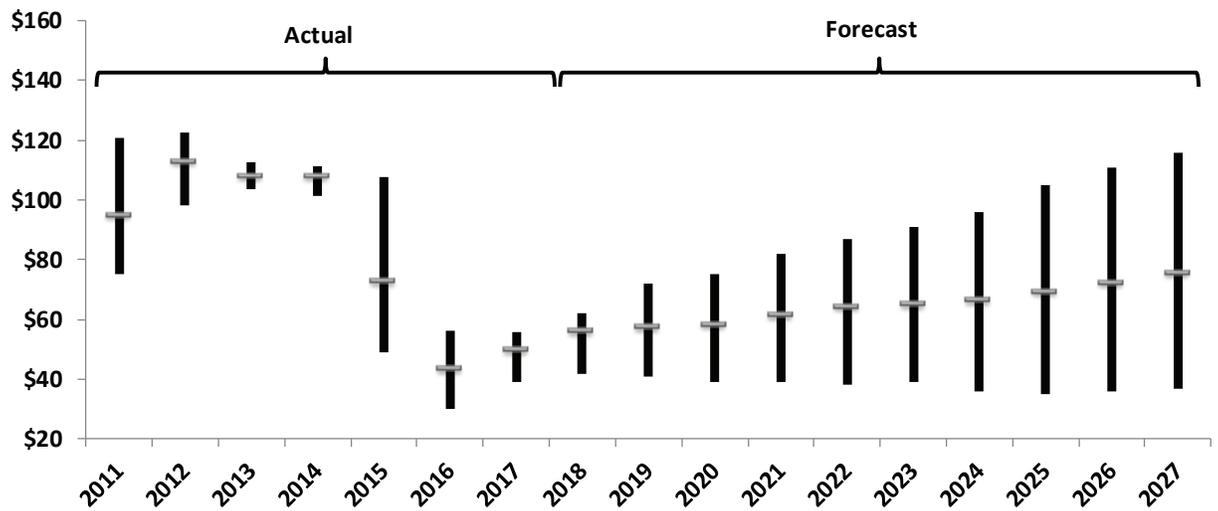
Several major factors contribute to the pricing of oil on the world market, including but not limited to: 1) inventory levels, 2) infrastructure, 3) geopolitics, 4) natural disasters, 5) supply disruptions, 6) action by the Organization of Petroleum Exporting Countries (OPEC), 7) macroeconomic events, and 8) financial market trends and speculation. Figure 4-B shows oil prices in recent months and associated key market events.

Each of these factors influences the price of oil and all have been encountered within the last 10-year period. Without knowledge of when and if these sort of events will occur, it is not possible to forecast a particular path for oil prices with any certainty. Furthermore, the market is dynamic and the impact of the same event can bring about different outcomes at different times.

In the longer term, fundamental economic factors of supply and demand drive oil prices. Ultimately, predicting future price requires an understanding of

ANS West Coast Price, History and Forecast

Actual price fluctuation and official fall 2017 forecast spread



demand growth and the available future supply of petroleum products.

Forecast Methods

One of the major components in developing the official price forecast is a day-long price forecasting session hosted by the Department of Revenue, usually held in early October. The forecast session uses a survey method that relies on a pool of participants from state government, the private sector, and academia. Each participant submits his or her own price forecasts after a day of presentations by experts on oil price markets and market structure. These individual price forecasts are combined with internal models to develop the department's official oil price forecast.

The participants forecast ANS prices in real 2017 dollars. The median of the survey responses for each time period is used to develop the price forecast. These prices are converted to nominal (inflation-adjusted) oil prices using the current Callan Associates, Inc. inflation assumption of 2.25%.

Using the high case, base case, and low case results of the oil price forecasting session, the department develops a probabilistic distribution of possible future ANS prices. An expected price path is then selected from this distribution.

Price Forecast

Many factors help determine the path of future of oil prices, and over the short term prices can be highly

volatile. Over the long term, however, oil prices are generally expected to be responsive to the fundamental factors of supply and demand.

On the supply side, advances in horizontal drilling and hydraulic fracturing technology have unlocked billions of barrels of producible crude in the so-called "shale revolution." Shale oil resources offer significant additional oil production potential if oil prices rise, effectively setting a ceiling for oil prices, with many experts pointing to a price range of \$50-\$60 (in real terms) as a likely level that if exceeded, would incentivize enough new supplies to prevent prices from going much higher over the long term.

On the demand side, the global economy has performed quite well over the past year, and the corresponding increase in oil consumption has helped oil markets balance in recent months. Looking forward, continued economic growth should lead to modest increases in demand, but a global trend towards greater energy efficiency and the growth of new technologies such as electric vehicles will likely place limits on demand increases.

The oil prices for the forecast are formed based on input from the fall price forecasting session. The current price forecast for ANS oil prices can be found in Figure 4-C.

The Department of Revenue projects nominal ANS oil prices will average \$56.00 per barrel in FY 2018 and \$57.00 in FY 2019.

The department now expects oil prices to stabilize around \$60 per barrel in real terms by FY 2022, and

Oil Price and Transportation¹ Costs

Forecast Assumptions

Nominal Dollars per Barrel

Fiscal Year	History		Forecast									
	2017	2018 ²	2019	2020	2021	2022	2023	2024	2025	2026	2027	
Alaska North Slope West Coast	49.43	56.00	57.00	58.00	61.00	64.00	65.00	66.00	69.00	72.00	75.00	
Marine Costs	3.18	3.41	3.45	3.49	3.54	3.58	3.63	3.67	3.72	3.77	3.83	
TAPS Tariff	6.09	6.10	6.15	6.32	6.55	6.81	7.01	7.12	7.19	7.26	7.37	
Feeder Tariff	0.45	0.31	0.29	0.28	0.28	0.29	0.30	0.31	0.32	0.33	0.35	
Quality Bank	-0.16	-0.13	-0.14	-0.16	-0.17	-0.18	-0.18	-0.18	-0.19	-0.20	-0.21	
Other ³	0.15	0.11	0.11	0.11	0.12	0.13	0.13	0.13	0.14	0.14	0.15	
Netback Costs Total	9.70	9.80	9.86	10.04	10.31	10.63	10.89	11.05	11.18	11.31	11.49	
Alaska North Slope Weighted Average All Destinations	39.73	46.20	47.14	47.96	50.69	53.37	54.11	54.95	57.82	60.69	63.51	

¹ Field-specific transportation costs represent the average cost for all barrels, whether or not they incur a specific expense. For example, feeder costs represent the average cost for all barrels, including Prudhoe Bay production not using a feeder pipeline. Slopewide costs are estimated based on reported relevant cost information.

² FY 2018 values include four months of actual data.

³ This category primarily includes tanker and pipeline losses.

remain at that level in the long term. This forecast is consistent with several other oil price forecast sources and is explained in greater detail in Chapter 3.

In nominal terms, the department forecasts ANS to increase to \$75.00 per barrel by FY 2027, mostly due to inflation. However, if history is any guide, oil prices are likely to remain volatile, contributing uncertainty to the petroleum revenue forecast in any given year.

Transportation Charges and Other Production Costs

The value of ANS crude oil at the wellhead is calculated by subtracting transportation costs from the sales price or the prevailing value at point of delivery. Transportation components include marine costs, the Trans-Alaska Pipeline System (TAPS) tariff, feeder pipeline tariffs, quality bank adjustments, and other adjustments. The values used in this netback calculation are shown in Table 4-5.

Marine Transportation Costs

Oil production from the North Slope is delivered through the TAPS to Valdez, Alaska, where it is stored and loaded onto tankers for shipment primarily to

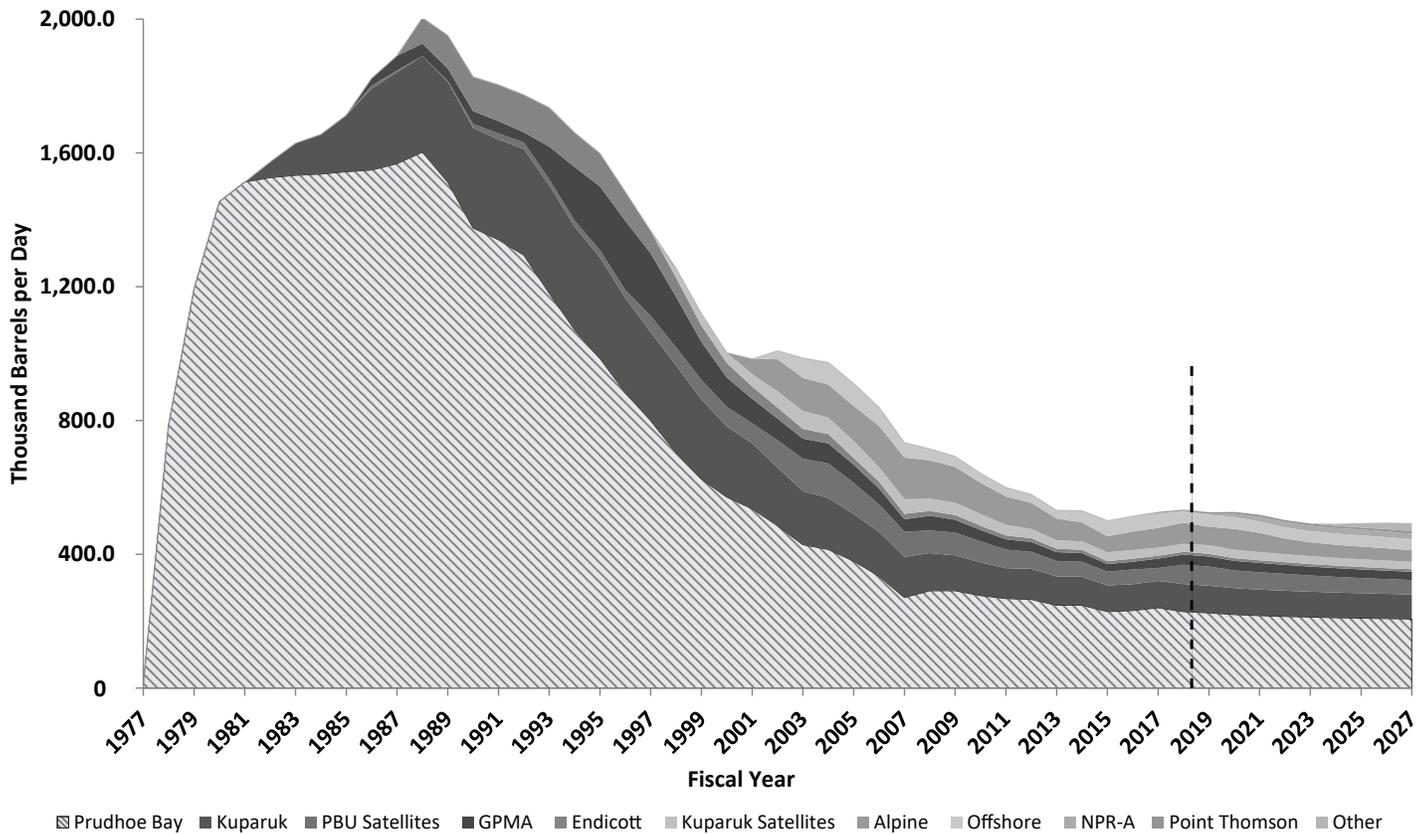
the West Coast (Washington, California, and Hawaii) and Alaska's Kenai Peninsula. For the past two years, there have been reported shipments to Asia. For the shipments to the West Coast, the double-hulled tankers range in carrying capacity from about 750,000 to 1,300,000 barrels of oil. The typical one-way voyage from Valdez to the West Coast is about a week. For the shipments to the Kenai Peninsula, the tankers have a carrying capacity of about 300,000 to 350,000 barrels of oil, with a much shorter voyage time of a day or two.

For tax purposes, companies are allowed to deduct the total costs under the charter or contract for shipping oil and certain other allowable costs borne by the shipper. For crude oil shipped on tankers that are owned or effectively owned by the producer of the transported oil, which is typically the case, allowable marine costs are depreciation, return on investment, fuel, wages and benefits, routine maintenance, tug and pilotage fees, and dry-docking costs.

Marine costs can be broadly categorized as capital, fuel, and labor with each category accounting for roughly one-third of the total. The marine cost model accounts for inflation in labor costs and changes in the cost of bunker fuel as it relates to the crude oil price forecast. Marine costs averaged \$3.18 in FY 2017 and are expected to reach \$3.83 per barrel by FY 2027.

Alaska North Slope Production

By production area, FY 1977 to FY 2027



Trans-Alaska Pipeline System Tariff

Oil produced on the North Slope of Alaska is shipped down the Trans-Alaska Pipeline System (TAPS) and takes over two weeks to get to Valdez. The 800-mile, 48-inch oil pipeline costs about \$1 billion a year to operate. Tariff rates on the pipeline are regulated to prevent carriers from exerting undue market power. The Regulatory Commission of Alaska (RCA) regulates intrastate rates and the Federal Energy Regulatory Commission (FERC) regulates interstate rates. FERC has established generic principles for oil pipelines to use a cost-of-service method for determining tariffs charged to transport oil.

With a cost-of-service method, rates are designed around what it costs a pipeline company to provide the service and have an opportunity to earn a reasonable rate of return on its investment. Major components are operation and maintenance expenses, depreciation, income taxes, cost of debt, and rate of return. Depreciation expense allows the pipeline to recover the capital investment undertaken to provide the service, and the rate of return compensates the

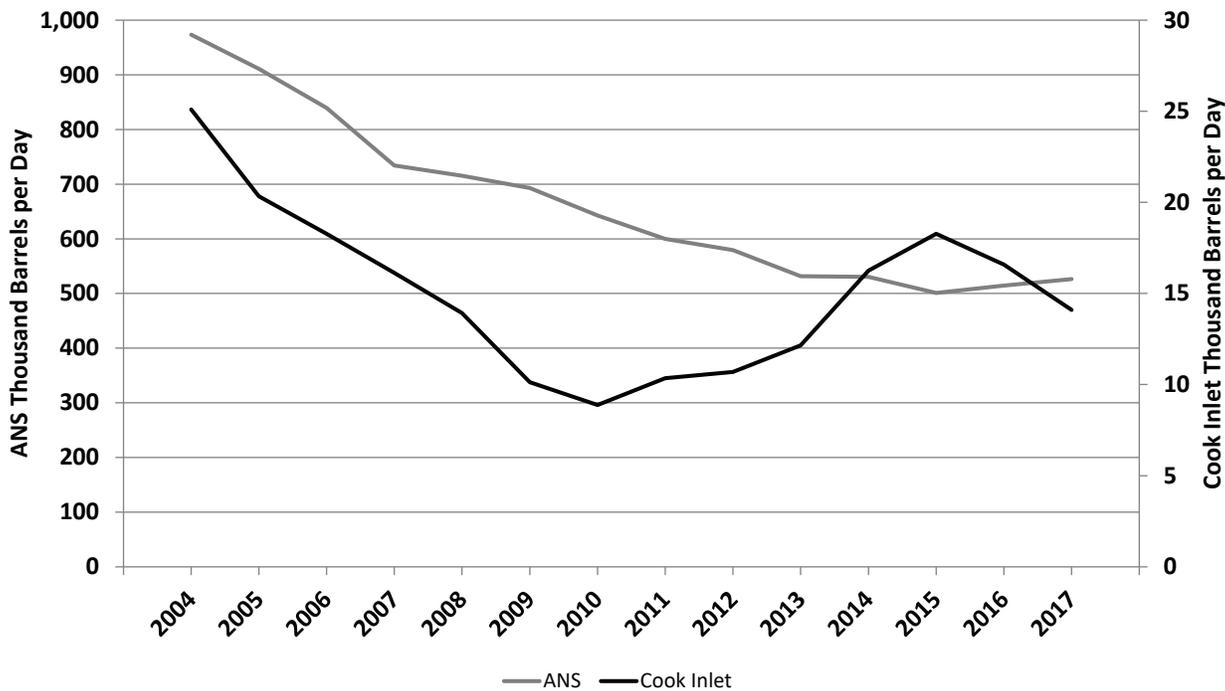
pipeline for the use of that capital investment. Other recoverable accounts include dismantling, removal and restoration, allowance for funds used during construction, accumulated deferred income taxes, working capital, and legal fees.

The department's forecasting model uses a simplified cost-based tariff model to project the cost of transporting a barrel of oil on the TAPS. The forecast does not attempt to predict the outcome of pending litigation or estimate the level and timing of protested tariffs. Cost components and data that populate the model are extracted from various carrier tariff filings and FERC Opinions, as well as department forecasts of future oil production and pipeline throughput.

Cost-of-service components are projected and then summed for each year to estimate the total cost-of-service or the total revenue required to operate the pipeline. This estimated total revenue requirement is divided by volume to calculate the average cost per barrel. The ratio is sensitive to the production profile and suggests that if production declines over time,

Alaska North Slope and Cook Inlet Production

FY 2004 to FY 2017



the tariff will increase as costs are spread over fewer barrels of production. Current filings from the carriers result in a weighted-average TAPS tariff of \$5.80. The preliminary average TAPS tariff deduction claimed on annual and monthly tax returns received by the department was \$6.09 for FY 2017. As costs increase and throughput declines, the forecast tariff increases to \$7.37 per barrel by FY 2027.

Feeder Pipeline Tariffs

Feeder pipelines move the crude oil produced from the various North Slope oil fields to Pump Station No. 1 at the northern terminus of TAPS. Shippers on these “jurisdictional pipelines” pay a tariff that covers pipeline operations costs and provides a reasonable rate of return. The seven jurisdictional feeder pipelines and their respective tariffs as of September 2017 are: Kuparuk \$0.23, Milne \$0.80, Endicott \$2.19, Badami \$2.49, Alpine \$0.72, Northstar \$1.14, and Point Thomson \$12.09. The weighted-average feeder pipeline tariff averaged about \$0.87 per barrel in FY 2017 for fields paying a tariff; the average for all North Slope production (including Prudhoe Bay production not using one of the feeder pipelines) was \$0.45.

Feeder pipeline tariff rates are forecasted by estimating the total cost-of-service and the throughput vol-

umes for each pipeline. The cost-of-service estimate for each pipeline is divided by the respective volumes from the production forecast. Using the volumes from the fall 2017 production forecast, the weighted-average feeder tariff for those fields with feeder pipelines is forecast to be \$0.64 in FY 2018 and increases to \$0.73 in FY 2027. For all production, including Prudhoe Bay, the weighted-average feeder tariff is estimated to average \$0.31 in FY 2018 and increase to about \$0.35 by FY 2027.

Lease Expenditures

Due to the deductibility of costs in the production tax equation, the department must forecast lease expenditures in addition to oil prices, production, and transportation costs. Lease expenditures are defined as the upstream costs that are directly related to exploring for, developing, or producing oil or natural gas.

Forecast Methods

The Department of Revenue receives information about lease expenditures on annual tax returns and monthly information filings from oil and gas companies operating in the state. Semi-annually, the department also receives projections of lease expenditures for each property for up to five years in the future.

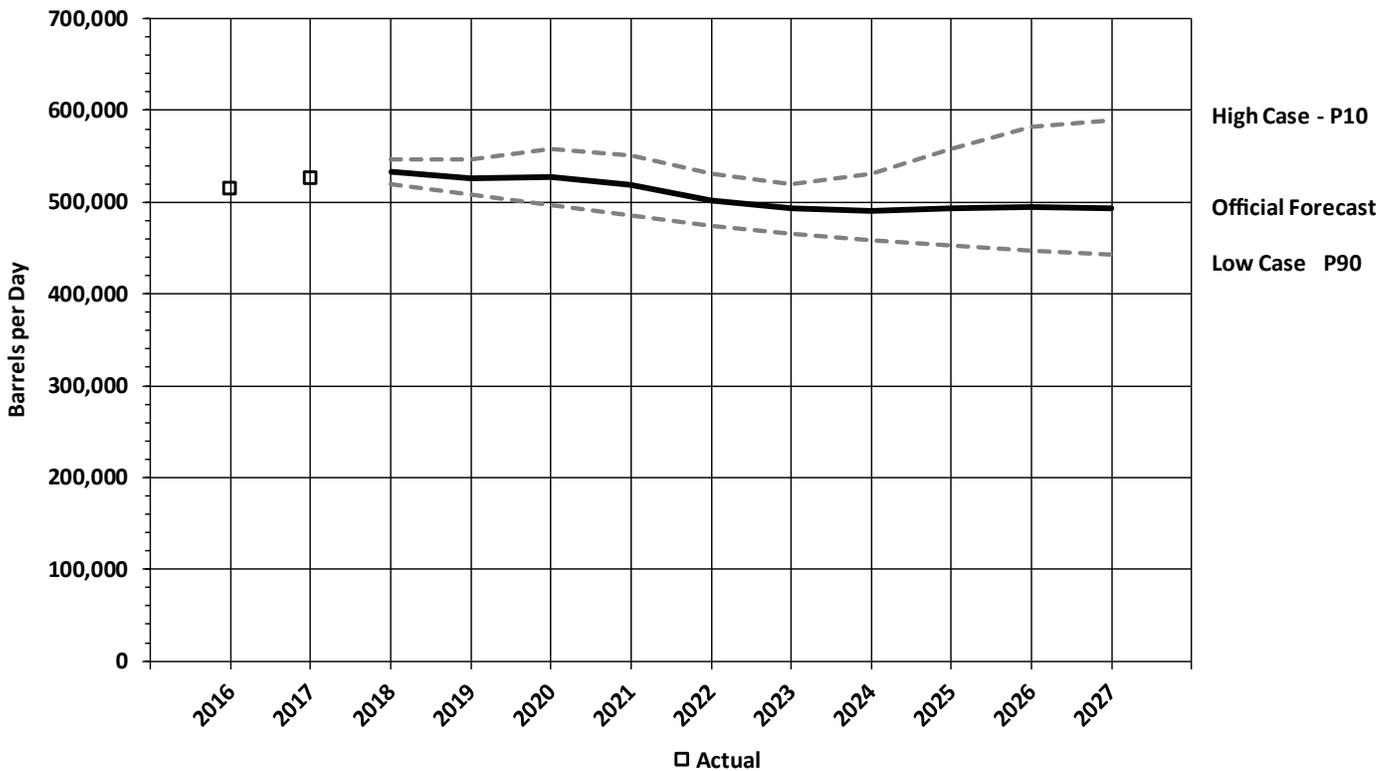
Production Forecast Before, After 2017 Change

Comparison of key elements

Element	Old Method	New Method
Forecaster	Department of Natural Resources' Resource Evaluation and Commercial teams in collaboration with Department of Revenue staff.	Department of Natural Resources' Resource Evaluation and Commercial teams in collaboration with Department of Revenue staff.
Time Horizon of Forecast	Ten years.	A 10-year oil production forecast for DOR's <i>Revenue Sources Book</i> 10-year revenue forecast and a 20-year forecast for DOR's internal planning purposes.
Modeling Method	Probabilistic – Forecast is the most likely value taken from a range of possible outcomes consistent with industry best practice.	Probabilistic – Forecast is the most likely value taken from a range of possible outcomes consistent with industry best practice.
Alternative Production Cases	Probabilistic modeling produces a 10% likelihood “high case” and a 90% likelihood “low case.”	Probabilistic modeling produces a 10% likelihood “high case” and a 90% likelihood “low case.”
Currently Producing Method	Pool-level decline curve analysis.	Pool-level decline curve analysis.
Under Development	Based on planned field development activities presented by the operator in the Plan of Development for each pool, generally for projects starting in next 12 months. Risk factors are incorporated into production model.	Based on planned field development activities presented by the operator in the Plan of Development for each pool, generally for projects starting in next 12 months. Risk factors incorporated into production model.
Under Evaluation	Based on planned field development activities, and informed by operator forecasts, generally for projects starting in one to five years. Risk factors incorporated into production model.	Based on planned field development activities, and informed by operator forecasts, generally for projects starting in one to 10 years. Risk factors incorporated into production model.
Risking	Adjustments for various types of risk are incorporated into the production model.	Adjustments for various types of risk are incorporated into the production model. An additional risk factor is individually applied for each new field starting in the two- to 10-year window.
Spring Forecast Update	Minor forecast adjustments are made based on new production data and operator plans.	Pool by pool ground-up forecast based on new production data and operator plans.

Alaska North Slope Petroleum Production Forecast

FY 2016 to FY 2027



These reports are provided by the operators of the properties and are a major component of the lease expenditure portion of the revenue forecast.

The department also uses several other means to forecast lease expenditures, including reviewing plans of development as well as other publicly available information from industry publications and news articles.

Lease Expenditures Forecast

In FY 2017, the unaudited lease expenditures reported by companies producing or exploring for oil and/or gas on the North Slope on monthly information forms were about \$1.9 billion lower than the prior year. Companies reported \$2.9 billion in operating expenditures (also known as OPEX), down from \$3.3 billion in FY 2016. Companies reported an additional \$1.9 billion in capital expenditures (CAPEX), sharply down from \$3.4 billion in FY 2016. For FY 2018, the department forecasts a further reduction in North Slope operating expenditures to \$2.7 billion, and a slight reduction in capital expenditures to \$1.8 billion. For FY 2019, the department forecasts North Slope operating expenditures slightly increasing to \$2.8

billion, and capital expenditures recovering to \$2.5 billion.

Clearly, companies have reduced spending, both in response to recent oil market developments as well as changes to state tax policy. When surveyed, two of the main factors influencing future project spending cited by companies were higher oil prices and a stable, predictable tax policy. Fortunately, there are several potential new developments on the horizon that could lead to increased investment in future years, such as Mustang, Pikka, Willow, Smith Bay, and others. This forecast tentatively includes some production from several of these new opportunities, as discussed later in this chapter.

The forecast reflects a reduction in planned spending at existing North Slope fields in terms of both capital and operating expenditures, as companies look to make fields profitable at current oil prices. Overall capital expenditures are expected to increase beginning in FY 2019, as companies invest in new developments that are included in the production forecast. Once these developments begin production, they will lead to increased overall operating expenditures, beginning in FY 2022 - FY 2023.

Alaska North Slope Oil Production

By category, FY 2018 - FY 2027 forecast

Fiscal Year	Barrels per Day									
	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Low Case – P90	519,616	508,508	496,549	485,758	473,800	465,290	458,648	453,301	447,578	442,546
Percent Change from Prior Year	-1%	-2%	-2%	-2%	-2%	-2%	-1%	-1%	-1%	-1%
Official Forecast	533,430	525,680	526,810	518,304	502,526	492,605	491,143	493,430	494,848	492,886
Percent Change from Prior Year	1%	-1%	0%	-2%	-3%	-2%	0%	0%	0%	0%
High Case – P10	546,360	547,194	558,120	551,053	531,282	520,312	530,290	558,522	582,431	589,945
Percent Change from Prior Year	4%	0%	2%	-1%	-4%	-2%	2%	5%	4%	1%
Production from GVR-Eligible Fields under Official Forecast	30,543	35,434	43,427	47,073	48,313	33,853	24,220	28,030	31,376	32,257
Percent from GVR-Eligible Fields under Official Forecast	6%	7%	8%	9%	10%	7%	5%	6%	6%	7%

Note: GVR is an acronym for Gross Value Reduction.

For areas outside the North Slope (including Cook Inlet), companies are anticipating continued decreases in investment for FY 2018 and FY 2019. Total lease expenditures outside the North Slope were about \$598 million in FY 2017, a decrease of \$70 million from the previous year. While significant resources exist in the non-North Slope areas of the state, exploration and development in Cook Inlet in particular is expected to be limited by continued low oil prices, already sufficient gas supply for the local market, and reduced state subsidies for investment. The forecast for total lease expenditures outside the North Slope is \$501 million for FY 2018 and \$434 million for FY 2019.

It should be noted that spending estimates are subject to many uncertainties, including oil prices, and the ability of projects to obtain final company approval, and financing. Longer term, the department continues to see significant upside potential for investment. In particular, many new developments included in the production forecast are included on a “risky” basis, meaning they are only partially counted in the forecast based on a probability of occurring within the 10-year time horizon. Any associated costs for those fields are also included on a “risky” basis, using similar risk

factors. Also, expenditures for developing potential discoveries from most of the exploration taking place in the state are not yet included in the forecast, and will not be until those developments meet the thresholds for inclusion in the production forecast. More information on the risk adjustment methods incorporated into the production forecast can be found in the production volumes section of this chapter.

Appendix D-1 provides a 10-year history and 10-year forecast of lease expenditures for the North Slope and non-North Slope. To provide an additional level of detail, North Slope expenditures are further categorized as either expenditures for producing non-GVR fields (“legacy fields”) or expenditures for other areas (newer fields, exploration, and development).

Production Volumes

Future oil production is crucial to forecasting oil revenue since it is a key variable used to calculate both production taxes and royalties. It is also a factor in determining future pipeline tariff rates, which impact the wellhead value on which both taxes and royalties

Petroleum Property Tax¹

Distribution and local mill rates, FY 2017

Millions of Dollars

Taxing Jurisdiction	Gross Tax	Local Share	State Share	Local Effective Mill Rate
Unorganized	62.1	0.0	62.1	N/A
North Slope Borough	418.8	376.7	42.1	17.99
Fairbanks North Star Borough	14.7	10.8	3.9	14.79 ²
Municipality of Anchorage	3.4	2.4	1.0	15.66
Kenai Peninsula Borough	29.4	14.3	15.1	9.72 ²
City of Valdez	38.4	38.4	0.0	20.00
Matanuska-Susitna Borough	0.2	0.1	0.1	10.59 ²
City of Whittier	0.0	0.0	0.0	8.00
City of Cordova	0.2	0.1	0.1	12.35
Total FY 2017	567.2	442.9	124.3	

¹Tax amounts shown here represent the total certified tax roll for the 2017 tax year, due June 30, 2017. These amounts may not exactly match cash revenue received in the fiscal year as presented elsewhere in this book due to a combination of credits and late payments. Gross Tax is total tax paid to both the local government and the State of Alaska. The Local Share and State Share columns represent revenue primarily received in June 2017.

²The Fairbanks North Star Borough, Kenai Peninsula Borough, and Matanuska-Susitna Borough do not have a uniform mill rate for petroleum properties. The rate presented here is the weighted-average effective mill rate based on the 2017 certified tax roll.

are calculated. Future production also influences the economic life of infrastructure, which is a factor in property tax assessment.

Geographic Impact

Production from different geographic areas has different implications for petroleum revenue. Oil produced within state boundaries is subject to state taxes, but oil produced beyond 3 miles offshore is not. The state collects 100% of the royalties on state-owned lands while royalties from oil produced on federal lands are shared with the state. For royalties from oil produced on private lands, the state does not collect a share of royalty directly, but instead assesses a tax on the private landowner royalty interest as part of the production tax.

Offshore leases 3 to 6 nautical miles from shore are federal leases, under which the state is entitled to 27% of the amount the federal government collects in bonuses, rents, and royalties. The authority for this revenue sharing is the federal Outer Continental Shelf Lands Act, Section 8(g). This 3-mile band is referred to as the "8(g) zone." The state is entitled to 50% of the bonuses, rents and royalties that the federal government receives from the leasing of lands in the NPR-A.

The federal government dictates that shared NPR-A revenue must be used for specific purposes, and therefore it is considered restricted revenue in this forecast.

Forecast Methods Changes

The production forecasting process was changed for the fall 2016 forecast, and refined again for this fall 2017 forecast.

Prior to fall 2016, the Department of Revenue employed an outside petroleum engineering consultant to provide the oil production forecast. Beginning with the fall 2016 forecast, the oil production forecast is being developed internally by the State of Alaska by the departments of Revenue, and Natural Resources. This "in-housing" of the production forecast reduces spending on consultant services, and also serves to better utilize and develop the expertise that exists within state government.

A detailed discussion of the change to an "in-house" production forecast can be found in Chapter 4 of the *Fall 2016 Revenue Sources Book*. A comparison of key elements of the production forecast process and

refinements made for this year's forecast can be found in Table 4-6.

Forecast Methods

The fall 2017 forecast consists of oil volumes produced from three categories:

- Currently Producing (CP) – Oil wells and pools that are currently in production. This category includes production from wells that are already in service prior to the start date of the forecast.
- Under Development (UD) – New wells and pools that are planned, funded, and have partner alignment; typically with production expected in the first 12 months of the forecast period.
- Under Evaluation (UE) – New wells and pools that are expected to begin production in years two through 10 of the forecast period, and do not yet have final funding decisions or partner alignment.

Production from the Under Evaluation category includes production that could eventually result from recent exploration or discoveries (i.e., Pikka and Smith Bay) as well as known fields that could be expected to begin sustained production during the relevant time horizon (i.e., Liberty). These fields have been included in this year's forecast and have been risked for a chance of occurrence within the 10-year forecast period, with statistical uncertainty ranges around their start-up dates and oil production rate profiles.

As in past years, the production forecast is focused specifically on oil production because that provides the majority of the state's revenue. The Department of Revenue uses a basic estimate of gas production for internal modeling purposes, based on current production volumes plus expected new fields.

Currently Producing Volumes

Currently Producing volumes are forecast at the pool-level using decline-curve analysis. Technical experts from the Department of Natural Resources utilize data from the Alaska Oil and Gas Conservation Commission to develop a time series dataset to assess the future production profile of fields that are already in production. This data are provided by the producers and includes information on reservoir characteristics, oil flow rates, gas/oil ratios, and water cuts. Using these data and decline-curve analysis, an expectation for future production is developed for each producing pool. Planned downtime is factored in for known work-overs and stimulation work, and anticipated responses are incorporated into future production. An expected decline rate is developed for each oil pool.

Production from Currently Producing areas is the least speculative category in the production forecast, as production comes from developed reserves with known production characteristics, infrastructure, constraints, and operating costs.

Under Development Volumes

Under Development volumes are forecasted using planned field development activities presented by the operator in the Plan of Development (POD) for each pool. Production from planned infill wells is determined using the well performance from historical analogue wells. When a project has funding, approval, an annual cash flow schedule, and a drilling plan, but is not yet developed, the volumes from that project are categorized as Under Development if production is expected to begin in the first year of the forecast period. If a project does not have these qualifiers, the expected future volumes from it are not considered in the Under Development category.

Volumes in the Under Development category may include production from infill drilling within existing units and other activities that lead to incremental oil production within the next 12 months. New pools or areas of production expected to be in production within the next 12 months also fall within this category.

Because all oil in this category requires some level of capital investment and the use of equipment, there is potential for each of these projects to be delayed or abandoned. The actual performance of each project is also uncertain. Therefore, some consideration must be given to the associated risk, or else the forecast is prone to be overly optimistic. In the best-case scenario, all projects would come in on-time, on-budget, and on-target. The forecast incorporates a 5% occurrence risk factor for each individual project.

Under Evaluation Volumes

Under Evaluation volumes are forecasted using development concepts and plans presented by operators, as well as production performance and expected ranges developed from analogue wells. Volumes in the Under Evaluation category are from projects likely to start producing oil in the second through 10th year of the forecast period. Most of the oil in this category is from discovered but currently undeveloped oil accumulations, though conceptually, the category could also include future infill drilling and other activities that lead to incremental oil production from existing fields. Projects may still have hurdles to overcome in relation to funding, Working Interest Owners' sanctioning, regulatory approval,

cash flow schedules, or drilling plans. Accordingly, a project-specific risk factor is applied for each individual project.

Because all oil in this category requires capital investment and the use of equipment, there is potential for each of these projects to be delayed or abandoned. The actual performance of each project is also uncertain as no production data exists. Therefore, as with the Under Development category, consideration must be given to the associated uncertainty, or else the forecast is prone to be overly optimistic. Based on the forecast team's historical observations and technical judgment, the Under Evaluation forecast tranche incorporates projects' individual risk of occurrence within the 10-year forecast window, along with statistical uncertainty ranges relating to the date of first production and potential production rates over time.

Production Forecast

ANS oil production increased for the second consecutive fiscal year in FY 2017, averaging 526,500 barrels per day, up from 514,700 barrels per day in FY 2016 and 501,000 barrels per day in FY 2015. In FY 2017, Cook Inlet oil production averaged 14,100 barrels per day, a decrease of 15% from the FY 2016 volume of 16,600 barrels per day. Historical daily average production from ANS and Cook Inlet is shown in Figure 4-E.

Many of the projects reflected in the production forecast are still subject to uncertainty and final investment decisions. Many projects are marginally economic in the current environment and such projects are contingent on realization of lower costs, higher oil prices and/or fiscal certainty. Depending on how these factors play out over time, combined with uncertainty about reservoir performance for new fields, future production could be substantially higher or lower than what is shown in the forecast.

Over the next several years, the forecast is for North Slope production to remain over 500,000 barrels per day. Figure 4-F shows historical values for FY 2016 and FY 2017 and a forecast to FY 2027. Additionally, a range is provided for potential production possibilities to reflect future uncertainty. The forecast modeling uses a probabilistic approach that allows for multiple values, including a high, low, and base case production forecast. The high case or "P10" is a production level expected to have a 10% chance of being reached, while the low case or "P90" is a production level that has a 90% chance of being met or exceeded. The official forecast, or "Pmean" is a most likely production

path within this range, but actual production can and will be either higher or lower than this forecast. Values for the forecasts can be found in Table 4-7. Figure 4-D shows historical ANS production by major area with expected production from those areas to FY 2027.

Appendix Table C-1 compares the spring 2017 and fall 2017 forecasts. ANS production in the fall 2017 forecast is higher than the spring forecast for all years in the forecast, driven by strong production trends in existing fields as well as the addition of several potential new fields. Historical production by major producing areas is shown in Appendix Table C-2, which also presents a forecast of volumes aggregated by the same producing areas.

Production Tax Revenue Forecast

In broad terms, future revenue from production tax is a function of the forecasts of the various components. The netback components, as shown in Table 4-5, are deducted from the West Coast destination price to determine an ANS wellhead price, which is multiplied by the projected volume to calculate a gross value at the point of production. Lease expenditures are deducted from the gross value to calculate a net value to which the production tax is applied and adjusted for anticipated credits. The forecast of production tax revenue also accounts for various nuances and provisions of the tax code, including the gross minimum tax, GVR, company-specific differences in investment and field ownership, impacts of natural gas production, and non-North Slope activity.

The state received \$134 million in unrestricted production tax revenue in FY 2017 and expects to receive \$458 million in FY 2018 and \$339 million in FY 2019. See Table A-3 in the Appendix for a historical comparison with a high of \$6.8 billion in FY 2008 relative to the forecast value of \$717 million in FY 2027. For most of the forecast period, the production tax forecast is based primarily on the 4% gross minimum tax for the North Slope. However, by FY 2026 - FY 2027, under the forecast, some companies begin to pay above the minimum tax due to increased oil prices; this results in production tax revenues increasing in those later years, though still remaining under \$1 billion per year.

For the North Slope, at forecasted oil prices, companies are generally expected to be able to use Per-Taxable-Barrel Credits for non-GVR oil to reduce tax liability down to the minimum tax of 4% of gross value. Depending on their specific tax situation, some companies may choose to forgo non-GVR Per-Tax-

able-Barrel Credits and instead reduce liability below the minimum tax using Per-Taxable-Barrel Credits for GVR-eligible oil, and any small producer or net operating loss credits that may be available. At forecasted prices, major producers are not expected to be in a net operating loss situation.

For Cook Inlet, production tax is limited to \$1 per barrel of oil and 17.7 cents per 1,000 cubic feet of gas. These taxes are expected to contribute no more than \$10 million to \$15 million in any given year.

These revenue estimates account for tax credits applied against tax liabilities that reduce the tax payments made to the state. Revenue estimates do not include the impact of tax credits purchased by the state from companies without a tax liability. State purchase of those additional tax credits may be funded through appropriations to the Oil and Gas Tax Credit Fund, as discussed in Chapter 8.

Hazardous Release Surcharge

Up to \$0.05 per barrel of taxable oil is collected and customarily appropriated to the Oil and Hazardous Substance Release Prevention and Response Fund (often simply called the Response Fund). This revenue is reported as unrestricted revenue and collected as part of the production tax.

The Response Fund was created in 1986 and is intended to be a source of funds that can be drawn upon in the event of the release of a hazardous substance for the abatement of damages. The fund is separated into two accounts – a response account and a prevention account. As the names imply, the response fund is designed to respond to a spill or discharge, while the prevention account is intended to support the Alaska Department of Environmental Conservation (DEC) in spill prevention and preparedness activities. The prevention account can also be used to respond to substance releases that are not declared disasters by the governor and can be used to support other response and prevention programs if appropriated by the Legislature.

The surcharge paid to the response account is \$0.01 per taxable barrel of oil produced in the state. However, the surcharge is suspended when the account has a balance of \$50 million or more. In November 2006, the fund was accessed to assist with pipeline spills on the North Slope. The surcharge was re-imposed in 2007 and has been suspended and re-imposed since. The balance of the fund as of Sept. 30, 2017, was \$41.6 million.

The prevention account receives a surcharge of \$0.04 per taxable barrel of oil produced within the state. All

interest payments, penalties, settlements, and fines from both accounts are deposited into the prevention account and are available for appropriation to eligible programs. This account does not have a balance limit.

In 2015, the Legislature added additional funding to DEC's Spill Prevention and Response Division through a surcharge on refined fuel sales in the state. This is discussed in more detail in Chapter 5.

Royalties

A royalty interest is an ownership of future production, and is a typical feature in oil and gas contracts with a landowner. When a company bids on a lease, it pays an up-front bonus payment, agrees to an annual rental payment, and typically offers a royalty interest in any discoveries that may be found. Thus, the bonus is a guaranteed payment to the state as the owner, while the royalty is a contingent amount only paid if there is success in production.

In Alaska, the state retains ownership of all subsurface minerals on state lands and requires a minimum royalty rate of one-eighth (12.5%) of any production, although there are exceptions that can be made for economically challenged projects. In other U.S. oil producing areas, private citizens usually own these subsurface rights and the royalty is paid directly to the landowner, rather than the government. Occasionally, a company may enter into a net profits sharing lease, which bases the royalty payment on net profits rather than the gross value of the oil. These profit-sharing leases can reach as high as 75% of company profits after the company's development costs are recovered. Most leases in Alaska are one-eighth (12.5%) or one-sixth (16.67%) royalty.

Alaska has the option of allowing the company to sell the royalty oil on its behalf (known as royalty in-value (RIV)), or to receive and sell the royalty oil itself (known as royalty in-kind (RIK)). The value the state accepts for royalty in-kind cannot be lower than the value it would receive for royalty in-value.

The state currently holds two contracts to sell royalty oil in kind. In April 2016, the state signed a legislatively approved five-year contract to sell up to 25,000 barrels of oil per day to the Tesoro refinery in Cook Inlet. Under that contract, oil delivery began on Aug. 1, 2016, and is planned to end on July 31, 2021. Additionally, the state in August 2016 established a one-year contract to sell between 18,800 and 23,500 barrels per day of oil to PetroStar Inc.'s North Pole, Alaska, and Valdez refineries. This one-year contract

did not need legislative approval and applies to oil delivery between Jan. 1 and Dec. 31, 2017. A subsequent four-year contract, which was approved by the Legislature during the 2017 session, will sell between 16,400 and 20,500 barrels of oil per day to PetroStar, decreasing to between 8,400 and 10,500 barrels of oil per day in the fourth year of the contract. This contract applies to oil delivered between Jan. 1, 2018, and Dec. 31, 2021.

Most RIV oil comes from leases affected by royalty settlement agreements (RSAs), and the price received for that oil is a derived price based on the value of oil sold on the West Coast with certain adjustments. Costs of shipping the oil on pipelines and tankers are subtracted in order to determine the value of the oil for royalty purposes (called the wellhead value). An allowance for field costs is also applied for production from certain leases. As a result of the field costs allowance, as well as differences in statutes and regulations, the wellhead value for royalty purposes may be slightly different than the wellhead value for production tax purposes. A portion of RIV oil comes from leases not affected by RSAs. While the formulas used to determine value for this oil are similar to the formulas used in the RSAs, they are not necessarily the same.

Royalty Forecast

The Department of Revenue forecasts that \$856 million in unrestricted petroleum royalty revenues will be collected by the Department of Natural Resources in FY 2018. Projections show FY 2027 collections of about \$1 billion in unrestricted petroleum royalties. These amounts are inclusive of bonuses, rents, and interest.

A portion of royalty revenue is deposited into the Permanent Fund, and the Public School Trust Fund. Together with these deposits, total petroleum royalty revenues are forecasted at \$1.1 billion in FY 2018 and \$1.4 billion in FY 2027. Note that for FY 2018, only the constitutionally mandated 25% of minerals royalties were deposited to the Permanent Fund, with the remainder treated as General Fund revenue. For FY 2019 and beyond, this forecast assumes that the statutory appropriation of approximately 31% of minerals royalties will be deposited to the Permanent Fund.

Petroleum Property Tax

Property subject to state oil and gas property tax includes property used in the exploration, production, and pipeline transportation of unrefined oil and gas.

Each year, the Department of Revenue determines the assessed value for taxable oil and gas petroleum property as of the Jan. 1 assessment date. The state levies a tax on its assessments at a rate of 20 mills (2%) of the assessed value. When oil and gas property is located within a municipality, the municipality may also levy a tax on the department's assessments at the same rate the municipality taxes all other property within its municipal boundary. The tax paid to a municipality on oil and gas property acts as a credit toward payment to the state on those same assessments.

Forecast Method

Forecasting state revenue from oil and gas property tax starts with the most recent certified assessed values for oil and gas property in Alaska. Assumptions are made regarding future capital investment and typical depreciation curves are applied. The state rate of 20 mills is applied to the forecast values, and estimates of payments to municipalities are then subtracted to estimate net receipts to the state. Table 4-8 shows the state share and local share of oil and gas property tax by jurisdiction.

Property Tax Forecast

In FY 2017 the state collected \$120 million in unrestricted revenue from petroleum property tax. About \$117 million is expected in FY 2018 with a gradual decline to about \$95 million in FY 2027. These amounts represent only the state share of property tax. The total assessment roll for the state is approximately \$28 billion, resulting in total property tax collection of roughly \$560 million including the municipal share.

Corporate Income Tax

An oil and gas corporation's Alaska income tax liability depends on the relative size of its Alaska and worldwide activities and the corporation's total worldwide net earnings. The corporation's Alaska taxable income is derived by apportioning its worldwide income to Alaska, based on the average of three factors as they pertain to the corporation's Alaska operations: (1) tariffs and sales, (2) oil and gas production, and (3) property. The tax rates are graduated according to the schedule in Table 5-3.

Corporate income tax (CIT) revenue is one of the more volatile revenue sources for the State of Alaska because of year-to-year variation in the profitability of oil companies as well as the substantial lag time between estimated tax payments and the final annual true-up.

Forecast Method

The fall 2017 CIT forecast is derived from a statistical model based on the price of oil, refining margins, total Alaska oil production, and an industry costs index. Information about expected refunds of prior-year taxes is also incorporated.

Corporate Income Tax Forecast

In FY 2017, the state's net unrestricted revenue collections from corporate income tax for oil and gas companies were negative, for the second consecutive year. This phenomenon is partly attributable to falling oil prices; in both FY 2016 and FY 2017, companies received large refunds due to overpayment of prior-year estimated taxes while making much smaller estimated payments for the current tax year. In FY 2017, the net revenue received was also reduced by over \$60 million transferred from the general fund to the Constitutional Budget Reserve Fund. This represents funds that were received and accounted for as unrestricted revenue in previous fiscal years, but identified as CBRF revenue in FY 2017.

The department expects a return to positive corporate income tax collections for oil and gas companies. The department is forecasting FY 2018 revenue of \$130 million and FY 2019 revenue of \$170 million as companies have adjusted their cost structure to fit better with the new oil price environment, and overall stability in prices has returned to the international oil market. By FY 2027, corporate income tax collections are projected to increase to \$285 million, as anticipated modest increases in oil prices and industry profitability lead to CIT revenue that is stable, albeit at a lower level than was realized historically when Alaska had higher oil prices and production.

Oil CIT revenue is difficult to forecast accurately due to its reliance on volatile oil prices and company profits, as well as their other global activity. A major new development that significantly increased industry activity or production in Alaska could render these forecasts conservative, as could an increase in prices above the forecast. On the other hand, decline in either company activity or prices, could make the forecasts too optimistic. Because of these uncertainties, the department believes revenue could fall anywhere between \$65 million (P90) and \$165 million (P10) in FY 2018, and between \$55 million (P90) and \$260 million (P10) in FY 2019.

Oil Revenue Summary

As shown in Table 4-1, total petroleum revenue is expected to amount to \$2.0 billion in FY 2018 and then

\$1.9 billion in FY 2019. The revenue stream then increases, based on the forecast for slightly higher oil prices and stable production, reaching \$2.7 billion by FY 2027.

Petroleum remains the major source of unrestricted general fund revenue during the forecast period. In FY 2017, petroleum accounted for 65% of unrestricted revenue. The percentage is expected to be 74% by FY 2027. In terms of total state revenue (which includes restricted components such as investment earnings from the Permanent Fund and federal receipts), in FY 2017, petroleum accounted for 14% of total revenue and is expected to contribute 20% of total revenue in FY 2027.

Restricted Revenue

As mentioned earlier, some oil revenue is deposited into special accounts for special purposes, including the Permanent Fund, Constitutional Budget Reserve Fund, and Public School Trust Fund. Revenue is also deposited into the NPR-A Fund.

Restricted Royalties

The majority of restricted revenue comes from royalties. At least 25% of royalty collections are required to be deposited into the Permanent Fund by the Alaska Constitution. For some leases, an additional 25% is deposited according to provisions in statute for a total deposit of 50%. The weighted average of these contributions results in about 31% of all royalty collections being deposited into the Permanent Fund. Note that for FY 2018, only the constitutionally mandated 25% of minerals royalties were deposited to the Permanent Fund, with the remainder treated as general fund revenue. The Public School Trust Fund receives 0.5% of royalty collections to support the state public school program.

NPR-A Fund

The state is entitled to 50% of the bonuses, rents, and royalties that the federal government receives from the leasing of federal lands in the National Petroleum Reserve-Alaska. This revenue is deposited into the NPR-A Special Revenue Fund and is restricted for specific uses. These funds can be appropriated to municipalities in the form of grants to compensate for impacts resulting from the development on those lands.

Revenue that is not appropriated is treated like other royalty revenue (25% is deposited into the Permanent Fund, and 0.5% to the Public School Trust Fund), with the remaining revenue available for appropriation to the Power Cost Equalization Fund, Rural Electric Capitalization Fund or general fund. For purposes of categorization, these funds are considered federal restricted revenue within the category of petroleum

revenue, as they are collected from oil activity. These payments amounted to \$1.4 million in FY 2017.

Commercial production is expected from NPR-A beginning in FY 2019; as new fields come online in NPR-A, it is anticipated that this federal revenue source will increase substantially. However, the majority of this production is expected to be on private land, at least initially.



Chapter 5

Non-Petroleum Revenue

Introduction

Revenue collections from in-state activities other than petroleum include non-petroleum taxes, charges for services, fines and forfeitures, licenses and permits, rents and royalties, and miscellaneous and transfer revenue sources such as dividends from public entities.

These sources are categorized as "Non-Petroleum Revenue, except federal and investment," sometimes shortened to "Non-Petroleum Revenue." (Federal and investment revenue are discussed in Chapters 6 and 7, respectively.)

The Non-Petroleum Revenue sources are each sub-categorized into Unrestricted, Designated General Fund, and Other Restricted Revenue in Table 5-1. The amounts of each revenue type are reflected in Table 5-2, as well as Tables 5-4 through 5-8.

This chapter provides the history of non-oil revenue sources for FY 2017 and forecasts revenue for FY 2018 and FY 2019. The chapter also includes descriptions of

each revenue source and explains the methods used to forecast them.

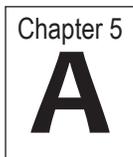
The Tax Division's website and its annual reports contain more comprehensive historical information about each tax type collected by the Tax Division. The Alaska Department of Administration's *Comprehensive Annual Financial Report* contains more detail about many non-tax revenue sources.

Taxes

Alcoholic Beverage Tax

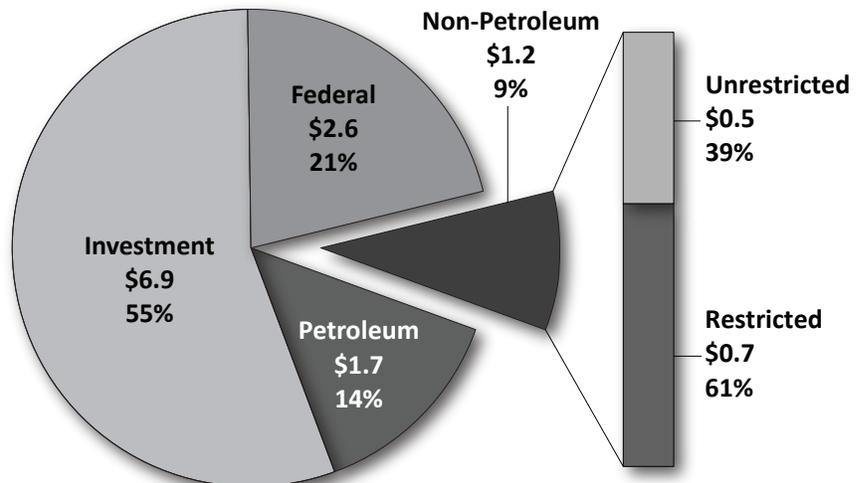
Alcoholic beverage taxes are collected primarily from wholesalers and distributors of alcoholic beverages sold in Alaska.

The per-gallon tax rates on alcoholic beverages are \$1.07 for beer, \$2.50 for wine, and \$12.80 for liquor. Beer from qualifying small breweries is taxed at a rate of \$0.35 per gallon.



FY 2017 Non-Petroleum Revenue

By restriction and type, in billions of dollars



Non-Petroleum Revenue

By restriction and category

	Millions of Dollars		
	History	Forecast	
	Fiscal Year	2017	2018
<u>Unrestricted</u>			
Unrestricted Non-Petroleum Revenue			
Taxes	266.2	300.8	363.6
Charges for Services	21.5	21.5	21.5
Fines and Forfeitures	13.2	13.2	13.2
Licenses and Permits	42.1	38.1	38.2
Rents and Royalties	27.4	30.8	28.2
Other	86.5	92.9	97.6
Total Unrestricted Non-Petroleum Revenue	456.9	497.3	562.3
<u>Restricted</u>			
Restricted Non-Petroleum Revenue			
Designated General Fund			
Taxes	98.5	138.7	88.3
Charges for Services	262.1	244.8	244.8
Fines and Forfeitures	9.2	7.1	7.1
Licenses and Permits	1.5	1.5	1.5
Rents and Royalties	4.2	4.2	4.2
Other	19.5	19.5	19.5
Subtotal Designated General Fund	395.0	415.9	365.5
Other Restricted			
Taxes	92.8	100.0	100.9
Charges for Services	134.2	85.7	85.7
Fines and Forfeitures	24.2	15.9	15.7
Licenses and Permits	37.6	42.4	42.7
Rents and Royalties	5.5	3.5	6.1
Other	6.8	6.8	6.8
Subtotal Other Restricted	301.1	254.3	258.0
Total Restricted Non-Petroleum Revenue	696.1	670.2	623.4
Total Non-Petroleum Revenue	1,153.0	1,167.5	1,185.7

Non-Petroleum Tax Revenue

By source and restriction

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
<u>Unrestricted</u>			
Corporate Income Tax (Non-Petroleum)	86.5	145.0	145.0
Excise Tax			
Alcoholic Beverage	20.1	20.4	20.7
Tobacco Products – Cigarettes	30.0	26.5	25.6
Tobacco Products – Other (General Fund)	13.4	14.3	15.1
Electric and Telephone Cooperative	0.2	0.2	0.2
Insurance Premium Tax ¹	0.0	0.0	56.7
Marijuana	0.9	4.6	9.0
Motor Fuel Tax ²	34.7	0.0	0.0
Motor Fuel Tax (conservation surcharge)	6.6	6.3	6.3
Tire Fee	1.4	1.4	1.4
Subtotal	107.3	73.7	134.9
Fish Tax			
Fisheries Business	15.5	21.1	21.6
Fishery Resource Landing	4.9	4.2	4.3
Subtotal	20.3	25.3	25.9
Other Tax			
Charitable Gaming	2.5	2.5	2.6
Estate	0.0	0.0	0.0
Large Passenger Vessel Gambling	8.2	8.4	8.7
Mining License	41.4	45.8	46.4
Subtotal	52.0	56.8	57.7
Total Unrestricted Non-Petroleum Tax Revenue	266.2	300.8	363.6

Restricted

Designated General Fund

Alcoholic Beverage (Alcohol and Drug Treatment and Prevention Fund)	20.0	20.4	20.7
Insurance Premium/Other ^{1,3}	62.5	62.4	6.7
Vehicle Rental	12.0	12.6	13.1
Marijuana	0.9	4.6	9.0
Motor Fuel Tax (Non-Aviation) ²	0.0	36.1	36.2
Tobacco – Cigarettes (Tobacco Use Education and Cessation Fund)	3.1	2.7	2.6
Subtotal	98.5	138.7	88.3

Non-Petroleum Tax Revenue

By source and restriction (*Continued*)

	Millions of Dollars		
	History	Forecast	
	Fiscal Year	2017	2018
Other Restricted			
Tobacco – Cigarettes (School Fund)	21.3	17.8	17.2
Commercial Passenger Vessel Tax (state share)	2.4	2.5	2.5
Commercial Passenger Vessel Tax (municipal share)	16.0	16.7	17.0
Cost Recovery Fisheries Assessment	0.0	0.1	0.1
Dive Fishery Management Assessment (designated management areas)	0.6	0.6	0.6
Electric and Telephone Cooperative (municipal share)	4.1	4.1	4.2
Fisheries Business (municipal share)	22.9	25.3	25.9
Fishery Resource Landing (municipal share)	5.1	6.2	6.3
Motor Fuel Tax – Aviation (state share)	4.4	4.6	4.6
Motor Fuel Tax – Aviation (municipal share)	0.1	0.1	0.1
Salmon Enhancement (Aquaculture Association share)	5.3	8.6	8.8
Seafood Development (qualifying regional associations)	2.0	2.3	2.3
Seafood Marketing Assessment (seafood marketing programs)	9.6	9.7	9.9
Settlements to Constitutional Budget Reserve Fund (non-petroleum taxes)	-1.0	1.4	1.4
Subtotal Other Restricted	92.8	100.0	100.9
Total Restricted Non-Petroleum Tax Revenue	191.3	238.8	189.2
Total Non-Petroleum Tax Revenue	457.5	539.6	552.8

¹ In FY 2016, House Bill 374 reclassified the previously unrestricted portion of the Insurance Premium Tax to designated general fund revenue. Under current law, this portion of the insurance premium tax will revert to unrestricted revenue beginning in FY 2019.

² Starting with FY 2018, non-aviation motor fuel tax will be considered designated general fund revenue.

³ In addition to the workers' compensation insurance premiums for the insurance premium tax, this amount also includes services fees from employers who are self-insured.

The revenue is deposited into Alaska's general fund, but half of that amount is put in a subfund of the general fund, the Alcohol and Other Drug Abuse Treatment and Prevention Fund, and is treated as restricted in this forecast. The other half that goes into the general fund but not in the Alcohol and Drug Abuse subfund is treated as unrestricted in this forecast.

The Department of Revenue forecasts alcoholic beverage taxes based on the historical growth rate of consumption. In the roughly 20 years of detailed data that the department has maintained, wine consumption has grown at an annual rate of about 3% and liquor consumption at an annual rate of about 2%. Consumption of beer, cider, and malt liquor has grown more slowly, at an annual rate of 0.2%, and yet the share of these beverages produced by qualifying small breweries is steadily increasing, from 17% in FY 2009 to 30% in FY 2017.

The department forecasts tax revenue by applying these growth rates to the previous year's consumption, accounting for uncertainty of the true long-term

trend, then multiplying predicted consumption by the tax rate.

Alcoholic beverage tax revenue is projected to continue rising slowly based on the overall growth rate of consumption. Alcohol taxes are one of the state's least volatile revenue sources, so they can be forecasted with fairly high precision.

For FY 2018, the department's forecast for the unrestricted share is \$20.4 million, and revenue could be anywhere between \$19.3 million (P90) and \$22.2 million (P10), depending on the growth rate of Alaska's population and alcohol consumption. For FY 2019, the forecast is \$20.7 million, and revenue could be between \$19.6 million (P90) and \$22.6 million (P10). The restricted share forecasts are the same.

Charitable Gaming

Under Alaska law, municipalities and qualified non-profit organizations may conduct specific charitable legal gaming activities to derive public benefit in the

Corporate Income Tax Rate Schedule¹

Taxable Income	Marginal Tax Rate
\$0-\$25,000	0.00%
\$25,000-\$49,000	2.00%
\$49,000-\$74,000	3.00%
\$74,000-\$99,000	4.00%
\$99,000-\$124,000	5.00%
\$124,000-\$148,000	6.00%
\$148,000-\$173,000	7.00%
\$173,000-\$198,000	8.00%
\$198,000-\$222,000	9.00%
\$222,000+	9.40%

¹ Effective for tax years beginning on or after Aug. 26, 2013.

form of money for charities and revenue for the state.

The department collects permit and license fees, a 1% net proceeds fee, and a 3% pull-tab tax.

The department forecasts charitable gaming revenue to remain stable at \$2.5 million in FY 2018, increasing slightly to \$2.6 million in FY 2019. While all charitable gaming receipts are shown as unrestricted revenue in this forecast, a portion is actually classified as program receipts in the budget, as the Tax Division is responsible for regulation of charitable gaming in the state.

Commercial Passenger Vessel Taxes

Alaska voters approved an initiative to impose new taxes and fees on commercial passenger vessels in 2006, which the Legislature modified in 2010. Following are descriptions of the various commercial passenger vessel taxes and fees in current law. The Ocean Ranger Fee is described under the Environmental Compliance Fund in the Charges for Services category.

- The commercial passenger vessel (CPV) tax is a tax of \$34.50 on each passenger aboard a commercial passenger vessel with 250 or more berths that spends more than 72 hours in Alaska waters over the course of one voyage. Revenue is deposited into a subfund of the general fund, the CPV tax account. Five dollars of the tax can be appropriated to each of the first seven ports of call.

If a commercial passenger vessel visits a port that levies a tax similar to the CPV tax, and that tax was in place before Dec. 17, 2007, the local

tax imposed is allowed as a credit against the state tax. Only Juneau and Ketchikan had qualifying levies in place at that time (Juneau's fee is \$8 per passenger and Ketchikan's is \$7).

All funds received from the CPV tax must be spent on port facilities, harbor infrastructure, and other services provided to commercial passenger vessels and the passengers on board those vessels. All revenue from the tax is considered restricted.

- The large passenger vessel gambling tax is a tax of 33% on the adjusted gross income from gaming or gambling activities aboard large passenger vessels in the state. Revenue goes to the general fund and is considered unrestricted.
- The Alaska corporate income tax applies to large commercial passenger vessels, and the revenue is included in the forecast of corporate income taxes.
- There are penalties for false reporting, violating environmental regulations, and failing to make proper disclosures on promotions and shore-side activity sales. Revenue from these provisions is included in the Fines and Forfeitures section.

Slightly more than 1 million passengers visited the state in large passenger vessels in FY 2017, and expectations are similar or slightly higher for FY 2018 and FY 2019. Cruise ship tourism has been gradually recovering since the 2008 recession.

In recent years, the municipal share of the CPV tax has been much larger than the state share. The department's model for the CPV tax is based on 2017 data, and the most recent industry forecasts of the number of cruise ship passengers who will visit Alaska. There is uncertainty about how the tourism industry will grow or decline, as well as overall economic growth, leading to moderate uncertainty in the forecast.

The forecast for total CPV tax revenue in FY 2018 is \$19.2, but the actual amount could be anywhere from \$16.9 million (P90) to \$20.9 million (P10) depending on the strength of the cruise ship season. Similarly, the total forecast for FY 2019 is \$19.5 million, but the actual amount could range from \$17.5 million (P90) to \$21.6 million (P10). Table 5-2 shows the projected breakdown of state and municipal shares.

Corporate Income Tax

Alaska levies the corporate income tax on corporations doing business in the state. Corporate tax rates are graduated according to the schedule in Table 5-3.

S-corporations and limited liability companies (LLCs) that file federally as partnerships are generally exempt from corporate income tax.

A corporation computes its tax liability based on the federal taxable income of its water's edge combined report, with Alaska adjustments.

Non-oil and gas corporations apportion their income to Alaska based on three factors: sales, property, and payroll. Alaska taxable income is determined by applying the calculated apportionment factor to the corporation's modified federal taxable income.

The department forecasts corporate income tax for non-oil companies based on two separate but connected projections of refunds and payments.

The department forecasts refunds by using a lagged economic growth regression model to predict refund amounts.

For forecasting the payments, the department uses a regression model based on past collections, overall U.S. economic activity growth, and current metal prices. Metal prices are used as a separate variable because mining activity accounts for much of the year-to-year variation in non-oil corporate income tax collections.

Corporate income tax is difficult to forecast with precision because it depends on nationwide economic growth and volatile metal prices. Though national economic activity remained strong through FY 2017, Alaska's recession continued to present a significant headwind, and translated to slightly lower collections year-over-year. After payments and refunds, the net revenue from the non-oil corporate income tax was \$87 million in FY 2017.

For FY 2018, the forecast is \$145 million, and revenue could range between \$99 million (P90) and \$170 million (P10), depending primarily on the strength of the U.S. economy and metal prices. For FY 2019, the forecast is also \$145 million, and revenue could be anywhere between \$96 million (P90) and \$186 million (P10) for the same reasons.

The corporate income tax for oil companies is discussed in Chapter 4.

Electric and Telephone Cooperative Taxes

The electric cooperative tax is based on kilowatt hours furnished by qualified electric cooperatives recognized under Title 10 of the Alaska Statutes. The telephone cooperative tax is levied on gross revenue of qualified telephone cooperatives under Title 10.

Revenue from cooperatives located in municipalities is treated as other restricted revenue in this forecast

because it is shared 100% with the municipalities. The small amount of revenue collected from cooperatives outside municipalities is retained by the state.

The forecast for total revenue from electric and telephone cooperative taxes is \$4.4 million in FY 2018, and actual revenue could range from \$3.9 million (P90) to \$4.7 million (P10) depending on the growth rate in the utilities' sales. The forecast for total revenue in FY 2019 is \$4.3 million, and actual revenue could fall between \$3.8 million (P90) and \$4.8 million (P10). Table 5-2 shows the projected breakdown of state and municipal shares.

Fisheries Business Tax

The fisheries business tax (FBT) is levied on businesses that process fisheries resources in Alaska or export fisheries resources from Alaska. Although the tax is usually levied on the act of processing, the tax is often referred to as a "raw fish tax" because it is based on the value of the raw unprocessed fishery resource.

Tax rates vary from 1% to 5%, depending on whether a fish species is classified as "established" or "developing" in the geographic area where it was caught, and whether it was processed by a shore-based processor, a floating processor, or a salmon cannery.

Revenue from the tax is deposited in the general fund. Half of that revenue (before credits) is shared with qualified municipalities and is treated as other restricted revenue. The remainder (after credits) is treated as unrestricted revenue.

Tax credits for the FBT, including the Salmon and Herring Product Development Credit, apply only to the state portion of the tax, so the department's forecast of the municipal share is usually higher than the state share.

Forecasts of FBT revenue are based on estimated taxable values of the major fisheries in the state and historical effective tax rates. The total FBT revenue in FY 2017 was slightly lower than the previous year, due to lower total catch value in CY 2016.

In FY 2018 and FY 2019, the total amount of FBT revenue is projected to increase, but with considerable uncertainty due to unpredictable fish prices, fish runs, and other factors. There was a near record-high salmon run in the summer of 2017, though shellfish values decreased for the second consecutive year.

The FY 2018 forecast for total FBT revenue is \$46.4 million and the FY 2019 forecast is \$47.5 million. The department believes actual revenue could range from \$36.5 million (P90) to \$57.5 million (P10) in FY 2018, and from \$41.0 million (P90) to \$65.5 million (P10) in FY 2019, depending on the number of fish caught, fish runs, and credits. Table 5-2 shows the projected breakdown of state and municipal shares.

Fishery Resource Landing Tax

The fishery resource landing tax is levied on fishery resources processed outside Alaska, but first landed in Alaska. Tax liability is based on the unprocessed statewide average price of the fish species. The tax is collected primarily from factory trawlers and floating processors that process fishery resources outside the state's 3-mile limit and bring their products into Alaska for shipment.

The tax rates vary from 1% to 3%, based on whether the species is classified as "established" or "developing." All revenue derived from the tax is deposited in the general fund.

Half of the revenue (before credits) is shared with qualified municipalities, and is treated as other restricted revenue. As with the FBT, tax credits apply only to the state share. The remainder after credits are paid is treated as unrestricted revenue.

The department forecasts fisheries resource landing tax revenue based on estimated taxable values of the major fisheries in the state and historical effective tax rates. Revenue grew slightly in FY 2017, but based on preliminary reports of fish caught in the 2017 season, the department expects landing tax revenue to level out in FY 2018. As with the FBT, the forecast is very uncertain due to fish prices and fish runs.

The FY 2018 forecast for total landing tax revenue is \$10.4 million, but actual revenue could range between \$6.6 million (P90) and \$15.0 million (P10), with the lower end likely coming in a case of both low fish value and high amounts of credits claimed. The FY 2019 forecast is \$10.5 million, but actual revenue could be between \$6.2 million (P90) and \$16.5 million (P10). Table 5-2 shows the projected breakdown of state and municipal shares.

Insurance Premium Tax

Insurance companies in Alaska pay an insurance premium tax instead of corporate income tax, sales, or other excise taxes. The tax is levied as a percentage of the total insurance premiums for policies in the state of Alaska.

Insurance premium taxes on workers' compensation insurance are deposited into a subfund of the general fund, the Workers' Safety and Compensation Fund, and are reflected as restricted in this forecast. The restricted component also includes service fees paid into the Workers' Safety and Compensation Fund by employers who are uninsured or self-insured.

Prior to FY 2017, remaining insurance premium taxes were considered unrestricted revenue. For FY 2017 and FY 2018, though, remaining insurance premium taxes are deposited into a subfund of the general fund, the Alaska Comprehensive Health Insurance Fund, and are reflected as restricted in this forecast.

However, in FY 2019, barring legislative action, these funds will again revert to unrestricted revenue.

To forecast insurance premium tax revenue, the Department of Revenue consults with the Alaska Department of Commerce, Community, and Economic Development's Division of Insurance, which administers the insurance premium tax, and the Alaska Department of Labor and Workforce Development's Workers' Compensation Division, which collects workers' compensation service fees.

The Department of Revenue also considers the historical growth rate of the insurance premium tax, which has been one of Alaska's faster-growing sources of revenue, likely due to expansion of the insurance industry.

The FY 2018 forecast for total insurance premium tax is \$62.4 million, and revenue could be anywhere between \$57.0 million (P90) and \$66.6 million (P10), depending mainly on Alaska's population growth, the number of insurance policies bought, and the cost of insurance premiums. The FY 2019 forecast is \$63.4 million, and actual revenue could range between \$55.4 million (P90) and \$69.1 million (P10).

Marijuana Tax

Voters approved a ballot measure in November 2014 that legalized the sale and use of marijuana for recreational purposes. The ballot measure also levied a new tax on the sale of marijuana. The tax rate is \$50 per ounce on marijuana buds/flowers and \$15 per ounce on other parts of the plant. The tax is paid by marijuana cultivators and is due the month after the sale of the product to a retail marijuana store or marijuana product manufacturing facility.

The ballot measure took effect in February 2015, and the Department of Revenue collected the first tax revenue from legal marijuana cultivators in the second quarter of FY 2017. Half the revenue from the marijuana tax is deposited into a subfund of the general fund, the Recidivism Reduction Fund, and is treated as restricted for purposes of this forecast. The remaining half of revenue is unrestricted revenue.

The revenue from marijuana taxes remains highly unpredictable because it is unknown how many and how quickly marijuana businesses will be licensed to open, how many consumers there are, and what percentage of those will switch their consumption to the legal and taxable market.

The department continues to provide a general forecast of marijuana tax revenue based on the experiences of Colorado and Washington, states that legalized recreational marijuana two years earlier than Alaska did. Revenue numbers from Colorado and Washington are scaled to account for Alaska's population, the slower pace of marijuana business license approvals, and the appropriate tax rate.

In FY 2017, the State of Alaska allocated \$0.9 million of marijuana tax revenue to the unrestricted general fund. Revenue growth has been held back by lower-than-expected sales in the legal marijuana market, due to a variety of operational and regulatory factors.

In FY 2018, the forecast for total marijuana tax is \$9.1 million, and actual revenue could be anywhere from \$5.0 million (P90) to \$13.2 million (P10). In FY 2019, the forecast is \$18.0 million, and actual revenue could be anywhere from \$7.0 million (P90) to \$23.9 million (P10).

The increased revenue in the forecasts reflects expected growth in the legal marijuana market. This is consistent with the experience in other states; for example, both Washington and Colorado received much more revenue in the second year of legal marijuana than in the first year, as more businesses opened and consumers switched to the legal market. The forecasts for the restricted share of revenue are the same as the unrestricted share, since the split is exactly half and half.

Mining License Tax

The mining license tax ranges from 0% to 7% of the net income of most mining operations in the state. New mining operations are exempt from the tax for a 3½-year period after production begins. Sand and gravel operations are similarly exempt from the tax.

This forecast uses a bottom-up approach to estimate tax payments for each of the major mines in the state based on expected minerals prices and production.

Unrestricted mining tax revenue increased from \$10.7 million in FY 2016 to \$41.4 million in FY 2017.

Gold, zinc, and silver play the largest role in mining tax, as the largest mines in the state rely heavily on those three metals. The revenue increase for the FY 2016 to FY 2017 period was due to recovery in metal prices, since production stayed level at most of Alaska's major mines. Metal prices have a disproportionate effect on revenue because the mining tax is based on the company's profits rather than gross value of resources.

Because of the volatility in metal prices, the mining tax is one of the most difficult to forecast. Despite volatility in early FY 2017, base metals posted historically high prices, and analysts expect those high prices to continue in the short term. However, great uncertainty in metal prices and translates to a wide range of revenue possibilities.

The FY 2018 forecast is \$45.8 million, but the department believes revenue could be anywhere between \$12.7 million (P90) in a low-prices case and \$65.9 million (P10) in a high-prices case, falling in between if some prices are high and others low. The FY 2019 forecast is \$46.4 million, but actual revenue could

range from \$13.9 million (P90) to \$73.7 million (P10), again depending mainly on prices.

Motor Fuel Tax

The motor fuel tax is imposed on motor fuel sold, transferred, or used within Alaska. Motor fuel taxes are collected primarily from wholesalers and distributors licensed as qualified dealers.

Various fuel uses are exempt from tax, including fuel used for heating or international flights.

Per-gallon rates are \$0.08 for highway use, \$0.05 for marine fuel, \$0.047 for aviation gasoline, \$0.032 for jet fuel, and \$0.08 or \$0.02 for gasohol, depending on the season, location, and U.S. Environmental Protection Agency mandate.

The federal government requires that all aviation fuel tax revenue be used in direct support of the airports where the revenue is generated. As a result, aviation gasoline revenue is shown as other restricted revenue, while jet fuel is shown as designated general fund revenue. That includes the 60% of revenue attributable to aviation fuel sales at municipal airports that is shared with the respective municipalities.

For FY 2017, the remaining motor fuel tax revenue – after aviation fuel is excluded – is considered unrestricted, though it is accounted for in specific highway and watercraft accounts within the general fund.

Beginning in FY 2018, remaining motor fuel tax revenue will be considered designated in the budget process, as AS 43.40.010 designates motor fuel taxes for specific infrastructure maintenance accounts.

The Division of Legislative Finance, a legislative agency, reviewed the relevant statutory language and determined that motor fuel tax has been incorrectly classified as unrestricted revenue for budget purposes in the past. As a result, Legislative Finance determined that the tax should be classified as designated in the future; the Office of Management and Budget in the Governor's Office concurred. The Department of Revenue reclassified motor fuel taxes beginning with FY 2018 (with no retroactive change) for consistency with the change in the budget process.

In 2016, the Legislature altered the motor fuel tax to include a refined fuel surcharge, sometimes called the conservation surcharge, of \$0.0095 per gallon on non-aviation fuel as well as certain non-motor fuels such as home heating oil. The surcharge revenue goes to the Alaska Department of Environmental Conservation's Spill Prevention and Response Division. Municipalities and certain cooperatives are exempt from the charge. The surcharge raised \$6.6 million in FY 2017, its second year in effect. The surcharge is shown as unrestricted revenue in both years in this forecast.

Revenue from the motor fuel tax (including aviation fuel but excluding the surcharge) was \$39.3 million in FY 2017, a 7% reduction from the previous year. In the past, the motor fuel tax has been one of State of Alaska's less volatile sources of revenue.

The FY 2018 forecast for total motor fuel tax revenue including aviation fuel but excluding the surcharge is \$40.9 million, and the Department of Revenue believes actual revenue could range from \$35.0 million (P90) to \$45.0 million (P10), depending on population growth and fuel consumption.

The FY 2019 forecast for the total motor fuel tax revenue is \$41.0 million, and actual revenue could fall between \$36.0 million (P90) and \$46.0 million (P10). Table 5-2 shows the projected breakdown of the different components, including aviation fuel, non-aviation fuel, and the conservation surcharge.

Seafood Assessments and Taxes

The department administers five different programs that collect funds through seafood assessments and taxes. The rates for these assessments and taxes are determined by a vote of the appropriate association within the seafood industry, by members of the Alaska Seafood Marketing Institute, or by the department. The five programs are:

- The seafood marketing assessment, which applies to all seafood products made or first landed in Alaska and all unprocessed products exported from Alaska. It is currently a 0.5% assessment and supports the operations of the Alaska Seafood Marketing Institute.
- The dive fishery management assessment is levied on the value of fishery resources taken using dive gear in a designated management area. The current assessment rate is 5% for sea cucumbers and 7% for geoducks and sea urchins. Dive fishery taxes are based on the value of the fishery in the prior fiscal year.
- The regional seafood development tax, which is levied on the value of fishery resources in a designated management area. The current tax rate is 1% and covers drift and set gillnet operations in Prince William Sound, as well as drift gillnet operations in Bristol Bay. Seafood development tax revenue is based on the estimated taxable value of seafood processed in Alaska.
- The salmon enhancement tax is levied on salmon sold or exported from designated aquaculture regions. The rate varies from 2% to 3% by location.
- The common property fishery assessment, authorized in 2006, allows hatcheries to establish a cost-recovery fishery and recoup costs through an assessment on fishery resources

taken in the terminal harvest area. The program was first used in 2012 for the Hidden Falls hatchery in Southeast Alaska.

The revenue received under these five assessments and taxes is deposited in the general fund, and it is treated as other restricted revenue in this forecast. It is set aside for the appropriation for the benefit of the seafood industry, either in marketing, or for management and development of the industry.

The department uses the estimated taxable value of Alaska's salmon fishery, and historical effective tax rates to forecast salmon enhancement tax revenue. The department forecasts other seafood assessments and taxes using the same estimates of fisheries values developed for the fisheries business and landing taxes.

The forecast for total revenue from seafood assessments and taxes in FY 2018 is \$21.3 million, though actual revenue could vary depending on fish runs and prices. The total forecast in FY 2019 is \$21.7 million, with similar considerations about the variability of fish value. Table 5-2 shows the projected breakdown of the different seafood assessments and taxes.

Tire Fee

The tire fee has two components. The first component is a fee of \$2.50 on all new tires sold in Alaska for motor vehicles intended for highway use. The second component is an additional \$5 fee per tire on all new tires with heavy studs sold in Alaska, and a \$5 fee per tire on the installation of heavy studs on a previously un-studded tire.

Tires sold to federal, state, or local government agencies for official use are exempt from the fee, as well as certain tires with lightweight studs.

The department forecasts the tire fee based on the historical growth rate of revenue. The mean forecast is \$1.4 million for both FY 2018 and FY 2019.

Tobacco Tax

Alaska levies a tax on cigarettes and other tobacco products. The cigarette tax, one component of the tobacco tax, is levied on cigarettes imported into the state for sale or personal consumption. A second component of the tax, the other tobacco products tax, is levied on tobacco products (other than cigarettes) imported into the state for sale.

Both components of the tobacco tax are collected primarily from licensed wholesalers and distributors.

The tax rate on cigarettes has been \$2.00 per pack since July 1, 2007. Of that, \$0.76 per pack is deposited into the School Fund, and is considered designated restricted revenue.

Money deposited into the School Fund is to be used for the rehabilitation, construction, repair, and associated insurance costs of state school facilities.

All cigarette and tobacco products license fees are also deposited into the School Fund, and they are considered designated restrictive revenue as well.

The remainder of the cigarette tax revenue (\$1.24 per pack) is deposited into the general fund. Of that, 8.9% (\$0.11 per pack) is deposited into a subfund of the general fund, the Tobacco Use Education and Cessation Fund, and is treated as designated restricted revenue.

The tax rate on other tobacco products, such as cigars and chewing tobacco, is 75% of the wholesale price and is deposited entirely in the general fund. It is unrestricted revenue.

Certain cigarettes and tobacco are exempted from the tax – those that are (1) transported into the state by an individual for personal consumption, (2) imported or acquired by one of the United States' uniformed services, or (3) imported or acquired by federally recognized Indian tribes.

More specifically, for (2) and (3), sales to authorized military personnel by a military exchange, commissary, or ship store, and sales by an Indian reservation business located within an Indian reservation to members of the reservation are not subject to the tax.

The department's forecast for cigarette tax revenue is based on past rates of decline in cigarette consumption. In recent years, the total number of cigarettes purchased in Alaska has fallen by about 20 million per year, translating to a roughly \$2 million yearly decline in total cigarette tax revenue. Cigarette tax revenue rose slightly in FY 2017 due to prior-year revenue that was received in FY 2017.

However, the underlying trend of declining consumption has continued, and the department projects that cigarette tax revenues will continue to decline in the future.

The revenue from other tobacco products is projected to rise due to moderate increases in both wholesale prices and consumption levels.

Typically, tobacco taxes are one of the state of Alaska's least volatile sources of revenue, so there is not much uncertainty in the forecasts.

The FY 2018 forecast for total tobacco tax revenue is \$61.3 million, and actual revenue could fall between \$57.3 million (P90) and \$65.1 million (P10), depending on population growth and the tobacco consumption rate. The FY 2019 forecast for the total is \$60.5 million, and actual revenue could range from \$56.7 million (P90) to \$64.2 million (P10).

Table 5-2 shows the projected breakdown of the tobacco tax, including the other tobacco products tax, and the unrestricted versus restricted portions of the cigarette tax.

Certain cigarettes and tobacco are exempted from the tax: cigarettes and tobacco (1) transported into the state by an individual for personal consumption, (2) imported or acquired by one of the uniformed services of the United States, or (3) imported or acquired by a federally recognized Indian tribe for sale to its own members.

Vehicle Rental Tax

Vehicle rental tax is a 10% tax on most passenger vehicle rentals of 90 days or less, and a 3% tax on rentals of recreational vehicles for 90 days or less.

Exemptions include taxis, rentals to government agencies, and trucks used for transporting personal property.

Revenue from the vehicle rental tax is deposited into a special vehicle rental tax account within the general fund. The Alaska Legislature may appropriate the balance of that account for tourism development and marketing, which it typically does.

Revenue from the vehicle rental tax is projected based on GDP growth, since most vehicle renters are tourists and tourism increases when the national economy is strong. Vehicle rental tax revenue increased by 15% in FY 2017 following an 8% increase in FY 2016, and the department expects it to continue rising modestly unless there is an economic downturn.

The FY 2018 forecast for vehicle rental tax revenue is \$12.6 million, but actual revenue could fall between \$11.7 million (P90) and \$13.4 million (P10), depending on the strength of economic growth and the tourism industry specifically. The FY 2019 forecast is \$13.1 million, but actual revenue could fall between \$12.2 million (P90) and \$14.0 million (P10).

Charges for Services

The charges for services category includes fees and other program charges for state services. Revenues reported in this category do not include all charges for state services. This category only includes those services that do not fit into other categories in this report.

Most of these receipts are considered restricted revenue because they are returned to the program where they were generated. The only unrestricted revenue listed in this category comes from charges that do not have program receipt designations, or are not otherwise segregated and appropriated back to a program. Many of the charges for services are small amounts

Revenue from Charges for Services

By restriction and source

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
<u>Unrestricted</u>			
Unrestricted Revenue from Charges for Services			
General Government	12.8	12.8	12.8
Natural Resources	1.4	1.4	1.4
Other	7.3	7.3	7.3
Total Unrestricted Revenue from Charges for Services	21.5	21.5	21.5
<u>Restricted</u>			
Designated General Fund			
Department of Commerce, Community, and Economic Development Business Licenses	9.5	9.5	9.5
General Government – General Fund Subfunds	7.7	7.7	7.7
Marine Highway Receipts	45.8	47.5	47.5
Natural Resources	0.2	0.2	0.2
Oil and Gas Conservation	7.6	7.7	7.7
Regulatory Commission of Alaska Receipts	11.2	11.3	11.3
Receipt Supported Services	179.1	159.9	159.9
Timber Sale Receipts	1.0	1.0	1.0
Subtotal Designated General Fund	262.1	244.8	244.8
Other Restricted			
Environmental Compliance Fees	1.1	1.1	1.1
General Government – Special Funds	0.4	0.4	0.4
Ocean Ranger Fees	4.2	4.2	4.3
Statutorily Designated	128.5	80.0	80.0
Subtotal Other Restricted	134.2	85.7	85.7
Total Restricted Revenue from Charges for Services	396.3	330.5	330.6
Total Revenue from Charges for Services	417.8	352.0	352.1

Fines and Forfeitures

By restriction

	Millions of Dollars		
	History	Forecast	
Fiscal Year	2017	2018	2019
<u>Unrestricted</u>			
Unrestricted Revenue from Fines and Forfeitures	13.2	13.2	13.2
<u>Restricted</u>			
Designated General Fund			
Tobacco Settlement (Tobacco Use Education and Cessation Fund)	6.0	3.9	3.9
Other – General Fund Subfunds	3.2	3.2	3.2
Subtotal Designated General Fund	9.2	7.1	7.1
Other Restricted			
Tobacco Settlement (Northern Tobacco Securitization Corporation)	24.1	15.8	15.6
Other – Special Revenue Funds	0.1	0.1	0.1
Subtotal Other Restricted	24.2	15.9	15.7
Restricted Revenue from Fines and Forfeitures	33.4	23.0	22.8
Total Revenue from Fines and Forfeitures	46.6	36.2	36.0

that the department has grouped into the broad categories “general government,” “natural resources” and “other.” Estimates for these categories are based on fiscal year-to-date collections and historical averages. The largest categories of charges for services are listed separately and are discussed below.

Marine Highway Fund

The Alaska Marine Highway Fund is a subfund of the general fund and receives revenue from state ferry system operations. Because revenue is customarily appropriated for Alaska Marine Highway operations, it is considered restricted revenue for this forecast. Revenue projections are based on revenue expectations provided by the Alaska Marine Highway Division within the Alaska Department of Transportation and Public Facilities. The projection is \$47.5 million in both FY 2018 and FY 2019.

Environmental Compliance Fund

Commercial passenger vessel fees paid into the Environmental Compliance Fund come from two sources: Ocean Ranger Program fees, and environmental compliance fees. All fees paid into the

fund are considered restricted for purposes of this forecast and are based on estimated cruise ship passenger levels.

The Ocean Ranger fee is levied on each voyage in Alaska by commercial passenger vessels with 250 or more berths at a rate of \$4 per berth. The fee is levied to support the Ocean Ranger Program, which provides for independent observers of engineering, sanitation and health practices aboard the vessels. This fee was imposed as part of a broader commercial passenger vessel-related initiative passed by Alaska voters in August 2006.

Environmental compliance fees are levied on commercial passenger vessels with more than 50 berths. Fees range from \$75 to \$3,750 per vessel based on the number of berths, and funds are used to support environmental compliance programs. The projected revenue from environmental compliance fees is \$1.1 million in both FY 2018 and FY 2019.

Beginning with this forecast, both Ocean Ranger fees and environmental compliance fees are reflected as other restricted revenue to conform with budget documents. Previously, both of the fees have been shown as designated general fund.

Revenue from Licenses and Permits

By restriction and source

	Millions of Dollars		
	History	Forecast	
	Fiscal Year	2017	2018
<u>Unrestricted</u>			
Unrestricted Revenue from Licenses and Permits			
Motor Vehicles	38.9	34.9	35.0
Other Fees	3.2	3.2	3.2
Total Unrestricted Revenue from Licenses and Permits	42.1	38.1	38.2
<u>Restricted</u>			
Designated General Fund			
Other Fees – General Fund Subfunds	1.5	1.5	1.5
Other Restricted			
Alcoholic Beverage License Share	0.9	0.9	0.9
Hunting and Fishing Fees (Fish and Game Fund)	32.9	37.6	38.0
Other Fees – Special Revenue Funds	3.9	3.9	3.9
Subtotal Other Restricted	37.6	42.4	42.7
Total Restricted Revenue from Licenses and Permits	39.1	43.9	44.2
Total Revenue from Licenses and Permits	81.2	82.0	82.4

Program Receipts

Under AS 37.05.142 – 37.05.146, receipts from authorized state programs are accounted for separately and appropriated to administer and implement laws related to the particular program, or to cover costs associated with collecting the receipts. Some programs with program receipt authority are not included in the Department of Revenue's Charges for Services category because they are reported elsewhere in this forecast or because they do not generate revenue available for general appropriation.

Expected revenue from program receipts are based on discussions with the Governor's Office of Management and Budget, and analysis of the most recent budget expectations for these categories.

Program receipts listed in this section are:

- Receipt-supported services, which include state services such as Alaska Pioneer Homes and occupational licensing funded by program receipts.
- Statutorily designated program receipts, which include money received from sources other

than the state or federal government and restricted by the terms of a gift, grant, bequest, or contract.

- Regulatory Commission of Alaska receipts, which are regulatory cost charges and user fees levied on utilities and pipelines to fund costs of regulation.
- Timber sale receipts, which are used to fund the timber disposal program of the Alaska Department of Natural Resources.
- Oil and Gas Conservation Commission receipts, which are fees and charges for regulation of oil and gas wells and pipelines.
- Business license fees collected by the Alaska Department of Commerce, Community, and Economic Development.

Fines and Forfeitures

Fines and forfeitures include civil and criminal fines and forfeitures and money received by the state from the settlement of civil lawsuits. The largest single source of

Revenue from Rents and Royalties

By restriction and source

Millions of Dollars

	History	Forecast	
Fiscal Year	2017	2018	2019

Unrestricted

Unrestricted Revenue from Rents and Royalties

Mining Rents and Royalties ¹	11.8	15.8	13.2
Other Non-Petroleum Rents and Royalties	15.6	15.0	15.0
Total Unrestricted Revenue from Rents and Royalties	27.4	30.8	28.2

Restricted

Designated General Fund

Other Non-Petroleum Rents and Royalties	4.2	4.2	4.2
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Other Restricted

Mining Rents and Royalties	5.5	3.5	6.1
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Total Restricted Revenue from Rents and Royalties	9.7	7.7	10.3
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Total Revenue from Rents and Royalties	37.1	38.5	38.5
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¹ Includes revenue from materials sales from state land, primarily sales of gravel. These sales totaled \$5.9 million in FY 2017 and are not subject to sharing with the Permanent Fund or Public School Trust Fund.

receipts under this category is the multi-state tobacco settlement often referred to as the Master Settlement Agreement. Other sources are forecast based on fiscal year-to-date collections and historical averages.

Tobacco Settlement

The tobacco Master Settlement Agreement was signed by 46 states, including Alaska, in November 1998 and dictates annual payments to each of the states. Eighty percent of the settlement revenue is earmarked for the Northern Tobacco Securitization Corporation (NTSC) for payments on bonds that were sold based on the future revenue stream. The revenue for these bonds is considered other restricted revenue. The remaining 20% of the revenue is deposited into the Tobacco Use Education and Cessation Fund, a subfund of the general fund, and the 20% is considered designated general fund revenue.

Tobacco settlement payments are based on a complex formula that takes into account several factors, including declines in cigarette consumption, inflation, and certain adjustments for litigation expenses and market share losses related to the settlement.

In FY 2017, Alaska received the last payments from the Strategic Contribution Fund (SCF) portion of the set-

tlement, which had been paid since FY 2008. The SCF payment was intended to reflect Alaska's level of contribution toward final resolution of the state lawsuits against the tobacco companies. The SCF payments were made to Alaska based on a separate formula than the Master Settlement Agreement, but were appropriated based on the same split as regular payments.

The projected revenue from the remaining tobacco settlement to the NTSC is \$15.8 million in FY 2018 and \$15.6 million in FY 2019. For the Education and Cessation Fund portion, it is \$3.9 million in FY 2018 and \$3.9 million in FY 2019.

Licenses and Permits

Licenses and permits represent revenue derived from charges for participating in activities regulated by the state. The majority of the receipts under this category are from motor vehicle registration and fishing and hunting license fees. Several other small license and permit fees are summarized in the other fees category.

Alcoholic Beverage Licenses

Alcoholic beverage licenses are required to manufacture or sell alcoholic beverages in Alaska, and

Miscellaneous and Transfer Revenues

By restriction and source

	Millions of Dollars		
	History	Forecast	
	Fiscal Year 2017	2018	2019
<u>Unrestricted</u>			
Unrestricted Miscellaneous and Transfer Revenues			
Miscellaneous	21.6	20.4	21.6
Alaska Capital Income Fund ¹	25.1	32.0	28.0
Alaska Housing Finance Corporation	13.5	18.4	30.0
Alaska Industrial Development and Export Authority ²	6.3	12.9	10.0
Alaska Municipal Bond Bank Authority	0.0	0.0	0.0
Alaska Student Loan Corporation	0.0	1.2	0.0
Alaska Energy Authority	0.0	0.0	0.0
Mental Health Trust	0.0	0.0	0.0
Unclaimed Property	20.0	8.0	8.0
Total Unrestricted Miscellaneous and Transfer Revenues	86.5	92.9	97.6
<u>Restricted</u>			
Designated General Fund			
Miscellaneous – General Fund Subfunds ³	19.5	19.5	19.5
Other Restricted			
Miscellaneous – Special Revenue Funds ³	6.8	6.8	6.8
Total Restricted Miscellaneous and Transfer Revenues	26.3	26.3	26.3
Total Miscellaneous and Transfer Revenues	112.8	119.2	123.9

¹ Beginning with the fall 2017 forecast, transfer revenue from the Alaska Capital Income Fund is considered unrestricted revenue.

² The AIDEA dividend for FY 2019 is an estimate as of Dec. 8, 2017; it will be revised in the *Revenue Sources Book's* spring 2018 update.

³ These funds represent revenue shown under account codes for "other" or "contributions" in the Alaska State Accounting System for general fund subfunds and special revenue funds.

are issued by the Alcoholic Beverage Control Board within the Department of Commerce, Community, and Economic Development.

All the revenue from biennial license fees collected within municipalities – excluding annual wholesale fees and biennial wholesale license fees – is shared with the municipalities and treated as other restricted revenue for purposes of this forecast. The remaining revenue (annual wholesale fees and biennial wholesale license fees) is treated as designated general fund revenue, as these funds are considered program receipts supporting the service of issuing alcoholic beverage licenses.

Hunting and Fishing License Fees

Hunting and fishing licenses are issued by the Alaska Department of Fish and Game for participation in various hunting, fishing, and other related activities. The majority of this revenue is appropriated to a special revenue fund called the Fish and Game Fund, and is classified as other restricted revenue. Money in the fund can only be spent for fish and game management purposes. The Department of Fish and Game provides the forecasts of revenue from hunting and fishing license fees.

Hunting and fishing license fees are expected to increase substantially because of House Bill 137, which passed during the 2016 legislative session and raised the fees for a variety of licenses and big-game tags. The law took effect Jan. 1, 2017, and thus impacts the second half of FY 2017 and all of FY 2018. The forecast calls for hunting and fishing fees to rise from \$32.9 million in FY 2017 to \$37.6 million in FY 2018 and \$38.0 million in FY 2019.

Motor Vehicle Registration Fees

Motor vehicle registration fees are collected by the Division of Motor Vehicles within the Department of Administration. Most fees are considered unrestricted license and permit revenue; however, some registration fees are considered restricted receipt-supported services and are reflected in the Charges for Services section above. Historical and forecasted revenue from motor vehicle registration fees is based on data that the Division of Motor Vehicles provides. The FY 2018 and FY 2019 forecasts for motor vehicle registration fees are \$34.9 million and \$35.0 million.

Rents and Royalties

Rents and royalties from sources other than oil and gas fall into two categories: mining rents and royalties, and other non-petroleum rents and royalties. All rents and royalties from oil and gas are reported in Chapter 4, Petroleum Revenue.

Mining Rents and Royalties

As with oil and gas production, the state earns revenue from other mineral production that occurs on state lands leased for exploration and development. As the landowner, the state earns revenue from leases as: (1) up-front bonuses, (2) annual rent charges, and (3) as a retained royalty interest in mineral production.

Revenue received from mining rents and royalties is deposited as follows: between 25% and 50% into the Permanent Fund, 0.5% into the Public School Trust Fund, and the remainder into the general fund, which is treated as unrestricted revenue. The Permanent Fund and Public School Trust Fund portions are treated as other restricted revenue.

The Department of Revenue forecasts revenue from mining rents and royalties based on an average of the revenue in recent years. The forecast for the unrestricted portion is \$15.8 million in FY 2018 and \$13.2 million in FY 2019. For the restricted portion, it is \$3.5 million in FY 2018 and \$6.1 million in FY 2019. In FY 2018, only 25% of royalties were deposited to the Permanent Fund; this forecast assumes that 50% of most mining royalties will be deposited in FY 2019 and beyond.

Other Non-Petroleum Rents and Royalties

The state receives revenue from the leasing, rental, and sale of state land. While all this revenue is deposited into the general fund, some is deposited into subfunds of the general fund and is treated as designated general fund revenue, which is restricted, for purposes of this forecast. This category includes revenue from leasing, rental, and the sale of state land that does not fall into the oil and gas or mining royalty categories. Other non-petroleum rents and royalties are based on the analysis of fiscal year-to-date and historical collections.

The forecast for the unrestricted portion of these royalties is \$15.0 million in both FY 2018 and FY 2019, and for the restricted portion it is \$4.6 million in both years.

Miscellaneous and Transfer Revenues

This category includes unclaimed property transfers, transfers to the state from component organizations, and miscellaneous revenue. Projections of miscellaneous revenue, which include contributions to the state and other revenue, are based on the analysis of fiscal year-to-date and historical collections. Unclaimed property and transfers from component organizations are discussed below.

Unclaimed Property

Alaska's unclaimed property statutes require businesses and corporations to report unclaimed intangible property to the state. Property is reportable if an owner cannot be located, the owner has not cashed a property check, or an account has not had any owner-initiated activity for at least three years. Unclaimed property may include checking accounts, customer deposits and over-payments, gift certificates, unpaid wages, and security-related accounts. The state holds the property in trust until the owner or his or her legal heir claims it. Each year the unclaimed property trust account is evaluated and the excess of the working trust balance is transferred to the general fund. The projected revenue from unclaimed property is \$8 million in both FY 2018 and 2019.

Transfers from Component Organizations

Each year, the state receives money in the form of transfers from component organizations, such as the Alaska Housing Finance Corporation, and the Alaska Industrial Development and Export Authority, frequently in the form of dividends. Component organizations are covered in more detail in Chapter 10, State Entities. Some component organizations do not make transfers to the state, and, as a result, not all component organizations are listed here.

Estimates of FY 2017 transfers, and forecasts for FY 2018 and FY 2019 transfers are based on discussions with the Office of Management and Budget, and anal-

ysis of the most recent budget expectations for these categories. The forecasts for the component organizations are found in Table 5-8.

Transfers from component organizations presented under this category may differ from those presented in Chapter 10 for two reasons: (1) amounts in this section account differently for funds paid over time for multi-year capital projects, and (2) amounts in this section include funds that are transferred to the state and then appropriated to the component unit for operations.

Transfers from State Funds

Beginning in FY 2018, transferred earnings of the Alaska Capital Income Fund are shown as unrestricted revenue. The Alaska Capital Income Fund is invested alongside the Alaska Permanent Fund, and beginning in FY 2018, the earnings of the fund will be transferred to the general fund for general appropriation. This change has been made for consistency with budget documents, in consultation with the Legislative Finance Division, and Office of Management and Budget.

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Chapter 6

Federal Revenue

General Discussion

In fiscal year 2017, the State of Alaska received \$2.6 billion in federal funds, constituting roughly 21% of total state revenue. This federal funding is considered restricted, as it is required to be used for specific purposes such as road improvements, Medicaid payments, and aid to schools. Potential changes to federal law, differing federal and state fiscal years, and varying numbers of eligible Alaskans in certain programs make forecasting federal revenue difficult.

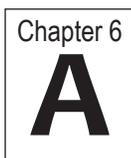
Forecast

Estimates of FY 2018 and FY 2019 receipts come from the Office of Management and Budget in the Govern-

or's Office and are based on state agency projections of potential federal revenue. Table 6-1 provides actual FY 2017 receipts and the forecasts for FY 2018-2019.

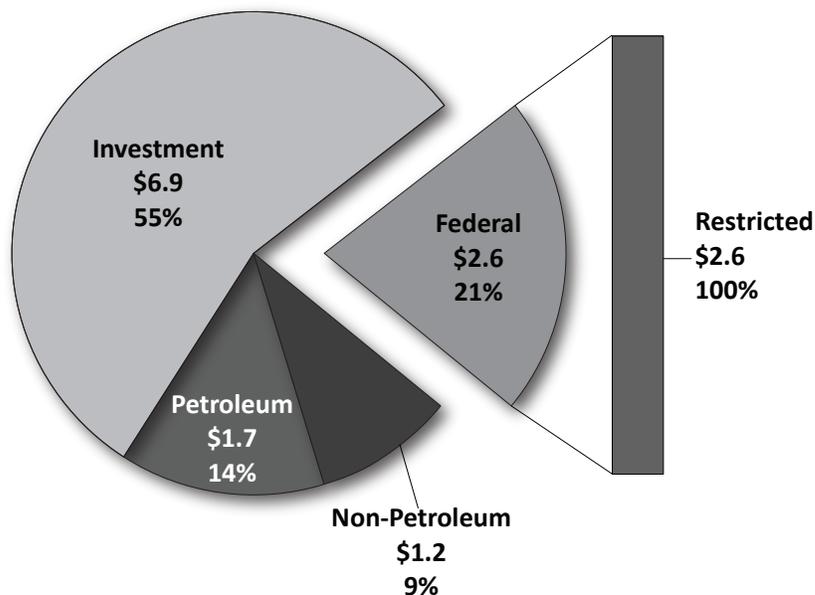
During FY 2018, the State of Alaska is authorized to receive \$3.7 billion in federal funds. It is important to note that the Alaska Legislature authorizes state agencies to receive and spend the maximum that federally funded programs might receive, while actual appropriation amounts are historically 20% to 30% lower.

Consistent with state budget protocol and past practice, the federal revenue forecast represents the total authorization and actual revenue will likely come in below these forecasts. Some of the funding granted



FY 2017 Federal Revenue

By restriction and type, in billions of dollars



Total Federal Revenue to the State

FY 2017 and forecasted FY 2018-2019

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019

Unrestricted General Fund

Federal Receipts	0.0	0.0	0.0
------------------	-----	-----	-----

Restricted (Federal)

Federal Receipts Authorization ¹	2,640.1	3,743.8	3,826.5
---	---------	---------	---------

Total Federal Revenue

2,640.1 3,743.8 3,826.5

¹This amount includes federal receipts other than Alaska's share of the royalties from the National Petroleum Reserve-Alaska, which are presented in Chapter 2.

Budgeted State Matching Requirement

Top spending categories

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019

State Matching Requirement

Operating Budget	662.6	695.6	732.3
Capital Budget	79.9	109.0	94.0

Total Matching Requirement

742.5 804.6 826.3

Top Spending Categories

Transportation Projects	1,214.6	1,214.6	1,461.6
Medicaid	1,421.2	1,690.1	1,711.3
Education (K-12, University of Alaska)	392.8	395.2	395.0

Source: Office of Management and Budget, Office of the Governor.

for multi-year capital projects is received and spent in years following the year in which the money is procured. All federal funds, whether spent in the operating or capital budget, are limited in how they may be used; therefore, they are shown as restricted revenue.

State matching

Most federal funding requires state matching. The state match for federal spending in FY 2017 and the enacted FY 2018 budgeted amount are included in Table 6-2. Overall, in FY 2017, Alaska was authorized to spend \$742.5 million in matching funds and to

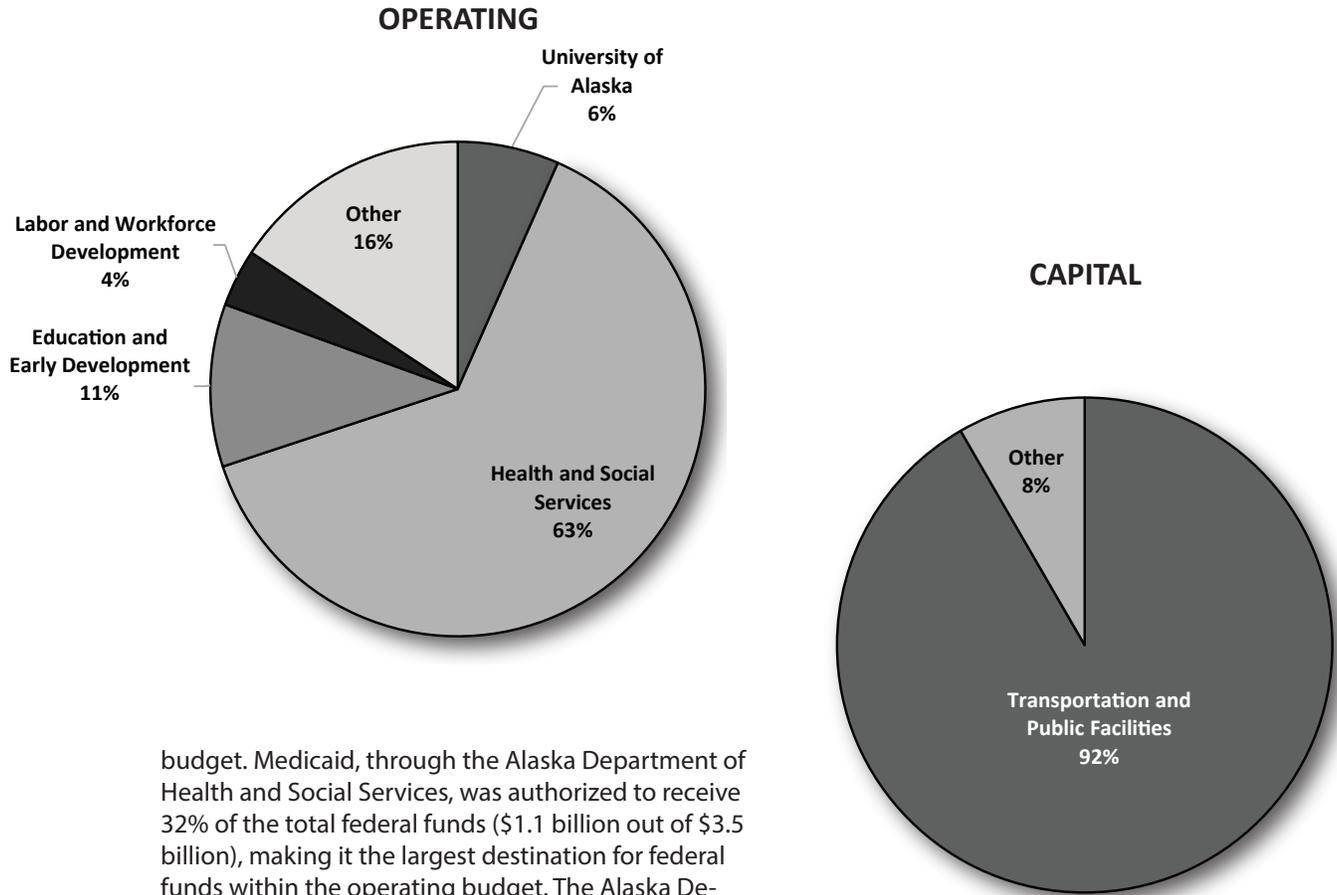
receive \$3.5 billion. This means Alaska was authorized to receive roughly \$5.09 in federal funds for each dollar it was authorized to spend in matching state funds. These numbers are all authorized amounts, not actual amounts, because actual federal funds receipts for FY 2017 are not yet available.

Distribution of Restricted Revenue

Of the federal funds the state was authorized to receive in FY 2017, 63% (\$2.2 billion) was authorized to go into the operating budget and the remaining 37% (\$1.3 billion) was authorized to go into the capital

FY 2017 Federal Revenue Allocation

Revenue in operating and capital budgets, by recipient agency



budget. Medicaid, through the Alaska Department of Health and Social Services, was authorized to receive 32% of the total federal funds (\$1.1 billion out of \$3.5 billion), making it the largest destination for federal funds within the operating budget. The Alaska Department of Education and Early Development, and the University of Alaska were other major recipients; together they were authorized to receive 11% of total federal funds (\$392 million).

In the capital budget, the Alaska Department of Transportation and Public Facilities is the dominant destination for federal funds, being authorized to receive about 33% of total federal funds (\$1.1 billion) in FY 2017.

The figures shown for FY 2018 in Table 6-2 for state matching do not represent unrestricted general fund money, unlike in past years, since the FY 2018 uses

other funds for these purposes. The operating budget matching numbers for FY 2018 and FY 2019 are indeterminate. The numbers for transportation and Medicaid in FY 2019 are speculative since the FY 2019 budget has not yet been prepared.

Figure 6-B illustrates a more detailed distribution of federal funds the state was authorized to receive; the distribution of funds actually received may differ slightly.

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Chapter 7

Investment Revenue

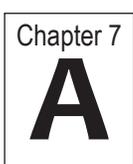
Overview

The total investment revenue for FY 2017 was approximately \$6.9 billion, with nearly all of it classified as restricted revenue as shown in Figure 7-A. Ninety-seven percent of revenues from investments in FY 2017 were from the Alaska Permanent Fund. Table 7-1 shows there are lower investment returns forecasted for FY 2018 - FY 2019; this forecast is based on assumptions of projected returns and continued growth in the value of equities and other investments.

To forecast investment revenue, the Department of Revenue combined actual performance through Sept. 30, 2017, with a projection for the remainder of

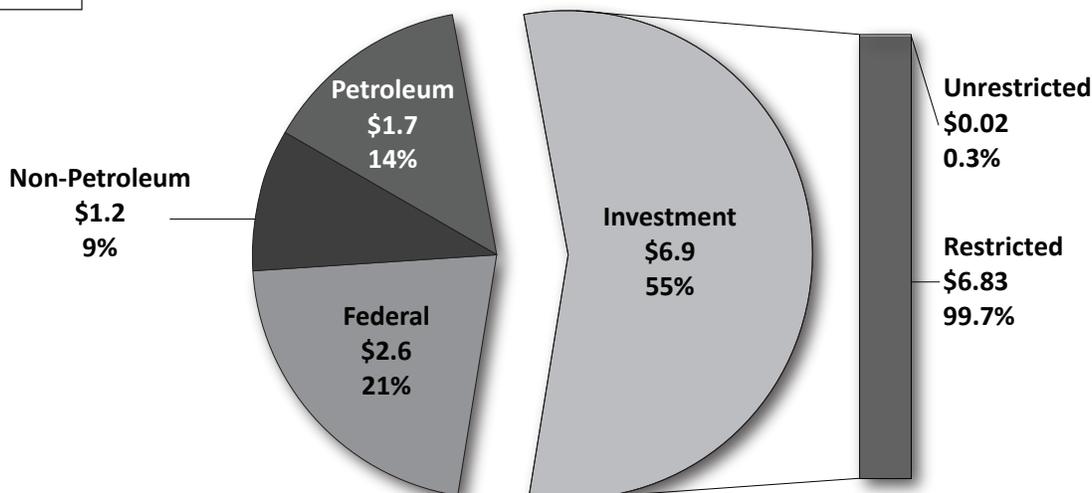
the fiscal year. Forecasts and capital-market median returns are based on information provided in the five- to 10-year capital-market returns projection, provided by the state's investment consultant, Callan Associates, Inc.

Table 7-2 shows a summary of Callan's long-term capital-market projections, as well as the benchmark against which performance for a specific asset class is measured in the state portfolios. The column titled, "Projected Return" is the estimated annual rate of return. The numbers in the "Projected Risk" column represent a statistical measure called standard deviation, which is the most commonly used measure of risk in the investment world. The stan-



FY 2017 Investment Revenue

By restriction and type, in billions of dollars



Total Investment Revenue¹

By restriction and detail, in millions of dollars

	Millions of Dollars		
	History	Forecast	
Fiscal Year	2017	2018	2019
<u>Unrestricted</u>			
Unrestricted Investment Revenue			
Investments	15.7	21.6	46.4
Interest Paid by Others	1.6	1.6	1.6
Total Unrestricted Investment Revenue	17.3	23.2	48.0
<u>Restricted</u>			
Designated General Fund Revenue			
Investments – Designated General Fund ²	1.7	2.2	4.1
Other Treasury-Managed Funds	57.7	42.3	32.6
Subtotal Designated General Fund	59.4	44.5	36.7
Other Restricted			
Investments – Other Restricted	3.6	4.4	8.4
Constitutional Budget Reserve Fund	94.2	65.2	14.9
Alaska Permanent Fund (realized earnings)	3,239.3	4,422.8	3,978.1
Alaska Permanent Fund (unrealized earnings)	3,436.3	-1,108.7	-18.8
Subtotal Other Restricted Revenue	6,773.4	3,383.7	3,982.6
Total Restricted Investment Revenue	6,832.8	3,428.2	4,019.3
Total Investment Revenue	6,850.1	3,451.3	4,067.3

¹ Governmental Accounting Standards Board (GASB) principles require the recognition of changes in the value of investments as income or losses at the end of each trading day, whether the investment is actually sold or not.

² Includes subfunds of the general fund.

standard deviation is a measure of the dispersion of data around its mean.

The analyst can use the standard deviation to provide a range of possible outcomes at any desired level of confidence. With a bell-curve (normal) distribution, approximately 68% of the observed outcomes are expected to be one standard deviation from the mean. A greater level of confidence (for instance, 95%) would require a broader range (two standard deviations).

For example, Callan estimates an average annual return for the Domestic Fixed Income asset class of 3.00% and a projected risk for that asset class of 3.75%. That means Callan is forecasting, with a normal

distribution, the annual return for the Domestic Fixed Income asset class between -0.75% and 6.75% (one standard deviation). A prediction at 95% confidence would run from -4.50% to 10.50% (plus or minus two standard deviations from the mean), and is too broad a range to be useful. The probability that a particular asset class or portfolio will have a negative return over a given period of time reflects the downside risk of the asset class or portfolio.

Unrestricted Investment Revenue

“Unrestricted investment revenue” is earned on some of the funds invested through the GeFONSI (General Fund and other non-segregated investments) pool. These funds are managed by the department’s

2017 Summary of Callan Associates, Inc.

Long-term capital market projections

Asset Class	Benchmark for Asset Class	Projected Return: 10-Year Geometric ¹	Projected Risk: Standard Deviation	Projected Return within One Standard Deviation (Percentage)						
				-30	-20	-10	0	10	20	30
Equities										
Broad Domestic Equity	Russell 3000	6.85%	18.25%							
Large Cap	S&P 500	6.75%	17.40%							
Small / Mid Cap	Russell 2500	7.00%	22.60%							
Global ex-US Equity	MSCI ACWI ex USA	7.00%	21.00%							
International Equity	MSCI World ex USA	6.75%	19.70%							
Emerging Markets Equity	MSCI Emerging Markets	7.00%	27.45%							
Fixed Income										
Domestic Fixed	Bloomberg Barclays Aggregate	3.00%	3.75%							
High Yield	Bloomberg Barclays High Yield	4.75%	10.35%							
Short Duration	Bloomberg Barclays 1-3 Yr G/C	2.60%	2.10%							
TIPS	Bloomberg Barclays TIPS	3.00%	5.25%							
Non-U.S. Fixed	Bloomberg Barclays Global Aggregate ex USD	1.40%	9.20%							
Emerging Market Debt	EMBI Global Diversified	4.50%	9.60%							
Other										
Private Equity	TR Post Venture Cap	7.35%	32.90%							
Real Estate	Callan Real Estate Database	5.75%	16.35%							
REITs	FTSE NAREIT All Equity	6.50%	20.70%							
Hedge Funds	Callan Hedge FoF	5.05%	9.15%							
Commodities	Bloomberg Commodity	2.65%	18.30%							
Cash Equivalents	90-Day T-Bill	2.25%	0.90%							
Inflation	CPI-U	2.25%	1.50%							

¹ Geometric returns are derived from arithmetic returns and associated risk (standard deviation).

General Fund Investment Pool Revenues

Includes non-segregated investments invested alongside general fund

	Millions of Dollars		
	History	Forecast	
	2017	2018	2019
	Fiscal Year		
<u>Unrestricted</u>			
Unrestricted Investment Revenue	15.7	21.6	46.4
<u>Restricted</u>			
Restricted Investment Revenue			
Designated General Fund ¹	1.7	2.2	4.1
Investments – Other Restricted	3.6	4.4	8.4
Total	21.0	28.2	58.9

¹ Includes subfunds of the general fund.

Treasury Division.¹ “Interest paid by others” is interest received by the state that does not fall under other categories. Interest from oil and gas royalties, oil and gas production tax, and oil and gas corporate income tax is not included in the “interest paid by others” category, and is instead included in the petroleum revenue section of this forecast.

Restricted Investment Revenue

“Restricted investment revenue” consists of earnings from governmental funds, the Constitutional Budget Reserve Fund (CBRF), other Treasury Division-managed governmental funds, and the Alaska Permanent Fund.

The application of Callan’s five- to 10-year capital-market returns projection to the Alaska Permanent Fund Corporation’s current asset allocation results in a 6.50% median expected total return. These estimates result in forecasted earnings of \$3.3 billion for FY 2018 and \$4.0 billion for FY 2019. The actual net income of the fund for FY 2017 was \$6.7 billion.

Market fluctuations could result in the actual return being materially higher or lower than forecast.

For example, in the Alaska Permanent Fund Corporation’s monthly report, *History & Projections* (Sept. 30, 2017), it presented a low case and high case showing that FY 2018 net income could range anywhere from -\$1 billion to \$8 billion, depending on market performance.

Revenue attributable to the Alaska Permanent Fund is shown as other restricted revenue in this forecast, consistent with previous editions of the *Revenue Sources Book*.

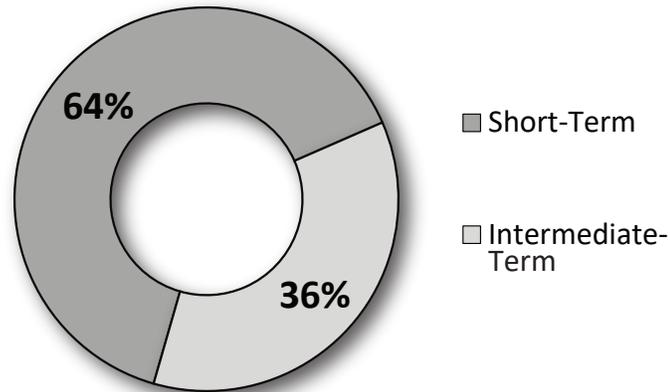
In recent years, there has been a lot of discussion of potentially using a portion of the Permanent Fund earnings for government operations. The department will continue to show earnings as restricted revenue until or unless the Alaska Legislature adopts a plan or protocol to divert a portion of those earnings to the general fund.

Permanent Fund earnings are separated into two components. “Realized earnings” represent gains or losses from the sale of assets, dividends received, and interest earned from assets held by the fund. Though shown in the “other restricted” category due to historical practice, realized earnings are technically available for appropriation by the Legislature with a majority vote. “Unrealized earnings” represent gains or losses in the value of assets that have not yet been sold, and therefore do not impact revenue available for appropriation. The total revenue attributable to the Permanent Fund, per Governmental Accounting Standards Board principles, is the sum of these two categories.

¹ The Department of Revenue’s Treasury Division invests general fund cash balances alongside cash balances from certain other funds in GeFONSI, a single investment pool. Earnings from GeFONSI are primarily unrestricted revenue, but also include some restricted revenue from balances in general fund subfunds and special revenue funds.

General Fund Investment Pool

Moderate risk: short to intermediate horizon



Short-term: three-month U.S. T-Bill. Intermediate-term: Barclays one- to three-year Government Bond Index.

General Fund Investment Pool

Asset allocation and summary

Treasury Pool	Target Percent Allocation	Performance Benchmark
Liquidity Pool / Short-term Fixed Income Pool	64%	Three-month U.S. Treasury Bill
Intermediate-Term Fixed Income Pool	36%	Barclays 1-3 Year Gov't Bond Index
Bank Bonds	0%	Allocation up to 2%
T-Bills, T-Notes, T-Bonds or Federal Agency Debentures	0%	Allocation up to 2%
Broad Fixed Income	0%	Allocation up to 10%
Tax Credit Loans	0%	Allocation up to 2%
Investment Balance: Sept. 30, 2017	\$3,315.0	million
Long-Term Expected Rate of Return	2.38%	Callan's returns
Probability of Negative Return Over 1 Year	1.36%	

Expected Lifetime of the CBRF

The Constitutional Budget Reserve Fund (CBRF) was established in 1990, when Alaskans voted to amend the Alaska Constitution to create a separate fund for money received from the resolution of disputes involving oil and gas, and minerals – primarily settlements.

Before revenue from royalty, rent and bonus settlements or judgments is deposited in the CBRF, 25% to 50% of that revenue goes into the Permanent Fund, and 0.5% goes to the Public School Trust Fund. The other revenue – not including revenue from royalty, rent and bonus settlements or judgments – goes directly into the CBRF.

The fixed balance net asset value of the CBRF was approximately \$3.9 billion as of June 30, 2017. The official CBRF balance as of that date, the end of FY 2017, will be released in conjunction with Alaska's *FY 2017 Comprehensive Annual Financial Report (CAFR)* published by the Alaska Department of Administration's Finance Division.

The CBRF was set up so that the Legislature may, under certain conditions, appropriate funds from the CBRF to pay for operating state government. Law-makers have tapped into the reserve fund to balance the state budget periodically since the 1990s. The Legislature last fully repaid its withdrawals in full in FY 2010. However, since then, there have been additional withdrawals.

Statutory Budget Reserve Fund

Asset allocation and summary

Investment Balance:

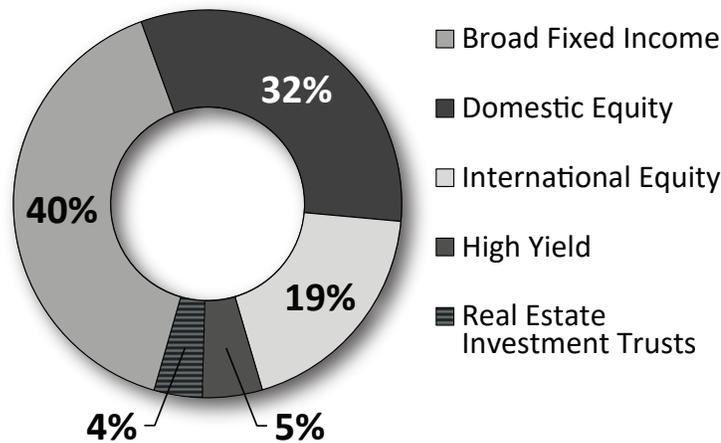
Sept. 30, 2017¹

\$0.0 million

¹The SBRF balance at Sept. 30, 2017, reflects draws for general fund cash needs. For more information on the General Fund Sufficiency Balance, go to http://treasury.dor.alaska.gov/Portals/0/docs/cash_management/fy17a.pdf.

Public School Trust Fund – Principal Assets

Moderate risk: long-term investment horizon



Broad Market: Barclays U.S. Aggregate. Domestic Equity: Russell 3000 Index. International Equity: MSCI ACWI ex-U.S. High Yield: U.S. High Yield BA x-144As 2% Cap. Real Estate Investment Trusts: FTSE NAREIT All Equity Index.

In 2014, the Legislature approved a \$3 billion transfer from the CBRF to the Public Employees' Retirement System and Teachers' Retirement System. That transfer, as well as additional authorized withdrawals to balance the state's budget, will need to be paid back to the CBRF under law.

Since FY 2016, the CBRF has been used to cover the gap between state expenditures and the state's collected revenue. Assuming that trend continues – given the current oil price and production forecast and an assumption of an annual budget based on FY 2018 levels – the CBRF will be depleted in FY 2019.

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Public School Trust Fund

Asset allocation and summary

Treasury Pool	Target Percent Allocation	Performance Benchmark
Broad Fixed Income	40%	Barclays U.S. Aggregate
Domestic Equity Pool	32%	Russell 3000 Index
International Equity Pool	19%	MSCI ACWI ex-U.S.
Short-Term Fixed Income Pool	0%	Allocation up to 5%
High Yield	5%	U.S. High Yield BA x-144As 2% Cap
Real Estate Investment Trusts	4%	FTSE NAREIT All Equity Index
Public School Fund Balance: Sept. 30, 2017	\$650.8	million
Long-Term Expected Rate of Return	5.80%	Callan's returns
Probability of Negative Return Over 1 Year	29.23%	

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7

Public School Trust Fund

Revenue, in millions of dollars

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019

Restricted

Restricted – Designated General Fund

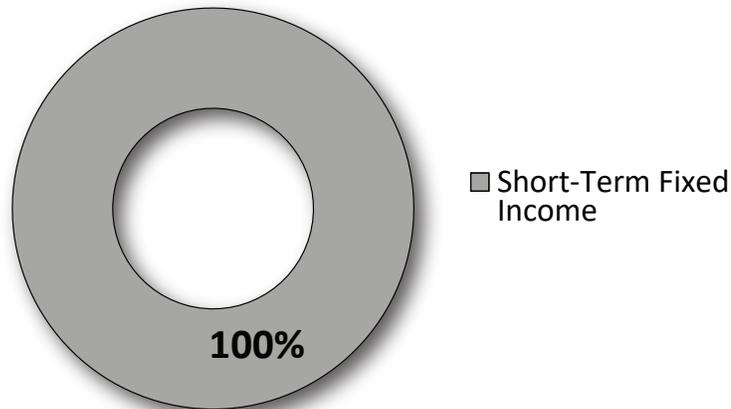
	2017	2018	2019
Public School Trust Fund Total Investment Income	57.7	42.3	32.6
Public School Trust Fund Income Distributed ¹	36.8	15.0	10.0

¹Public School Trust Fund Income Distributed reflects the Alaska Department of Education and Early Development actuals for FY 2017. Projections show recommended income distributions to maintain a sufficient balance in the Income Fund to cover the current and next fiscal year's budget.

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Public School Trust Fund – Income Assets

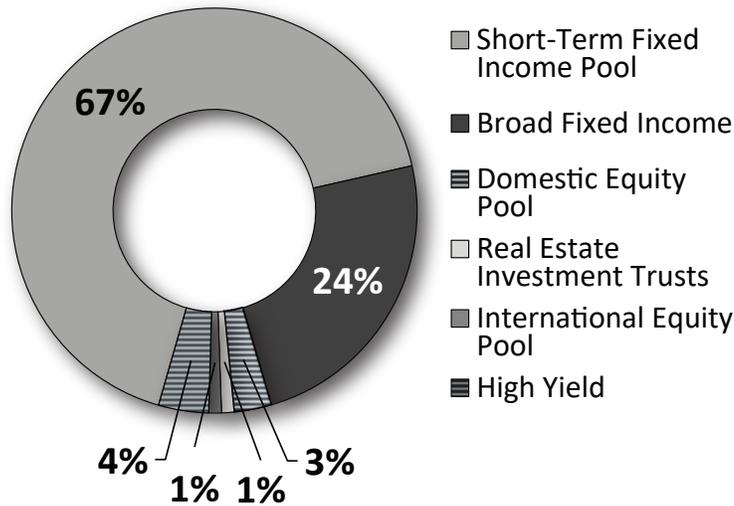
Low risk: short-term investment horizon



Short-term: three-month U.S. T-Bill.

Constitutional Budget Reserve Fund

Main account, moderate risk: intermediate horizon



Short-Term: Three-month U.S. T-Bill. Broad Market: Barclays U.S. Aggregate. Domestic Equity: Russell 3000. Real Estate Investment Trusts: FTSE NAREIT All Equity Index. International Equity Pool: MSCI ACWI ex-U.S. High Yield: U.S. High Yield BA x-144As 2% Cap.

Constitutional Budget Reserve Fund

Main account, asset allocation and summary

Treasury Pool	Target Percent Allocation	Performance Benchmark
Short-Term Fixed Income Pool	67%	Three-month U.S. Treasury Bill
Broad Fixed Income	24%	Barclays U.S. Aggregate
Domestic Equity Pool	3%	Russell 3000
Real Estate Investment Trusts	1%	FTSE NAREIT All Equity Index
International Equity Pool	1%	MSCI ACWI ex-U.S.
High Yield	4%	U.S. High Yield BA x-144As 2% Cap
Bank Bonds	0%	Allocation up to 2%
Regular Account Balance: Sept. 30, 2017	\$3,532.1	million
Long-Term Expected Rate of Return	2.89%	Callan's returns
Probability of Negative Return Over 1 Year	3.70%	

Constitutional Budget Reserve Fund

Revenue, in millions of dollars

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019

Restricted

Restricted – Other Restricted

	2017	2018	2019
Regular Account	94.2	65.2	14.9
Total	94.2	65.2	14.9

Alaska Permanent Fund

Revenue, in millions of dollars

Fiscal Year	Millions of Dollars		
	History	Forecast	
	2017	2018	2019

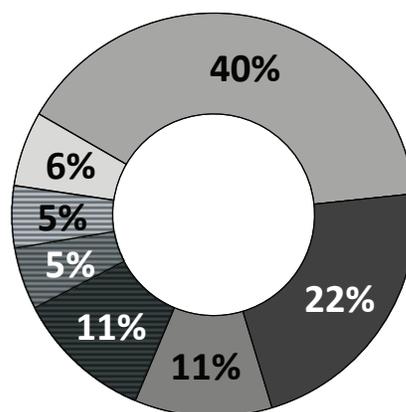
Restricted

Restricted – Other Restricted

	2017	2018	2019
Annual Unrealized Gain/Loss	3,436.3	-1,108.7	-18.8
Annual Realized Earnings/Loss	3,239.3	4,422.8	3,978.1
Reported Earnings	6,675.6	3,314.1	3,959.3

Alaska Permanent Fund

Target asset allocation



- Stocks
- Fixed Income Plus
- Real Estate
- Private Equity
- Absolute Return Strategies
- Infrastructure
- Asset Allocation Strategies

Alaska Permanent Fund

Asset allocation and summary

Treasury Pool	Target Percent Allocation	Performance Benchmark
Stocks	40%	Multiple Strategies
Fixed Income Plus	22%	Multiple Strategies
Real Estate	11%	Multiple Strategies
Private Equity	11%	Multiple Strategies
Absolute Return Strategies	5%	Multiple Strategies
Infrastructure	5%	Multiple Strategies
Asset Allocation Strategies	6%	Multiple Strategies
<hr/>		
Alaska Permanent Fund Balance: June 30, 2017	\$59,785.1	million
Long-Term Expected Rate of Return	6.50%	Callan's returns



Chapter 8

Credits

An Overview

Alaska's tax code provides for a wide range of credits. Depending on the particular credit, a company may choose to request the State of Alaska to repurchase a credit, apply the credit against the company's own tax liability, or transfer it to another company.

Some credits are built into specific taxes; for example, the Per-Taxable-Barrel Credit is an integral part of the tax calculation for the North Slope oil and gas production tax. That credit, along with other tax credits applied against liability, are sometimes considered a type of "tax expenditure," as the forgone revenue is similar to spending in that it reduces the amount of revenue available for the state budget. Because the state never receives this revenue, these credits are not directly visible in revenue and spending numbers.

On the other hand, tax credits repurchased by the state do show up directly as expenditures in the budget, when funds are appropriated for this purpose.

This chapter provides an overview of the various tax credits, how they are earned, their limitations, and their revenue impact. Other types of tax expenditures, such as deductions, exemptions, and exclusions, are not included in this chapter, but can be found in the Department of Revenue's *Alaska Indirect Expenditure Report* on the Tax Division's website.¹

Recent Developments

The following are recent developments impacting tax credits since the publication of the *Fall 2016 Revenue Sources Book*.

House Bill 111, which made several changes to the oil and gas production tax and credits, was passed during the Alaska Legislature's 2017 legislative session. Chapter 4 in this publication provides an overview of key changes to the production tax and credit provisions made by HB 111. A detailed discus-

¹The *Alaska Indirect Expenditure Report* can be found at <http://tax.alaska.gov/programs/reports.aspx>.

sion of changes to specific credits is included within this chapter.

Oil and Gas Tax Credit Fund

The Oil and Gas Tax Credit Fund, established under AS 43.55.028, was created to allow the State of Alaska to purchase certain transferable oil and gas tax credit certificates. Funds are available subject to annual appropriation by the Legislature for this purpose. Credits available for state purchase include the transferable production tax credits under AS 43.55.023, AS 43.55.025, and certain Corporate Income Tax credits under AS 43.20: the Gas Storage Facility Credit, In-State Refinery Tax Credit, and Liquefied Natural Gas (LNG) Storage Facility Credit. Nontransferable credits, generally those offered under AS 43.55.024, are not available for state purchase.

HB 111 enacted provisions that will eventually phase out the Oil and Gas Tax Credit Fund. The legislation eliminates the eligibility for state purchase for any credits earned on or after July 1, 2017, except for the LNG storage facility, and refinery tax credits, both of which sunset in 2020. State purchase is limited in several ways. Only companies that produced fewer than 50,000 British thermal units (BTU) equivalent barrels per day in the prior calendar year may request state purchase, and companies can only request purchases up to \$70 million of credits per company per year. The first \$35 million of this request may be purchased at full value and the second \$35 million at 75% of their value.

If insufficient funds are appropriated to fulfill all credit purchase requests, as has been the case the past several years, the Tax Division's regulations establish the following protocol to allocate allotted funds.

First, all credits for which repurchase was requested prior to Jan. 1, 2017, are funded on a pro-rata basis. For example, in FY 2018, \$77 million was appropriated for credit repurchase and that amount was used to purchase 16% of all the outstanding pre-2017 credits.

Once all pre-2017 credits have been used or purchased, credits earned on or after Jan. 1, 2017, will

Tax Credits Claimed

FY 2015-FY 2017, in millions of dollars

Fiscal Year	Millions of Dollars		
	Total Credits Claimed		
	2015	2016	2017 ¹

Credits Applicable to the Oil and Gas Production Tax

Alternative Credit for Exploration, Cook Inlet Jack-Up Rig Credit, and Frontier Basin Credit	\$44	\$14	\$19
Exploration Incentive Credit	\$0	\$0	\$0
Per-Taxable-Barrel Credit	\$524	\$61	\$453
Qualified Capital Expenditure Credit, Well Lease Expenditure Credit, and Carried-Forward Annual Loss Credit	\$596	\$497	\$44
Small-Producer / New Area Development Credit	\$49	\$37	\$22

Credits Applicable to the Corporate Income Tax

Gas Exploration and Development Credit	D/I	D/I	D/I
Gas Storage Facility Credit	This was a single-use credit.		
In-State Gas Refinery Credit ²	D/I	D/I	D/I
Internal Revenue Code Credits Adopted by Reference	D/I	D/I	D/I
LNG Storage Facility Credit	\$0	\$0	\$0
Oil and Gas Industry Service Expenditures Credit	D/I	D/I	D/I
Veteran Employment Tax Credit	D/I	D/I	D/I

Credits Applicable to Multiple Tax Programs

Education Tax Credit	D/I	D/I	D/I
Film Production Credit	\$9	\$5	D/I
Minerals Exploration Incentive Credit	D/I	D/I	D/I

Credits Applicable to Fisheries Taxes

Winn Brindle Scholarship Contributions Credit	<\$1	D/I	D/I
Salmon and Herring Product Development Credit	<\$1	D/I	D/I
Community Development Quota Credit	<\$1	D/I	D/I
Other Taxes Credit	N/T	N/T	N/T

Total All Reportable Tax Credits	\$1,222	\$614	\$537
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¹The FY 2017 credit totals are estimated pending annual tax filings.

²The In-State Gas Refinery Credit program began Jan. 1, 2015.

D/I – Data incomplete.

N/T – Not tracked.

Note on Methodology Change:

This table has been updated to show credit numbers consistent with the *FY 2011-FY 2015 Alaska Indirect Expenditure Report*. Beginning with the *Fall 2016 Revenue Sources Book*, the Department of Revenue has revised the methodology for determining which fiscal year any individual tax credit is attributed to, therefore, some recent fiscal years have incomplete data for certain credits. To accurately attribute credits to the fiscal year they were “incurred,” credit amounts are based on returns for filing periods beginning during the relevant fiscal year. For example, a calendar-year return with a filing period that began in January 2016 would be included in FY 2016 data, however, the return may not be filed until FY 2017 or FY 2018. See the “Recent Developments” section at the beginning of Chapter 8 of the *Fall 2016 Revenue Sources Book* or the *FY 2011-FY 2015 Alaska Indirect Expenditure Report* for a more in-depth discussion of the methodology change.

History of Production Tax Credits

FY 2008-FY 2017

Millions of Dollars

Fiscal Year	History									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ¹
Statewide Credits										
Credits Used against Tax Liability	378	334	412	361	363	550	919	585	117	494
Credits Purchased by the State ²	54	193	250	450	353	369	592	628	498	30
Total Statewide Production Tax Credits										
	432	526	662	811	716	918	1,511	1,213	615	524

¹ FY 2017 credit totals are estimated pending annual tax filings.

² Credits Purchased by the State consists primarily of production tax credits purchased, but also includes corporate income tax credits available for state purchase from the Oil and Gas Tax Credit Fund. These include the Gas Storage Facility Credit, LNG Storage Facility Credit, and Refinery Credits.

be funded, first by the year that the repurchase was requested. All 2017 credits will be paid before any 2018 credits are paid. Within the credits for which repurchase was requested in a single year, the applicants are ranked based on the companies' Alaska resident-hire percentage, including contractors.

The Department of Revenue's estimates of credit purchases reflects credits earned for activity completed prior to July 1, 2017. Consistent with past practice, it is assumed that all outstanding credits will be funded in FY 2019.

However, the state may, and in recent years has, appropriated a lower amount. Under a statutory formula in AS 43.55.028(c), the Oil and Gas Tax Credit Fund receives a share of taxes levied under AS 43.55.011, the production tax statute. That share is 10% of revenue from taxes levied when the Alaska North Slope (ANS) price for the fiscal year is forecasted at \$60 per barrel or higher. That share is 15% of revenue from taxes levied when the ANS price for the fiscal year is forecasted at below \$60 per barrel. The statutory appropriation based on the fall 2017 forecast is shown in Figure 8-3. In recent practice, annual appropriations have been based on the spring revenue forecast, which is the last official forecast before the passage of the state's budget.

In the FY 2018 budget, the Legislature appropriated, as mentioned earlier, a total of \$77 million in funding for the state purchase of tax credits, which will leave an estimated balance of \$711 million of outstanding tax credits available for state purchase at the end of FY 2018. Assuming the Legislature appropriates the statutory amount for repurchase of tax credits per Table 8-3 each year, the department estimates that all outstanding tax credits would be purchased by FY 2025. Of course, the Legislature may choose to appro-

priate more or less than the statutory calculation in any given year.

One provision of HB 111 allows companies to use transferred tax credits to offset a prior-year tax liability, contingent on that prior-year liability not being dedicated to the Constitutional Budget Reserve Fund (CBRF). Based on analysis of possible qualifying liabilities, the fall 2017 forecast assumes approximately \$100 million worth of credits being transferred, or sold, to companies with a prior-year tax liability in FY 2018. These credits would then be used by producers, in lieu of making additional tax payments for certain prior-year tax liabilities that would otherwise go to the general fund. The net result: both the forecasted production tax revenue and the total balance of credits outstanding are reduced by \$100 million.

Credits Applicable to the Oil and Gas Production Tax

Alternative Credit for Exploration

AS 43.55.025(a)(1)-(4)

The Alternative Credit for Exploration is a transferable and state repurchase-eligible credit for expenditures for certain oil and gas exploration activities.

Outside Cook Inlet, the credit is 40% for seismic costs outside an existing unit, 30% for drilling costs for wells greater than 25 miles from an existing unit, 30% for preapproved new targets greater than 3 miles from an existing well, and 40% for preapproved new targets greater than 3 miles from a well and greater than 25 miles from an existing unit. The 3-mile limit

10-Year Forecast for Production Tax Credits

Fall 2017 forecast for FY 2018-FY 2027

Millions of Dollars

Fiscal Year	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Statewide Credits										
Credits Used Against Tax Liability	1,080	1,062	810	872	996	995	1,049	1,140	1,157	1,154
Credits Purchased by the State ¹	78	818	61	21	0	0	0	0	0	0
Total Statewide Production Tax Credits										
	1,158	1,880	872	893	996	995	1,049	1,140	1,157	1,154
Statutory Appropriation to Oil and Gas Tax Credit Fund²										
	---	206	167	119	132	135	139	155	171	183

¹ Credits Purchased by the State consists primarily of production tax credits purchased, but also includes corporate income tax credits available for state purchase from the Oil and Gas Tax Credit Fund. These include the Gas Storage Facility Credit, LNG Storage Facility Credit, and Refinery Credits.

² Per AS 43.55.028(c), the statutory appropriation is 10% of taxes levied by AS 43.55.011 (oil and gas production tax) when the ANS price forecast for the fiscal year is \$60 per barrel or higher, and 15% of taxes levied by AS 43.55.011 when the ANS price forecast for the fiscal year is below \$60 per barrel.

does not apply for wells in “Frontier Basins” as described under the Frontier Basin Credit below.

Within Cook Inlet, the credit was 40% for seismic costs outside an existing unit, 30% for drilling costs greater than 10 miles from an existing unit, 30% for preapproved new targets, and 40% for preapproved drilling costs for wells that are greater than 10 miles from an existing unit. The credit expired on July 1, 2016, for the North Slope and Cook Inlet; for areas other than the North Slope and Cook Inlet (for instance, Middle Earth), the credit expires Jan. 1, 2018, for seismic work and Jan. 1, 2022, for exploration drilling.

As of fall 2017, credits were still outstanding based on North Slope and Cook Inlet activity that occurred prior to the credit expiration. As a result, the forecast anticipates credits applied against liability or available for state repurchase in FY 2018 and FY 2019.

Carried-Forward Annual Loss Credit AS 43.55.023(b)

This credit is a transferable and state repurchase-eligible credit for a carried-forward annual loss, defined as a producer or explorer’s adjusted lease expenditures that are not deductible in calculating production tax value for the calendar year.

On the North Slope, during 2014 and 2015, the credit for carried-forward annual losses incurred was 45% of

the loss. On Jan. 1, 2016, the credit for losses incurred on the North Slope decreased to 35%. Beginning Jan. 1, 2017, a gross value reduction (GVR) could no longer be used to increase the size of an annual loss for credit calculation purposes. Finally, this credit will expire for the North Slope on Jan. 1, 2018, and is replaced by a new carried-forward lease expenditures provision as described in Chapter 4.

For areas outside the North Slope, the credit was 25% of the carried-forward annual loss until Jan. 1, 2017, when it decreased to 15%. Then on Jan. 1, 2018, the carried-forward annual loss will be repealed for both Middle Earth and Cook Inlet. For Middle Earth, the credit will be replaced by a carried-forward lease-expenditures provision. For Cook Inlet, however, the credit is simply repealed.

Education Credit

See “Credits Applicable to Multiple Tax Programs.”

Film Production Credit

See “Credits Applicable to Multiple Tax Programs.”

Frontier Basin Credit AS 43.55.025(a)(6)-(7)

The Frontier Basin Credit is a transferable, state repurchase-eligible credit for the first four exploration wells

Historical Production Tax Credits and Forecast

Detail, FY 2008-FY 2027

Millions of Dollars

Fiscal Year	Historical									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ¹
Credits Purchased by the State of Alaska										
North Slope										
Qualified Capital Expenditure, AS 43.55.023(a); Carry-Forward, AS 43.55.023(b)	*	173	223	399	267	*	*	203	*	*
Credits under AS 43.55.025 ²	*	13.5	23	12	53	*	*	21	*	*
Total North Slope	53	187	246	411	320	261	281	224	212	*
Non-North Slope										
Qualified Capital Expenditure, AS 43.55.023(a); Carry-Forward, AS 43.55.023(b); Well Lease Expenditure, AS 43.55.023(l)	*	*	*	*	29	*	*	384	*	30
Credits under AS 43.55.025 ²	*	*	*	*	4	*	*	21	*	0
Credits under AS 43.20 ³	*	*	*	*	0	*	15	0	*	0
Total Non-North Slope	1.1	7	4	39	33	108	311.6	404	287	30
Total Credits Purchased by the State	54	193	250	450	353	369	592.1	628	498	30
Credits Used Against Tax Liability^{4,5}										
North Slope										
Qualified Capital Expenditure, AS 43.55.023(a); Carry-Forward, AS 43.55.023(b)	219	279	339	313	306	486	332	0	*	*
Transitional Investment Credit: AS 43.55.023(i)	73	0	0	0	*	*				
Per-Taxable-Barrel Credit, AS 43.55.024(i)-(j) ⁶							516	524	61	453
Small-Producer Credit, AS 43.55.024(a) and (c)	*	*	*	*	*	*	*	*	*	*
Credits under AS 43.55.025 ³	*	*	*	*	*	*	*	*	*	*
Total North Slope	368	328	402	345	347	536	907	575	111	493
Non-North Slope										
Qualified Capital Expenditure, AS 43.55.023(a); Carry-Forward, AS 43.55.023(b); Well Lease Expenditure, AS 43.55.023(l)	*	0	*	11	*	*	*	*	*	*
Small-Producer Credit, AS 43.55.024(a) and (c)	*	6	*	6	*	*	*	*	*	*
Total Non-North Slope	10	6	10	17	16	14	12	10	5	1
Total Credits Used Against Tax Liability	378	334	412	361	363	550	919	585	117	494
Total Credits North Slope	421	*	647	756	667	797	1,188	799	323	493
Total Credits Non-North Slope	11	*	14	56	49	122	323	414	292	31
Total Statewide Production Tax Credits	\$432	\$526	\$662	\$811	\$716	\$918	\$1,511	\$1,213	\$615	\$524
Carried-Forward Credits Balance for										
Companies Not Eligible for State Purchase⁷	\$0	\$0	\$0	\$141						
Tax Value of Carried-Forward Annual Losses⁸										

* Data cannot be reported due to confidentiality constraints.

¹ These numbers are preliminary pending annual returns.

² Credits under AS 43.55.025 include the Alternative Credit for Exploration, Frontier Basin Credit, and Cook Inlet Jack-up Rig Credit.

³ Credits under AS 43.20 include the Gas Exploration and Development Credit, Gas Storage Facility Credit, In-State Gas Refinery Credit, and the

LNG Storage Facility Credit.

⁴ The Education Credit, AS 43.55.019, though not reported in its own credit category in the summary, was less than \$1 million in each year reported and is calculated in the total.

⁵ For historical credits against tax liability, geographic location was determined by attributing all .023(l) credits to Non-North Slope, all .025 Credits

Millions of Dollars

Forecast

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Credits Purchased by the State										
North Slope										
Qualified Capital Expenditure, AS 43.55.023(a); Carry-Forward, AS 43.55.023(b)	49	380	6	0	0	0	0	0	0	0
Credits under AS 43.55.025 ²	2	60	0	0	0	0	0	0	0	0
Total North Slope	52	440	6	0						
Non-North Slope										
Qualified Capital Expenditure, AS 43.55.023(a); Carry-Forward, AS 43.55.023(b); Well Lease Expenditure, AS 43.55.023(l)	24	284	16	1	0	0	0	0	0	0
Credits under AS 43.55.025 ²	1	69	4	0	0	0	0	0	0	0
Credits under AS 43.20 ³	1	25	35	20	0	0	0	0	0	0
Total Non-North Slope	26	378	55	21	0	0	0	0	0	0
Total Credits Purchased by the State	78	818	61	21	0	0	0	0	0	0
Credits Used Against Tax Liability^{4,5}										
North Slope										
Qualified Capital Expenditure, AS 43.55.023(a); Carry-Forward, AS 43.55.023(b)	91	40	0	13	22	0	0	0	0	0
Transitional Investment Credit: AS 43.55.023(i)										
Per-Taxable-Barrel Credit, AS 43.55.024(i)-(j) ⁶	955	897	792	841	966	994	1,048	1,138	1,157	1,154
Small-Producer Credit, AS 43.55.024(a)(c)	19	13	12	13	7	1	1	2	0	0
Credits under AS 43.55.025 ³	0	100	0	0	0	0	0	0	0	0
Total North Slope	1,066	1,050	804	867	996	995	1,049	1,140	1,157	1,154
Non-North Slope										
Qualified Capital Expenditure, AS 43.55.023(a); Carry-Forward, AS 43.55.023(b); Well Lease Expenditure, AS 43.55.023(l)	10	6	0	0	0	0	0	0	0	0
Small-Producer Credit, AS 43.55.024(a)(c)	4	6	6	6	0	0	0	0	0	0
Total Non-North Slope	14	12	6	6	0	0	0	0	0	0
Total Credits Used Against Tax Liability	1,080	1,062	810	872	996	995	1,049	1,140	1,157	1,154
Total Credits North Slope	1,117	1,490	810	867	996	995	1,049	1,140	1,157	1,154
Total Credits Non-North Slope	40	390	61	26	0	0	0	0	0	0
Total Statewide Production Tax Credits	\$1,158	\$1,880	\$872	\$893	\$996	\$995	\$1,049	\$1,140	\$1,157	\$1,154
Carried-Forward Credits Balance for										
Companies Not Eligible for State Purchase⁷	\$75	\$35	\$35	\$22	\$0	\$0	\$0	\$0	\$0	\$0
Tax Value of Carried-Forward Annual Losses⁸	\$89	\$386	\$742	\$1,134	\$1,622	\$2,144	\$2,605	\$2,889	\$3,124	\$3,303

to North Slope, and the other credits were placed according to where the company primarily operated. Since multiple companies had operations in multiple areas, these numbers should be treated as rough estimates.

⁶ For FY 2014, the Per-Taxable-Barrel Credit was in effect for only the last six months of the fiscal year. Credits applied against liability in the forecast are limited by a company's tax liability including the minimum tax.

⁷ This row includes estimates of carried-forward credits for previous calendar years for companies with over 50,000 BOE of production. Carried-forward credits are primarily for net operating losses under AS 43.55.023(b).

⁸ Tax value is calculated by multiplying the amount of carried forward annual loss by the statutory 35% tax rate.

and the first four seismic exploration projects within six specific areas designated in AS 43.55.025(o), also called the “Frontier Basins.” The credit is for the lesser of 80% of qualified exploration drilling expenses or \$25 million. For seismic projects, the credit is for the lesser of 75% of qualified seismic exploration expenditures or \$7.5 million. The 75% credit for seismic expired July 1, 2016. The 80% well credit applies to wells drilled or spudded prior to July 1, 2017.

Per-Taxable-Barrel Credit

AS 43.55.024(i)-(j)

This is a production tax credit for each taxable barrel of oil production on the North Slope, and this credit is an integral part of the production tax calculation. This credit cannot be transferred or carried forward, and is not eligible for cash repurchase.

In “new oil” areas that qualify for a GVR, the credit is \$5 per taxable barrel. Those areas are defined in AS 43.55.160(f) and (g).

For areas that do not qualify for a GVR, the credit ranges from \$0 to \$8 per taxable barrel based on the average gross value at point of production (GVPP) per barrel produced in the tax year. The credit operates on a sliding scale from \$0 per barrel when the GVPP is over \$150 to \$8 when the GVPP is under \$80.

The vast majority of oil produced on the North Slope is not GVR-eligible. Therefore, the structure of the Per-Taxable-Barrel Credit is such that as the price of oil increases, the dollar value of the credit decreases, and vice versa.

One important limit is that if a company chooses to utilize the \$0 to \$8 credit for non-GVR-eligible oil, that company may not use any other credits or deductions to reduce its tax liability for that production to less than the minimum tax established under AS 43.55.011(f), currently 4% of the GVPP. The credit for GVR-eligible oil may not reduce the producer’s liability for that production below zero.

Because of these limits, a large portion of earned Per-Taxable-Barrel Credits are unusable at the current low prices. Because they cannot be transferred or carried forward, these credits do not create a future liability for the state if they are not used in the year earned. In recent years, a relatively small amount of this credit was used, compared with well over \$1.3 billion that theoretically was “earned” based on \$8 per barrel multiplied by the actual taxable production on the North Slope. In the near short term, with oil prices somewhat higher than the recent past, Per-Taxable-Barrel Credits are forecasted at over \$1

billion per year, meaning most of the “earned” \$8 will be used.

Qualified Capital Expenditure and Well Lease Expenditure Credit

AS 43.55.023(a) and (l)

These are transferable and state repurchase-eligible tax credits for qualified oil and gas capital expenditures in the state outside the North Slope. They can be taken in lieu of Exploration Credits under AS 43.55.025, but are in addition to any net-operating loss credits under AS 43.55.023(b). Until Jan. 1, 2017, companies could qualify for a credit of 20% of eligible capital expenditures, or 40% of qualified well lease expenditures. As of Jan. 1, 2017, the Qualified Capital Expenditure Credit was reduced from 20% to 10% and the Well Lease Expenditure Credit was reduced from 40% to 20%. On Jan. 1, 2018, both credits are repealed for Cook Inlet but remain at the reduced rates for Middle Earth.

Small-Producer/ New Area Development Credit

AS 43.55.024(a) and (c)

The Small-Producer Credit is a nontransferable credit for oil and gas produced by small producers, defined as having average taxable oil and gas production of less than 100,000 Btu-equivalent barrels per day. The credit was available until May 1, 2016, or nine years after the first commercial production of oil and gas on the properties for which the credit applies, whichever is later. Therefore, the credit will gradually sunset over the next several years. The Small-Producer Credit is capped at \$12 million annually for producers with less than 50,000 Btu-equivalent barrels per day. For larger producers, the credit phases out, and is zero for producers with 100,000 or more Btu-equivalent barrels per day. The credit may only be used against tax liability, and only if the producer has a positive tax liability before the application of credits. It may not be carried forward.

The New Area Development Credit was a credit of up to \$6 million per company annually, for oil or gas produced from Middle Earth (leases outside Cook Inlet and the North Slope), providing the producer has a positive tax liability on that production before the application of credits. The credit was available until May 1, 2016, or nine years after the first commercial production of oil and gas on the properties for which the credit applies, whichever is later. Because there has not been commercial production outside the North Slope and Cook Inlet, no companies qualified for this credit and this credit was never used.

Transitional Investment Expenditure Credit

AS 43.55.023(i)

The Transitional Investment Expenditure Credit was a nontransferable credit for qualified oil and gas capital expenditures incurred between March 31, 2001, and April 1, 2006. The credit was 20% of qualified oil and gas capital expenditures incurred between March 31, 2001, and April 1, 2006, not to exceed 10% of the capital expenditures incurred between March 31, 2006, and Jan. 1, 2008. The credit was only available until Dec. 31, 2013.

Credits Applicable to Corporate Income Tax

Education Credit

See “Credits Applicable to Multiple Tax Programs.”

Film Production Credit

See “Credits Applicable to Multiple Tax Programs.”

Gas Exploration and Development Credit

AS 43.20.043

The Gas Exploration and Development Credit is a nontransferable credit for qualified expenditures for the exploration and development of non-North Slope natural gas reserves. The credit is 25% of qualified expenditures for investment after Jan. 1, 2010; investments in existing units qualify. The credit is capped at 75% of corporate tax liability as calculated before applying other credits. (This credit was passed with a delayed repeal (amended in sec. 16, ch. 16, SLA 2010) and was repealed Jan. 1, 2016.)

Gas Storage Facility Credit

AS 43.20.046

The Gas Storage Facility Credit was a state repurchase-eligible credit, paid out of the Oil and Gas Tax Credit Fund under AS 43.55.028, for the costs incurred to establish an underground natural gas storage facility in Kenai. This credit was limited to one company and was taken in FY 2014.

The credit was \$1.50 per 1,000 cubic feet of “working gas” storage capacity as determined by the Alaska Oil and Gas Conservation Commission. It did not apply to gas storage related to a gas sales pipeline on the North Slope. To qualify, the facility had to operate as a public utility regulated by the Regulatory Commission of Alaska with open access for third parties. It was

effective for facilities placed into service between Jan. 1, 2011, and Dec. 31, 2015. The maximum credit was the lesser of \$15 million or 25% of costs incurred to establish the facility.

In-State Refinery Tax Credit

AS 43.20.053

The In-State Refinery Tax Credit began on Jan. 1, 2015, and is a credit for qualified infrastructure expenditures for in-state oil refineries incurred after Dec. 31, 2014, and before Jan. 1, 2020. The credit may not exceed 40% of total qualifying expenditures or \$10 million per tax year per refinery, whichever amount is less. The credit can be applied against corporate income tax liability and carried forward for up to five years, or purchased by the state. The authorizing statute will sunset on Dec. 31, 2019. This credit cannot be purchased by the state if a company has an outstanding liability to the state.

Internal Revenue Code Credits

Adopted by Reference

AS 43.20.021

Under Alaska’s blanket adoption of the federal Internal Revenue Code, taxpayers can claim all federal incentive credits. Federal credits that refund other federal taxes are not allowed. Multistate taxpayers apportion their total federal incentive credits. In most cases, the credit is limited to 18% of the amount of the credit determined for federal income tax purposes that is attributable to Alaska.

LNG Storage Facility Credit

AS 43.20.047

The LNG Storage Facility Credit is a nontransferable, state repurchase-eligible credit for the costs incurred to establish a storage facility for liquefied natural gas. The credit is the lesser of \$15 million or 50% of costs incurred to establish the facility and may be purchased by the state by direct appropriation. It applies to facilities with a minimum storage capacity of 25,000 gallons of LNG that are public utilities regulated by the Regulatory Commission of Alaska. It is for facilities placed into service after Jan. 1, 2011. This credit is limited to one facility, and that facility must commence commercial operation prior to Jan. 1, 2020. This credit cannot be purchased by the state if a company has an outstanding liability to the state.

Minerals Exploration Incentive Credit

See “Credits Applicable to Multiple Tax Programs.”

Oil and Gas Industry Service Expenditures Credit

AS 43.20.049

The Oil and Gas Industry Service Expenditures Credit is a credit of 10% of qualified oil and gas industry service expenditures that are for in-state manufacture or in-state modification of oil and gas tangible personal property with a service life of three years or more. The credit may be applied to corporate income tax liabilities in amounts up to \$10 million per taxpayer per year. The credit is effective for expenditures incurred after Jan. 1, 2014. The credit is not transferable, but any amount of the credit that exceeds the taxpayer's liability may be carried forward up to five years.

Urea/Ammonia/Gas to Liquid Facility Credit

AS 43.20.052

The Urea/Ammonia/Gas to Liquid Facility Credit was enacted in 2016. This credit allows an in-state company that produces urea, ammonia, or gas-to-liquids products to apply a credit to their income tax based on natural gas purchased from state leases. The credit is equal to the amount of state royalty paid on natural gas purchased for the qualifying project. The credit cannot be carried forward to future years, is not transferable or eligible for state purchase, and cannot be used to reduce a tax liability below zero. The credit is scheduled to be repealed Jan. 1, 2024.

Veteran Employment Tax Credit

AS 43.20.048

The Veteran Employment Credit is a nontransferable and state repurchase-ineligible credit for corporate income taxpayers who employ qualified veterans in the state. A "qualified veteran" is a veteran who was unemployed for more than four weeks preceding the veteran's employment date and who was discharged or released from military service (1) not more than 10 years before his or her employment date for a disabled veteran, or (2) not more than two years before his or her employment date for a veteran who is not disabled. The credit is \$3,000 for a disabled veteran or \$2,000 for a veteran who is not disabled, for employment for a minimum of 1,560 hours during 12 consecutive months following the veteran's employment date. For seasonal employment, the credit is \$1,000 for a veteran employed for a minimum of 500 hours during three consecutive months following the employment date.

Credits Applicable to Fisheries Taxes

Community Development Quota Credit

AS 43.77.040

The Community Development Quota Credit is a nontransferable credit for contributions to an Alaska nonprofit corporation that is dedicated to fisheries industry-related expenditures. The credit is available only for fishery resources harvested under a Community Development Quota. The credit is 100% of their contribution amount up to a maximum of 45.45% of the tax liability on fishery resources harvested under a Community Development Quota. The authorizing statute is scheduled to sunset Jan. 1, 2021.

Education Credit

See "Credits Applicable to Multiple Tax Programs."

Film Production Credit

See "Credits Applicable to Multiple Tax Programs."

Other Taxes Credit

AS 43.77.030

The Other Taxes Credit is a nontransferable and state repurchase-ineligible credit for taxes paid to another jurisdiction on fishery resources landed in Alaska. The credit is 100% of taxes paid with a maximum of 100% of the Alaska tax liability on the fishery resources.

Salmon and Herring Product Development Credit

AS 43.75.035

The Salmon and Herring Product Development Credit is a nontransferable and state repurchase-ineligible credit for eligible capital expenditures to expand value-added processing of Alaska salmon and herring, including ice-making machines. The credit is 50% of qualified investments up to 50% of tax liability incurred for processing salmon and herring during the tax year. The credit may be carried forward for three years, but the authorizing statute is scheduled to sunset on Dec. 31, 2020. Herring products were added to the credit in 2014.

Winn Brindle Scholarship Contributions Credit

AS 43.75.032, 43.77.035

The Winn Brindle Scholarship Contributions Credit was applicable to both the fisheries business tax, and

the fishery resource landing tax. It was a nontransferable credit for contributions to the A.W. "Winn" Brindle Memorial Education Loan Account. The credit was 100% of the contribution amount, up to a maximum of 5% of tax liability. The credit sunset on Jan. 1, 2017.

Credits Applicable to Multiple Tax Programs

Education Credit

AS 21.96.070, 43.20.014, 43.55.019, 43.56.018, 43.65.018, 43.75.018, 43.77.045

The Education Credit is a nontransferable and state repurchase-ineligible credit applicable to the corporate income tax, fisheries business tax, fishery resource landing tax, insurance premiums tax, title insurance premiums tax, mining license tax, oil and gas production tax, and the oil and gas property tax.

Taxpayers can claim a credit for contributions to vocational educational programs, accredited non-profit, public or private Alaska universities or colleges, Alaska public or private nonprofit elementary or secondary schools, annual intercollegiate sports tournaments, Alaska Native educational programs, facilities that qualify under the Coastal American Partnership, qualified apprenticeship programs, nonprofit regional training centers, the Alaska Higher Education Investment Fund, a postsecondary institution in the state providing dual-credit courses, a residential school in the state, and the Alaska Department of Education and Early Development.

The credit is available for up to 50% of annual contributions up to \$100,000, 100% of the next \$200,000, and 50% of annual contributions beyond \$300,000. The credit for any one taxpayer cannot exceed \$5 million annually across all eligible tax types. The Education Tax Credit is currently scheduled to sunset on Dec. 31, 2018.

Film Production Credit

AS 43.98.030, under AS 21.09.210, 21.66.110, 43.20, 43.55, 43.56, 43.65, 43.75, and 43.77

The Film Production Credit is a transferable, but state repurchase-ineligible credit for expenditures on eligible film production activities in Alaska. Effective July 1, 2013, a producer must spend at least \$75,000 in qualified expenditures over a consecutive 24-month period to qualify. The credit is 30% of eligible film production expenditures, plus an additional 20% credit for wages paid to Alaska residents, plus an additional 6% credit for filming in a rural area, plus an

additional 2% credit for filming between Oct. 1 and March 30. The credits must be used within six years. In addition to corporate income tax, the tax credit may also be used to offset the insurance premium tax, title insurance tax, oil and gas production tax, oil and gas property tax, mining license tax, fisheries business license tax, or fisheries resource landing tax. The program is capped at a \$300 million maximum budget for all projects.

The film credit program stopped accepting new projects on July 1, 2015, but prequalified film projects are still eligible to receive a credit, once the required documents have been verified, until Jan. 1, 2019.

Minerals Exploration Incentive Credit

AS 27.30.030, 43.20.044

The Minerals Exploration Incentive Credit is applicable to the corporate income tax, mining license tax, and mineral production royalty. It is a nontransferable and state repurchase-ineligible credit for eligible costs of mineral or coal exploration activities, and requires the approval of the Department of Natural Resources commissioner.

The credit is 100% of allowable exploration costs with a maximum of \$20 million per mining operation and must be used within 15 years. For the mining license tax (MLT), the credit is limited to the lesser of 50% of the MLT liability at the mining operation where the exploration occurred or 50% of total MLT liability. For the corporate income tax, it is limited to the lesser of 50% of the MLT liability at the mining operation where the exploration occurred or 50% of the total corporate income tax liability. For the mineral royalty, the credit is limited to 50% of the royalty liability from the mining operation where the exploration activity occurred.



Chapter 9

State Endowment Funds

Overview

This chapter compares important attributes of five of the state's major endowment funds: the Alaska Permanent Fund, Mental Health Trust Fund, Public School Trust Fund, Power Cost Equalization Fund, and University of Alaska Endowment.

The University of Alaska Endowment is included in this comparison because it is one of Alaska's public endowment funds that uses the annual distribution calculation method typical of the vast majority of endowments in the United States and Canada.

The fiduciary for each of these endowment funds has the responsibility for establishing an asset-allocation policy for each fund. Table 9-1 compares the current asset-allocation policies for these endowments.

Under the standards adopted by the Governmental Accounting Standards Board, public funds calculate and report their income by recognizing changes in the value of securities as income, or losses, as they occur at the end of each trading day. They do this regardless of whether the securities are actually sold and the income, or losses, are taken or realized. All five of these endowments report annual income on this basis.

However, the Alaska Permanent Fund, Mental Health Trust Fund, and Public School Trust Fund use other measures of annual income for determining their distributions. The Alaska Permanent Fund and the Mental Health Trust Fund are both administered by the Alaska Permanent Fund Corporation (APFC).

In determining the amount of income available for distribution each year for the two funds managed by the Alaska Permanent Fund Corporation, gains or losses on individual investments are not recognized until the investment is sold. For calculating distributable income for the Public School Trust Fund, only interest earned and dividends received are treated as income. Gains and losses in the value of individual

investments are never recognized as income. By law, those gains and losses remain with the principal of the fund.

Missions, Deposits, and Distributions

Alaska Permanent Fund

Each year, the APFC calculates the amount of net income realized by the Permanent Fund and this amount plus any surplus funds already in the Earnings Reserve Account are available for appropriation by the Alaska Legislature. The APFC also annually calculates the "income available for distribution," which is defined by statute as 21% of the net income of the Permanent Fund for the last five fiscal years. Subject to annual appropriation by the Alaska Legislature, 50% of the "income available for distribution" is transferred to the dividend fund (AS 43.23.045).

Following the calculation of net income and any appropriated transfer of funds to the dividend fund, APFC calculates an amount sufficient to offset the effects of inflation on the principal of the Permanent Fund using a formula set out in statute. Subject to annual appropriation by the Alaska Legislature, APFC then transfers this amount from the Earnings Reserve Account to the principal of the Permanent Fund. The principal of the Permanent Fund is made up of all oil and gas royalty contributions and legislative appropriations to the principal or corpus of the Permanent Fund.

Mental Health Trust

Earnings from the Alaska Mental Health Trust Fund, which is managed by the Alaska Permanent Fund Corporation, are for use in ensuring an integrated comprehensive mental health program for the state. Current statute requires net income earned on the principal of the fund to be calculated in the same

State Endowment Funds

Target asset allocations, in percentages

Strategy-Based		Cash	Real Estate Investment Trusts	Broad Fixed Income	Domestic Equity	International Equity	High Yield	
Public School Trust Fund		0%	4%	40%	32%	19%	5%	
Power Cost Equalization Endowment Fund		0%	5%	28%	38%	24%	5%	
Risk-Based		Asset Allocation Strategies	Public Equities	Fixed Income Plus	Capital Appreciation	Diversifying Strategies	Inflation- Sensitive	Deflation- Sensitive
University of Alaska Endowment			0%	55%	20%	8%	17%	
Alaska Permanent Fund	6%	40%	22%	11%	5%	11%	5%	
Mental Health Trust	6%	40%	22%	11%	5%	11%	5%	
Other Mental Health Trust Investments		Cash	Broad Market Fixed Income	Domestic Equity	International Equity			
Other Mental Health Trust Investments		10%	29%	40%	21%			

manner as the Alaska Permanent Fund. Only realized income is ultimately made available for distribution to the Mental Health Trust.

The Alaska Mental Health Trust Authority Board of Trustees has established a percent-of-market-value distribution model where distributions from cash investments managed by APFC and the Department of Revenue are limited to 4.25% of the four-year moving-average net asset value. This reduces the volatility of program funding while budget reserves ensure funding continues even when markets are down.

Funding is also made available for mental health programs from spendable income generated by the Mental Health Trust's directly owned commercial real estate portfolio as well as other revenue generated from land that is managed by the Alaska Department of Natural Resources' Trust Land Office.

The balance of funding consists of both interest earned on cash holdings, and the unexpended balance of expired appropriations lapsing back to the fund.

The Mental Health Trust has a policy to periodically make transfers and/or assign funds to offset the

effects of inflation in order to preserve the purchasing power of the fund.

Public School Trust Fund

The distributable income of the Public School Trust Fund, interest and dividends, moves from the principal account assets to the income account. The Department of Revenue's Treasury Division transfers money each month to a separate income account within the trust fund, where it is held pending annual appropriation by the Alaska Legislature. Once appropriated, the income assets are available for expenditures that support the state public school system.

The asset-allocation policy is such that, when combined with the requirement that the fund's capital gains and losses remain part of the principal, the retained capital gains are adequate to inflation-proof the fund.

Power Cost Equalization Endowment Fund

AS 42.45.080(c) states that on July 1 of each year, the Department of Revenue commissioner shall deter-

mine the monthly average market value of the Power Cost Equalization Endowment Fund for the previous three closed fiscal years; and the earnings of the fund for the previous closed fiscal year.

Five percent of the amount determined by the commissioner may be appropriated for the fiscal year beginning the following July 1 for: 1) funding the Power Cost Equalization and Rural Electric Capitalization Fund (AS 42.45.100); 2) reimbursement to the Department of Revenue for the costs of establishing and managing the fund; and 3) reimbursement of other costs of administration of the fund.

If the amount appropriated is insufficient to achieve the purposes of (1) through (3), the amount shall be prorated among the purposes listed in (1) and (2). If the earnings of the fund exceed the appropriation for the current fiscal year, the Legislature may appropriate certain amounts for other purposes further defined in AS 42.45.080(c).

University of Alaska Endowment

The University of Alaska's Land Grant Endowment Trust Fund is invested along with the University of Alaska Foundation's endowments in a consolidated endowment fund. The Consolidated Endowment Fund is a pooled investment fund that is managed

by the University of Alaska Foundation Investment Committee in accordance with an agreement and an investment policy approved by the University Board of Regents and the Foundation Board of Trustees.

The overall objectives of the Consolidated Endowment Fund are to provide a stream of relatively stable earnings in support of the annual budgetary needs of the University of Alaska while maintaining the real (inflation-adjusted) purchasing power of the fund to the extent practicable. In order to meet these objectives, the goal of the fund is to achieve an average annual real return of 5% of its market value, net of investment management expenses and all fees charged to the fund over rolling five-year periods.

The spending allowance rate for the University of Alaska Land Grant Endowment Trust Fund is 4.5% of the five-year moving average of the market value of its portion of the Consolidated Endowment Fund measured on Dec. 31 of each year. The University of Alaska Foundation's spending allowance rate for its pooled endowment funds is 4.0% of the five-year moving average of the market value of its portion of the Consolidated Endowment Fund measured on Dec. 31 of each year.

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Chapter 10

Public Entities and the University of Alaska

Overview

The State of Alaska has established the following public corporations and entities to carry out certain public policies:

- Alaska Aerospace Corporation (AAC)
- Alaska Energy Authority (AEA)
- Alaska Gasline Development Corporation (AGDC)
- Alaska Housing Finance Corporation (AHFC)
- Alaska Industrial Development and Export Authority (AIDEA)
- Alaska Mental Health Trust Authority (AMHTA)
- Alaska Municipal Bond Bank Authority (AMBBA)
- Alaska Railroad Corporation (ARC)
- Alaska Seafood Marketing Institute (ASMI)
- Alaska Student Loan Corporation (ASLC)
- University of Alaska (UA)

These 11 entities are components of state government presented in the state's *Comprehensive Annual Financial Report*. Information in this section is provided by these entities. The Alaska Housing Finance Corporation, Alaska Industrial Development and Export Authority, Alaska Student Loan Corporation, and Alaska Municipal Bond Bank Authority pay, or may elect to pay, some portion of their income as an annual dividend to the state. This chapter summarizes the missions, financing, and dividends of these corporations and other public entities.

Missions, Financing and Dividends

Alaska Aerospace Corporation

The Alaska Aerospace Corporation (AAC) operates and maintains the Pacific Spaceport Complex – Alaska (PSCA), a commercial spaceport in Kodiak, Alaska, which provides commercial rocket vehicle launch support services. It promotes space-related business, research, education, and economic growth in the state.

The state has supported AAC in the past through funding for capital and operating expenses. In Fiscal Year 2017, the state did not contribute to the maintenance operations of PSCA. AAC does not pay a dividend or return capital to the state.

Alaska Energy Authority

The Alaska Energy Authority (AEA) provides loans to utilities, communities, and individuals to pay for the purchase or upgrade of equipment. Additionally, the agency administers the Power Cost Equalization program, subsidizing rural electric costs with earnings from the Power Cost Equalization Endowment. AEA receives federal and state money to provide technical advice and assistance in energy planning, emergency response management, and energy infrastructure construction and conservation in rural Alaska. AEA owns, operates, and maintains (under contractual agreements) state-owned power projects, such as the Bradley Lake Hydroelectric Project and the Alaska Intertie.

The AEA was established in 1976 to finance and operate power projects. This corporation has also administered rural energy programs at various times, including the present. As a result of legislatively mandated reorganizations, capital has moved into and out of the corporation.

AEA does not pay a dividend or return capital to the state on a regular basis.

Alaska Gasline Development Corporation

The Alaska Gasline Development Corporation (AGDC) has early beginnings dating back to 2009 when declining Cook Inlet gas supplies resulted in energy brown outs and crippling interior energy costs in communities across Alaska. In 2010, the Alaska Legislature passed House Bill 369 creating AGDC.

Today, AGDC is an independent, public corporation of the state. Its corporate vision is to maximize the benefit of Alaska's vast North Slope natural gas resources through the development of infrastructure necessary

Public Entities – FY 2017 Financial Facts

In millions of dollars

	Millions of Dollars				
	Total Assets	Assets Less Liabilities Book Value	FY 2016 Operating Budget	FY 2017 Operating Budget	Total Positions ¹
Alaska Aerospace Corporation	93.3	47.4	10.1	11.0	14
Alaska Energy Authority	1,556.7 ²	1,461.2	41.6	34.1	See AIDEA ³
Alaska Gasline Development Corporation ⁴	94.2	82.5	13.3	10.4	27
Alaska Housing Finance Corporation	3,939.7 ²	1,513.6 ⁵	93.5	95.1	350
Alaska Industrial Development and Export Authority	1,503.6 ²	1,317.6	14.3	12.9	101
Alaska Mental Health Trust Authority	616.1	591.5	4.0	4.0	16
Alaska Municipal Bond Bank Authority	1,270.7	54.9	0.9	1.0	2
Alaska Railroad Corporation ⁶	1,083.1	316.3	121.6	118.8	639
Alaska Seafood Marketing Institute	20.8	15.6	24.4	21.6	20
Alaska Student Loan Corporation ⁷	311.5	222.8	12.5	12.3	88
University of Alaska	2,311.9	1,542.4	915.6	899.8	4,495

¹Permanent full time, permanent part time and temporary are included in total positions.

²AIDEA, AEA, and AHFC's asset totals include deferred outflow of resources.

³AIDEA provides staff for the activities of the AEA. A significant portion of AIDEA's staff is engaged in AEA programs.

⁴AGDC's numbers are unaudited and subject to revision.

⁵Assets and deferred outflows of resources less liabilities and deferred inflows of resources.

⁶The Alaska Railroad reports financial data on a calendar-year basis. Assets and book value shown in this table are from audited Dec. 31, 2016, financial statements. The revised operating budgets figure shown here is for calendar year 2016 and CY 2017.

⁷ASLC contracts with the Alaska Commission on Postsecondary Education to service its loan portfolio and provide staff support. Budget and positions reported are those of ACEP's funded by ASLC.

to move the gas into local and international markets. In addition, AGDC strives to advance the development, financing, construction, and operation of a North Slope natural gas system capable of delivering natural gas for the maximum benefit of Alaskans.

AGDC is pursuing two options for delivery of North Slope natural gas to Alaskans and potential international markets: the Alaska Liquefied Natural Gas (LNG) Project is AGDC's primary project, and the Alaska Stand Alone Pipeline (ASAP) is its secondary and backup project.

Major milestones in AGDC's history:

- May 2013 – The enactment of House Bill 4 where AGDC received the power, authority, and multi-year funding to advance the ASAP project through open season and sanctioning. House Bill 4 also established AGDC as an independent, public corporation of the state. Today, AGDC

continues to have a legal existence separate and distinct from the State of Alaska, while maintaining its structure within the Alaska Department of Commerce, Community, and Economic Development for administrative purposes.

- April 2014 – The passage of Senate Bill 138 expanded AGDC's mission and authority to include primary responsibility for developing an Alaska liquefied natural gas project on the state's behalf. That legislation also directed AGDC to assist the departments of Revenue and Natural Resources in maximizing the value of the state's gas. At that time, the Legislature appropriated \$69.8 million to fund the state's equity participation in the Alaska LNG Project.

AGDC is responsible for two funds that it uses to finance its operations and activities for both the ASAP and Alaska LNG projects.

The first fund, the In-State Natural Gas Pipeline Fund (AS 31.25.100), was established in 2013 to pay for the planning and engineering of the ASAP in-state natural gas pipeline project. The State of Alaska appropriated approximately \$395 million to the fund and AGDC. However, in 2015, the Legislature appropriated \$157 million from the fund to other departments in state government (Sec 9, Ch. 1, SSSLA 15).

The second fund, the Alaska LNG Project Fund (AS 31.25.110), was established in 2014 to fund state expenditures associated with the Alaska LNG Project and the state's equity participation in that venture. When the fund was originally authorized, the state received a 25% ownership interest in the project. The fund has been capitalized with appropriations totaling \$69.8 million. Since then, AGDC has taken over the leadership of the project with 100% responsibility of management and oversight.

Signed into law Nov. 6, 2015, Senate Bill 3001 appropriated approximately \$144.1 million from the state's general fund to the Alaska LNG Project Fund to acquire the interest held by TransCanada in the Alaska LNG project, and to continue to fund the state's share of preliminary front-end engineering and design work.

Major Component Accomplishments in 2017:

- Assumed leadership of the Alaska LNG project in January 2017.
- Filed an application with the Federal Energy Regulatory Commission (FERC) on April 17, 2017, to obtain a Natural Gas Act Section 3 permit for the Alaska LNG project.
- Signed a memorandum of understanding (MOU) with the Korea Gas Corporation (KOGAS) in Washington, D.C., on June 28, 2017.
- Continued to advance the ASAP project with publication of the draft Supplemental Environmental Impact Statement (SEIS) in June 2017.
- Executed confidentiality agreements with several potential Asia-Pacific customers interested in becoming investors, financiers and buyers of Alaska LNG.
- Received Tax Exemption Status from the IRS in early August 2017.
- AGDC gained the attention of many large buyers in Korea, China, Japan, and other markets in the Asia-Pacific region due to its marketing effort. Alaska's unique ability to deliver energy stability at competitive pricing is becoming more widely accepted globally.
- Completed the Capacity Solicitation for Foundation Customers on Aug. 31, 2017, to determine the initial capacity design of the Alaska LNG system.

Alaska Housing Finance Corporation

The Alaska Housing Finance Corporation (AHFC) was created in 1971 to ensure that Alaskans, especially those of low to moderate income and those in remote or underdeveloped areas of the state, have adequate housing at a reasonable cost. The corporation administers federally and state-funded multi-residential, senior and low-income housing, residential energy, and home-weatherization programs. Using proceeds from the sale of bonds backed by its corporate assets, AHFC also purchases home mortgages from Alaska banks.

Income from payments on those mortgages repays bondholders and supplements the corporation's income, enabling the corporation to pay an annual dividend and/or return of capital to the state in some years. In recent years, the Alaska Legislature has authorized AHFC to finance the construction of schools, University of Alaska housing, and other capital projects identified by the Legislature. AHFC also managed the Alaska Gasline Development Corporation as a subsidiary until 2013, when AGDC became an independent entity.

The Legislature appropriated \$739.9 million in cash and \$292.5 million in mortgages held by the general fund to the corporation between 1976 and 1984. Payments on mortgages, including additional mortgages purchased with cash, have helped build the corporation's asset base and allow it to return some capital to the state each year. In 1993, AHFC received an additional \$27.7 million in cash and \$9.3 million in equity when the Legislature merged the Alaska State Housing Authority with AHFC.

In 2003, the Legislature enacted legislation (House Bill 256) to modify the law that created the AHFC, putting into place a transfer plan between the AHFC and the state. The governor signed the legislation into law the same year, and the Legislature modified it in 2006 with Senate Bill 236. The law calls for annual transfers that do not exceed the lesser of (1) 75% of adjusted change in net position for the fiscal year two years prior to the current fiscal year or (2) \$103 million less debt service on certain state capital project bonds, less any legislative appropriation of AHFC's unrestricted, unencumbered funds other than appropriations of its operating budget. Since 1991, AHFC has paid nearly \$2 billion total in dividends to the state, including \$25.9 million in FY 2017.

Alaska Industrial Development and Export Authority

The Alaska Industrial Development and Export Authority (AIDEA) provides various means of financing

Public Entities – FY 2017 Revenue and Dividends

In millions of dollars

	Millions of Dollars				
	Revenue	Expenditures	Net Income	Dividend	State Contribution
Alaska Aerospace Corporation	19.5	17.1 ¹	11.3	0.0	0.1 ²
Alaska Energy Authority	155.6	85.2	66.0	0.0	-4.4
Alaska Gasline Development Corporation ³	0.7	46.2	-45.5	0.0	0.0
Alaska Housing Finance Corporation	249.5	235.4 ⁴	14.1	25.9	0.3
Alaska Industrial Development and Export Authority	60.3	50.2	5.8	6.3	2.1
Alaska Mental Health Trust Authority	65.5	23.7	39.8	0.0	0.0
Alaska Municipal Bond Bank Authority	49.8	51.0	-1.2	0.0	0.0
Alaska Railroad Corporation	168.2	172.6	-4.4	0.0	0.0
Alaska Seafood Marketing Institute	13.8 ⁵	13.5	0.3	0.0	2.0
Alaska Student Loan Corporation	12.4	12.7	-0.3	0.0	0.0
University of Alaska	771.6	802.8	-31.2	0.0	333.9 ⁶

¹For AAC, insurance payments and capitalized expenditures for rebuilding launch complex are included.

²For AAC, on-behalf payments made by the State of Alaska for pension included in State Contribution column.

³AGDC's numbers are unaudited and subject to revision.

⁴For AHFC, "Expenditures" include operating expenses, nonoperating expenses, special items, and transfers, as applicable.

⁵Revenue from the Seafood Marketing Assessment Tax of \$9.5 million is included in the Revenue column, not the State Contribution column.

⁶Does not include on-behalf payments made by the State of Alaska for pensions.

and investment to advance economic growth, diversification, and job opportunities in Alaska. AIDEA's financing tools include loan participations, direct loans, credit enhancements, issuing of tax-exempt and taxable conduit revenue bonds, and preferred equity investments in projects. AIDEA's financing is available for enterprises in the commercial, industrial, resource, and nonprofit sectors, as well as public entities in certain instances. The corporation generates income from interest on its loans, its investments and leases, and the operation of its properties.

Between 1981 and 1986, the State of Alaska capitalized the Authority with approximately \$333 million in cash and loans. Since then, the Authority has not required state assistance to fund operations; instead, it has paid annual dividends to the state.

As defined by statute, AIDEA must make available to the state each year not less than 25% and not more than 50% of its audited "net income" (as defined in statute) for the "base year." The "base year" is the fiscal year ending two years prior to the end of the fiscal year in which the dividend payment is made to the State of Alaska. In no case may the dividend exceed

the base year unrestricted audited "net income." The actual transfer of the dividend requires a legislative appropriation that may be a line item vetoed by the governor.

Since 1997, AIDEA has paid more than \$379.9 million in dividends to the state treasury, including \$6.3 million in FY 2017.

Alaska Mental Health Trust Authority

The Alaska Mental Health Trust Authority, a public corporation of the state within the Department of Revenue, carries out the state's obligations under the Mental Health Enabling Act of 1956, namely to ensure an integrated comprehensive mental health program.

The Mental Health Enabling Act established the Alaska Mental Health Trust as a perpetual trust and capitalized it with 1 million acres of land that were to be managed to generate income for mental health services in Alaska.

During the course of class-action litigation, the Alaska Supreme Court concluded the state breached

its fiduciary duty while managing Trust land. A 1994 settlement created the Alaska Mental Health Trust Authority and established a seven-member board of trustees to oversee it. The settlement recapitalized the Mental Health Trust with \$200 million and 1 million acres of land consisting of original Trust land as well as replacement land.

Earnings on this asset base are used to fund a variety of programs and are accounted for separately in the annual Mental Health budget, which is typically passed in conjunction with the operating budget.

Under the terms of the settlement and state statute, the Alaska Permanent Fund Corporation manages the cash principal. The Alaska Department of Natural Resources manages the land assets and a portfolio of directly owned real estate investments.

The Trust Authority operates similar to a private foundation to administer, protect and enhance the Mental Health Trust. The Trust Authority provides leadership in advocacy, planning, implementing and funding Alaska's comprehensive integrated mental health program and coordinates with state agencies on programs and services to help improve the lives of Trust beneficiaries.

Alaska Municipal Bond Bank Authority

The Alaska Municipal Bond Bank Authority (AMBBA) lends monies to authorized borrowers within the state to finance capital projects, primarily through the issuance of AMBBA bonds. Bond proceeds are used to purchase authorized borrower's debt instruments. Limited State of Alaska credit support combined with a cross-collateralized loan portfolio and pooled reserve fund structure result in a strong credit rating, and enable AMBBA to sell bonds with lower interest rates than authorized borrowers could obtain on their own.

Between 1976 and 2017, the total State of Alaska-appropriated equity to AMBBA was \$33.4 million, with total transfers back to the state of \$27.8 million. For the last 10 years, the state's operating budget has not appropriated any AMBBA net earnings to AMBBA. Due to the current low-interest rate environment, there has been no statutory net income amount available for transfer since FY 2011.

Alaska Railroad Corporation

The Alaska Railroad Corporation operates 683 track miles, providing both freight and passenger rail services between Seward and Fairbanks, including a spur line to Whittier and the Anchorage airport. The

Alaska Railroad Corporation serves the ports of Whittier, Seward, and Anchorage, as well as Denali National Park and military installations. In addition, the corporation generates revenues from its real estate assets.

The state bought the railroad from the federal government in 1985. The purchase price of \$22.7 million was recorded as the state's capitalization. The corporation does not pay a cash dividend to Alaska's general fund, as net position is restricted for reinvestment in infrastructure.

Alaska Seafood Marketing Institute

The Alaska Seafood Marketing Institute is a marketing organization with the mission of increasing the economic value of Alaska seafood. It conducts advertising campaigns and public relations for the seafood industry, and works directly with food service distributors, retailers and restaurants to build the "Alaska seafood" brand. ASMI is a public-private partnership that receives funding from the state, federal government, and private industry.

The state levies the Seafood Marketing Assessment, a 0.5% assessment on fisheries, to support ASMI's operations. In addition, in FY 2017, ASMI received \$4.3 million in federal funding and \$2.0 million from the state's general fund.

Alaska Student Loan Corporation

The Alaska Student Loan Corporation issues debt and recycles student loan payments to finance other student loans. Payments of the student loans also provide funding for the corporation's operations.

In fiscal year 1988, the State of Alaska transferred \$260 million of existing student loans to the corporation. Additional appropriations of cash between FY 1988 and FY 1992 totaled \$46.7 million.

The corporation, at the discretion of its board of directors, may make available to the state a return of contributed capital or dividend for any base year in which the net income of the corporation is \$2 million or more. A base year is defined as the year two years before the payment year. If the board authorizes a payment, it must be between 10% and 35% of net income for the base year (AS 14.42.295).

University of Alaska

The University of Alaska is a constitutionally created corporation of the State of Alaska that is authorized to hold title to real and personal property and to issue debt in its own name.

The University of Alaska system is the only public institution of higher learning in the state. It has a university in Anchorage, another in Fairbanks and a third in Juneau. The universities have extended satellite colleges and sites throughout the state. The system's main administrative offices are located on the Fairbanks campus. The University is governed by an 11-member Board of Regents, which is appointed by the governor.

The University of Alaska system is primarily supported by the state's general fund appropriations, student tuition and fees, as well as grant and contract revenue from the State of Alaska, federal agencies, and private sponsors, including the University of Alaska Foundation.



Appendices

Glossary

Constitutional Budget Reserve Fund (CBRF)

Created by voters in 1990, the CBRF receives proceeds from settlements of oil, gas, and mining tax and royalty disputes. The Legislature may, with a three-quarters majority vote in each chamber, withdraw money from the fund.

Designated General Fund Revenue

General fund revenue that is designated for a specific purpose, typically using a general fund subaccount. The Legislature can at any time remove the restrictions on this category of revenue as they are solely imposed by either Alaska statute or customary practice. At times, this category of revenue may be included in legislative and public debate over the budget.

Federal Revenue

When the federal government gives money to states, it typically restricts how that money can be used. For example, highway and airport construction funds, Medicaid, and education funding cannot be used for other purposes. In addition to restricting how the money is spent, the federal government often requires states to put up matching funds to qualify for the federal funding.

General Fund Revenue

General fund revenue has different meanings in different contexts. In the state's official financial reports, general fund revenue is used to designate the sum of general fund unrestricted revenue, general fund subaccount revenue, program receipts and other funds spent through the general fund. In budget reports, general fund revenue is split into revenue with no specific purpose, and revenue with a specific purpose. These categories are called unrestricted general fund revenue and designated general fund revenue, respectively.

General Fund Unrestricted Revenue

Revenue not restricted by the Alaska Constitution, state or federal law, trust or debt restrictions, or customary practice. This revenue is deposited into the state's unrestricted general fund and most legislative and public debate over the budget each year centers on this category of revenue. In deriving the department's Unrestricted Revenue figure from total general fund revenue, the department has excluded general fund subaccount revenue, as well as customarily restricted

revenue such as shared taxes and pass-through revenue for qualified fisheries associations. The department has also added certain revenue such as transfers to the state treasury from the Unclaimed Property Trust and dividends from component units.

Other Restricted State Revenue

Non-federal revenue that is not deposited to the general fund or a subaccount of the general fund. This revenue is restricted by the Alaska Constitution, state or federal law, trust or debt restrictions, or by customary practice.

Permanent Fund GASB (or Market) Income

Under standards adopted by the Governmental Accounting Standards Board, the Permanent Fund's income – and that of any other government fund – is the difference between the purchase price of the investments and their market value at a given point in time, plus any dividends, interest or rent earned on those investments. Under GASB standards, the Permanent Fund does not have to sell the investment to count the gain or loss as it changes value. It is called "marking to market," that is, measuring the value of the fund's investments by the current market price. This can produce a much different picture than Permanent Fund statutory income, which does not reflect fluctuating investment values until the assets are sold.

Permanent Fund Statutory Income

The annual Permanent Fund dividend is based on statutory income. This is the sum of realized gains and losses of all Permanent Fund investment transactions during the year, plus interest, dividends and rents earned by the fund. The Legislature may appropriate the earnings for any purpose it chooses. The historical practice has been to use realized income primarily for dividends and inflation-proofing, and then either leave the excess in the realized earnings account, or transfer it to the principal of the Permanent Fund.

Restricted Program Receipts

This revenue is earmarked in state statute or by contract for specific purposes and is usually appropriated back to the program that generated the revenue. Examples include University of Alaska tuition payments, marine highway receipts, payments to various revolving loan funds, and public corporation receipts. Some

of this revenue is actually dedicated as a consequence of provisions of the Alaska Constitution. The remainder, while statutorily earmarked, may be appropriated to purposes other than those reflected in statute if the Legislature so chooses. These earmarked funds are categorized as designated general funds.

Restricted Revenue

Restricted revenue represents revenue that is restricted by the Alaska Constitution, state or federal law, trust or debt restrictions, or by customary practice. The Legislature can at any time remove restrictions that are solely imposed by either Alaska statute or customary practice. Program receipts, revenue allocated to subaccounts of the general fund, and general fund revenue customarily

shared with other entities are all considered restricted revenue for the purposes of this report. In this report, the department presents three categories of restricted revenue: designated general fund revenue, other restricted state revenue, and federal revenue.

Revenue Available for Current-Year Appropriation

All revenue that is technically available for the Legislature to appropriate, regardless of customary practice. Includes General Fund Unrestricted Revenue, Designated General Fund Revenue, deposits to and earnings from the CBRF, a portion of deposits to the Permanent Fund, and realized earnings from the Permanent Fund.

Appendices

Acronyms

AAC	Alaska Aerospace Corporation	EAFE	Europe, Australasia and Far East
ACWI	All Country World Index	EIA	U.S. Energy Information Administration
AEA	Alaska Energy Authority	EPA	U.S. Environmental Protection Agency
AGDC	Alaska Gasline Development Corporation	ERG	Economic Research Group
AHFC	Alaska Housing Finance Corporation	EU	European Union
AIDEA	Alaska Industrial Development and Export Authority	FBT	Fisheries business tax
APFC	Alaska Permanent Fund Corporation	FERC	Federal Energy Regulatory Commission
AMBBA	Alaska Municipal Bond Bank Authority	FTSE	Financial Times Stock Exchange
AMHTA	Alaska Mental Health Trust Authority	FY	Fiscal year
ANS	Alaska North Slope	GAAP	Generally Accepted Accounting Principles
AOGCC	Alaska Oil and Gas Conservation Commission	GASB	Governmental Accounting Standards Board
APFC	Alaska Permanent Fund Corporation	GDP	Gross domestic product
ARC	Alaska Railroad Corporation	GeFONSI	General fund and other non-segregated investments
AS	Alaska Statutes	GFUR	General fund unrestricted revenue
ASAP	Alaska Stand Alone Pipeline	GVPP	Gross value at point of production
ASLC	Alaska Student Loan Corporation	GVR	Gross value reduction
ASMI	Alaska Seafood Marketing Institute	HB 111	House Bill 111, passed in 2017
bbl	Barrel of oil	HB 247	House Bill 247, passed in 2016
BOE	Barrels of oil equivalent	LLC	Limited Liability Corporation
BTU	British thermal unit	LNG	Liquefied natural gas
CAFR	<i>Comprehensive Annual Financial Report</i>	mcf	Thousand cubic feet
CAPEX	Capital expenditures	MLT	Mining license tax
CBRF	Constitutional Budget Reserve Fund	MFT	Motor fuel tax
CDQ	Community development quota	MSCI	Morgan Stanley Capital International
CIT	Corporate income tax	NAREIT	National Association of Real Estate Investment Trusts
CFAL	Carried-Forward Annual Loss	NGL	Natural gas unit
CP	Currently producing	NOL	Net Operating Loss Credit
CPI-U	Consumer Price Index for All Urban Consumers	NPR-A	National Petroleum Reserve in Alaska
CPV	Commercial passenger vessel	N/T	Not tracked
CY	Calendar year	NYMEX	New York Mercantile Exchange
DCCED	Department of Commerce, Community, and Economic Development	OMB	Office of Management and Budget
D/I	Data incomplete	OPEC	Organization of Petroleum Exporting Countries
DNR	Department of Natural Resources	OPEX	Operating expenditures
DOR	Department of Revenue		

PBU	Prudhoe Bay Unit
PSTF	Public School Trust Fund
PTV	Production tax value
QCE	Qualified Capital Expenditure Credit
QR	Quick response
RCA	Regulatory Commission of Alaska
REIT	Real Estate Investment Trusts
RIK	Royalty in kind
RIV	Royalty in value
RSA	Royalty settlement agreement
RSB	<i>Revenue Sources Book</i>
SB 21	Senate Bill 21, passed in 2013
SBRF	Statutory Budget Reserve Fund
TAPS	Trans-Alaska Pipeline System
UA	University of Alaska
UD	Under development
UE	Under evaluation
WLE	Well Lease Expenditure Credit
WTI	West Texas Intermediate

Unrestricted General Fund Revenue Matrices

Revenue sensitivity to oil price

Millions of Dollars

FY 2018		FY 2019		FY 2020	
At forecasted ANS production of 533,400 barrels per day		At forecasted ANS production of 525,700 barrels per day		At forecasted ANS production of 526,800 barrels per day	
Alaska North Slope Dollars per Barrel ¹	Unrestricted General Fund Revenue	Alaska North Slope Dollars per Barrel	Unrestricted General Fund Revenue	Alaska North Slope Dollars per Barrel	Unrestricted General Fund Revenue
\$20	\$1,080	\$20	\$950	\$20	\$970
\$30	\$1,260	\$30	\$1,230	\$30	\$1,220
\$40	\$1,560	\$40	\$1,540	\$40	\$1,510
\$50	\$1,880	\$50	\$1,830	\$50	\$1,820
\$56.00	\$2,082	\$57.00	\$2,047	\$58.00	\$2,063
\$60	\$2,300	\$60	\$2,140	\$60	\$2,130
\$70	\$3,100	\$70	\$2,740	\$70	\$2,600
\$80	\$4,060	\$80	\$3,530	\$80	\$3,360
\$90	\$5,010	\$90	\$4,440	\$90	\$4,140
\$100	\$6,090	\$100	\$5,390	\$100	\$5,100
\$110	\$7,060	\$110	\$6,310	\$110	\$6,080
\$120	\$8,150	\$120	\$7,190	\$120	\$7,040

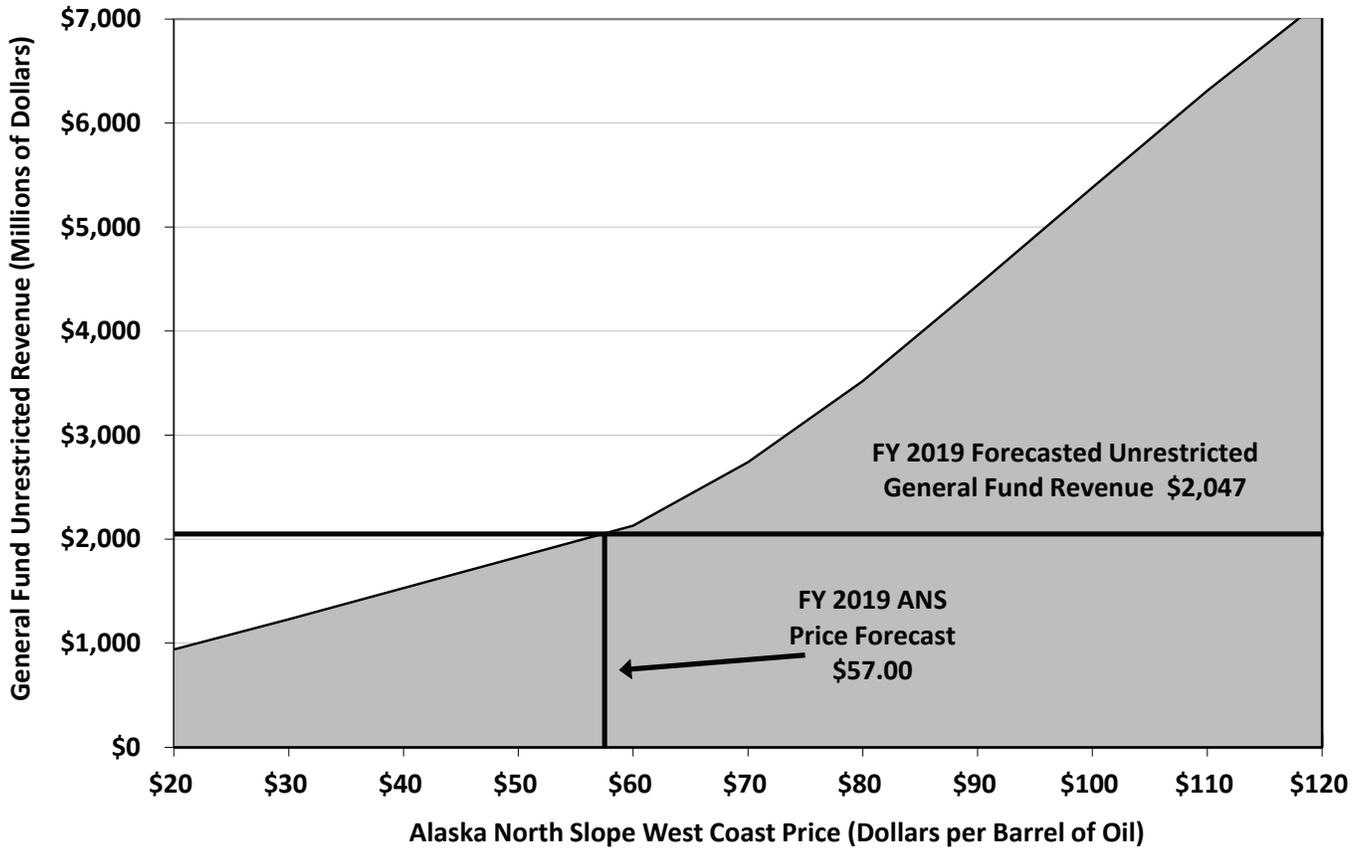
¹Alaska North Slope dollars per barrel values are fiscal-year averages that incorporate actual prices for the first four months of FY 2018. Because oil prices averaged \$53.23 for the first four months, it can take a different price for the remainder of the year to bring the fiscal-year average to levels in the table. For example, a fiscal-year price of \$60 per barrel would require eight months of oil prices around \$63 per barrel.

Note:

This table presents estimated general fund unrestricted revenue at a range of ANS prices, holding all other variables constant. Analysis assumes that the given price is in place for all three years shown. Only production tax, royalties, and corporate income tax are adjusted for purposes of this analysis. Users should be cautioned that changes in any number of variables may cause revenue to vary significantly from amounts shown. These variables include but are not limited to production, lease expenditures, and netback costs. In addition, revenues may vary from the amount shown due to changes in company decision-making, company-specific tax calculation issues, month-to-month variations in price or production, and changes in non-oil revenue.

GFUR Relative to Price per Barrel

Price sensitivity for FY 2019



History of Unrestricted General Fund Revenue¹

By type and category

Millions of Dollars

Fiscal Year	History									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Unrestricted General Fund Tax Revenue										
Petroleum Property Tax	81.5	111.2	118.8	110.6	111.2	99.3	128.1	125.2	111.7	120.4
Excise Tax										
Alcoholic Beverages	20.0	19.5	19.5	19.4	19.4	19.8	18.3	17.7	22.2	20.1
Tobacco Products	44.9	46.6	45.1	46.5	45.6	44.8	42.8	40.5	45.5	43.4
Insurance Premium ²	47.1	45.5	50.4	49.6	54.8	52.4	54.6	59.1	0.0	0.0
Electric and Telephone Cooperative	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2
Marijuana ³	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Motor Fuel Tax	41.8	10.1	28.8	39.5	40.9	41.9	41.9	41.8	44.3	41.3
Vehicle Rental Tax ⁴	8.5	8.0	7.3	8.3	8.5	8.4	8.3	9.7	0.0	0.0
Tire Fee	1.5	1.5	1.4	1.5	1.4	1.4	1.3	1.5	1.5	1.4
Total Excise Tax	164.0	131.3	152.6	164.9	170.8	168.9	167.5	170.5	113.6	107.3
Income Tax										
General Corporate	182.7	120.9	81.9	157.7	98.5	112.5	99.9	136.2	90.2	86.5
Petroleum Corporate	605.8	492.2	446.1	542.1	568.8	434.6	307.6	94.8	-58.8	-59.4
Total Income Tax	788.5	613.1	528.0	699.8	667.3	547.1	407.5	231.0	31.4	27.1
Oil and Gas Production										
Oil and Gas Production Tax	6,810.9	3,100.9	2,860.7	4,543.2	6,136.7	4,042.5	2,605.9	381.6	176.8	125.9
Oil and Gas Conservation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil and Gas Hazardous Release	11.7	11.1	10.3	9.7	9.4	7.8	8.8	8.1	9.2	8.6
Total Oil and Gas Production	6,822.6	3,112.0	2,871.0	4,552.9	6,146.1	4,050.3	2,614.7	389.7	186.0	134.4
Fish Tax										
Fisheries Business Tax	14.7	19.3	14.0	20.1	26.4	19.2	25.1	21.3	22.3	15.5
Fishery Resource Landing Tax	7.9	4.7	8.3	2.7	6.3	5.5	7.1	5.1	0.3	4.9
Total Fish Tax	22.6	24.0	22.3	22.8	32.7	24.7	32.2	26.4	22.6	20.3
Other Tax										
Estate	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mining	54.4	15.5	29.7	49.0	40.7	46.7	23.3	38.6	10.7	41.4
Charitable Gaming	2.7	2.8	2.6	2.5	2.6	2.5	2.5	2.5	2.6	2.5
Large Passenger Vessel Gambling	0.0	0.0	0.0	5.8	5.2	6.0	6.7	6.6	7.7	8.2
Total Other Tax	57.1	18.5	38.6	57.3	48.5	55.2	32.5	47.7	21.1	52.0
Total Unrestricted General Fund Tax Revenue	7,936.3	4,010.1	3,731.3	5,608.3	7,176.6	4,945.5	3,382.5	990.5	486.4	461.6

(Table continued, next page)

History of Unrestricted General Fund Revenue¹

By type and category (Continued)

Millions of Dollars

Fiscal Year	History									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Unrestricted General Fund Non-Tax Revenue										
Licenses and Permits⁵	38.9	35.5	39.5	42.8	42.3	41.9	42.7	34.4	41.2	42.1
Intergovernmental Receipts										
Federal Shared Revenues	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Charges for Services	29.3	19.3	17.1	18.5	29.2	25.2	24.2	20.1	21.5	21.5
Fines and Forfeitures	8.9	10.5	10.4	7.0	10.9	15.8	11.3	11.5	11.4	13.2
Rents and Royalties										
Oil and Gas Royalties ⁶	2,420.6	1,451.2	1,469.0	1,821.3	2,022.8	1,748.4	1,685.0	1,052.1	840.3	676.2
Oil and Gas Bonuses, Rents, Interest ^{6,7}	25.5	14.4	8.0	22.0	8.9	19.4	27.4	26.1	30.3	4.8
Other ⁸	14.6	15.6	13.2	17.6	20.4	24.7	34.5	36.3	24.7	27.4
Total Rents and Royalties	2,460.7	1,481.2	1,490.2	1,860.9	2,052.1	1,792.5	1,746.9	1,114.5	895.3	708.3
Investment Earnings	227.9	247.6	184.0	96.3	107.8	28.1	130.2	47.9	22.5	17.3
Miscellaneous Revenue⁹	26.2	27.0	40.8	39.1	66.3	79.5	52.3	37.5	54.4	86.5
Total Unrestricted General Fund Non-Tax Revenue	2,791.9	1,821.1	1,782.0	2,064.6	2,308.6	1,983.0	2,007.6	1,265.8	1,046.3	888.9
Total Unrestricted General Fund Revenue	10,728.2	5,831.2	5,513.3	7,672.9	9,485.2	6,928.5	5,390.1	2,256.3	1,532.7	1,350.6

¹ Unrestricted general fund revenue includes revenue that is not restricted by statute or custom, as reported elsewhere in this publication. A summary of historical unrestricted general fund revenue can be found on the Tax Division's website at www.tax.alaska.gov/sourcesbook/qr.aspx?Chapter=15&FY=2017.

² Starting in FY 2016, these revenues are deposited into a subfund of the general fund and are considered restricted.

³ In November 2014, Alaska voters voted to legalize marijuana. The state's first collections from the marijuana excise tax were in FY 2017.

⁴ Starting in FY 2016, to be consistent with other budget documents, vehicle rental tax is now classified as designated general fund revenue.

⁵ Starting in FY 2016, to be consistent with other budget documents, revenue from alcoholic beverage licenses is now classified as designated general fund revenue.

⁶ Net of Permanent Fund, Public School Trust Fund, and Constitutional Budget Reserve Fund deposits.

⁷ This category is primarily composed of petroleum revenue.

⁸ Includes non-petroleum rents and royalties.

⁹ Starting in FY 2010, dividends and payments from state-owned corporations are included in unrestricted miscellaneous revenue.

Petroleum Revenue

By restriction and type

Millions of Dollars

History¹

Fiscal Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Unrestricted Petroleum Revenue										
Petroleum Property Tax	81.5	111.2	118.8	110.6	111.2	99.3	128.1	125.2	111.7	120.4
Petroleum Corporate Income Tax	605.8	492.2	446.1	542.1	568.8	434.6	307.6	94.8	-58.8	-59.4
Production Tax	6,810.9	3,100.9	2,860.7	4,543.2	6,136.7	4,042.5	2,605.9	381.6	176.8	125.9
Oil and Gas Hazardous Release	11.7	11.1	10.3	9.7	9.4	7.8	8.8	8.1	9.2	8.6
Oil and Gas Conservation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil and Gas Royalties ²	2,420.6	1,451.2	1,469.0	1,821.3	2,022.8	1,748.4	1,685.0	1,052.1	840.3	676.2
Bonuses, Rents and Interest ^{2,3}	25.5	14.4	8.0	22.0	8.9	19.4	27.4	26.1	30.3	4.8
Petroleum Special Settlements	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Unrestricted Petroleum Revenue	9,956.0	5,181.0	4,912.9	7,048.9	8,857.8	6,352.0	4,762.8	1,687.9	1,109.5	876.4
Cumulative Total Unrestricted Petroleum Revenue⁴										
	76,247	81,428	86,340	93,389	102,247	108,599	113,362	115,050	116,159	117,036
Restricted Petroleum Revenue										
NPR-A Rents, Royalties, Bonuses	5.2	14.8	21.3	3.0	4.8	3.6	6.8	3.2	1.8	1.4
Royalties to Permanent Fund	834.0	659.8	696.1	857.3	904.9	842.1	773.7	510.4	390.5	334.5
Royalties to Public School Trust Fund	16.5	11.0	11.1	13.6	14.7	13.8	12.5	7.9	6.4	6.0
Constitutional Budget Reserve Fund Deposits	476.4	202.6	552.7	167.3	102.1	357.4	177.4	149.9	119.1	481.9
Total Restricted Petroleum Revenue	1,332.1	888.2	1,281.2	1,041.2	1,026.5	1,216.9	970.4	671.4	517.8	823.7

(Table continued, next page)

Petroleum Revenue

By restriction and type *(Continued)*

Millions of Dollars

Forecast

Fiscal Year	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Unrestricted Petroleum Revenue										
Petroleum Property Tax	117.2	110.8	108.1	106.3	104.9	103.3	101.5	99.6	97.3	94.8
Petroleum Corporate Income Tax	130.0	170.0	180.0	225.0	240.0	250.0	255.0	260.0	270.0	285.0
Production Tax	449.0	330.0	335.1	347.9	356.6	384.2	373.4	439.9	583.9	709.2
Oil and Gas Hazardous Release	8.9	8.8	8.8	8.6	8.3	8.2	8.1	8.1	8.1	8.1
Oil and Gas Conservation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil and Gas Royalties ²	837.8	798.9	789.8	812.5	837.0	835.5	848.0	890.8	936.2	978.1
Bonuses, Rents and Interest ^{2,3}	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3
Petroleum Special Settlements	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Unrestricted Petroleum Revenue	1,561.1	1,436.8	1,440.1	1,518.6	1,565.2	1,599.5	1,604.3	1,716.7	1,913.7	2,093.4
Cumulative Total Unrestricted Petroleum Revenue⁴										
	118,597	120,034	121,474	122,992	124,558	126,157	127,761	129,478	131,392	133,485
Restricted Petroleum Revenue										
NPR-A Rents, Royalties, Bonuses	12.1	5.6	7.2	8.4	9.4	8.4	9.0	10.2	12.0	14.1
Royalties to Permanent Fund	287.3	345.6	342.9	352.2	361.4	360.7	370.6	396.1	423.0	446.2
Royalties to Public School Trust Fund	5.7	5.8	5.8	5.9	6.1	6.1	6.2	6.6	6.9	7.2
Constitutional Budget Reserve Fund Deposits	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Restricted Petroleum Revenue	405.1	457.0	455.9	466.5	477.0	475.2	485.8	512.9	541.9	567.6

¹ Historical petroleum revenue can be found on the Tax Division's website at www.tax.alaska.gov/sourcesbook/qr.aspx?Chapter=16&FY=2017.

² Net of Permanent Fund, Public School Trust Fund, and CBRF deposits.

³ This category is primarily petroleum revenue.

⁴ Based on revenue beginning in FY 1959.

Appendix A
4

Unrestricted General Fund Revenue

Petroleum versus non-petroleum revenue

Fiscal Year	Millions of Dollars									
	History									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Unrestricted General Fund Revenue										
Total Unrestricted Petroleum Revenue	9,956.0	5,181.0	4,912.9	7,048.9	8,857.8	6,352.0	4,762.8	1,687.9	1,109.5	876.4
Unrestricted General Fund Non-Petroleum Revenue	772.2	650.2	600.4	624.0	627.4	576.5	627.3	568.4	423.2	474.2
Total Unrestricted General Fund Revenue	10,728.2	5,831.2	5,513.3	7,672.9	9,485.2	6,928.5	5,390.1	2,256.3	1,532.7	1,350.6
Percent of Total Unrestricted General Fund Revenue from Petroleum	93%	89%	89%	92%	93%	92%	88%	75%	72%	65%

(Table continued, next page)

Unrestricted General Fund Revenue

Petroleum versus non-petroleum revenue *(Continued)*

Millions of Dollars

Forecast

Fiscal Year	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Unrestricted General Fund Revenue										
Total Unrestricted Petroleum Revenue	1,561.1	1,436.8	1,440.1	1,518.6	1,565.2	1,599.5	1,604.3	1,716.7	1,913.7	2,095.4
Unrestricted General Fund Non-Petroleum Revenue	520.5	610.3	623.1	637.1	653.8	675.7	692.8	710.1	727.6	744.4
Total Unrestricted General Fund Revenue	2,081.6	2,047.1	2,063.2	2,155.7	2,218.9	2,275.2	2,297.1	2,426.8	2,641.3	2,839.8
Percent of Total Unrestricted General Fund Revenue from Petroleum	75%	70%	70%	70%	71%	70%	70%	71%	72%	74%

Nominal Netback Costs, Actual and Forecast

By netback segment

Fiscal Year	Dollars per Barrel									
	History									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Alaska North Slope West Coast	96.51	68.34	74.90	94.49	112.65	107.57	107.57	72.58	43.18	49.43
Netback Costs¹										
Marine Costs	1.93	2.05	2.21	2.44	3.24	3.64	3.70	3.25	3.15	3.18
TAPS Tariff	5.08	4.59	3.81	4.02	5.06	5.93	6.52	6.11	6.25	6.09
Feeder Tariff	0.31	0.31	0.31	0.29	0.31	0.35	0.38	0.42	0.39	0.45
Quality Bank	-1.26	-0.52	-0.41	-0.54	-0.68	-0.67	-0.59	-0.37	-0.04	-0.16
Other ²	-0.01	-0.05	0.09	0.46	0.44	0.51	0.41	0.33	0.13	0.15
Total of Netback Costs	6.05	6.38	6.01	6.67	8.37	9.76	10.42	9.74	9.88	9.70
ANS Wellhead Weighted Average All Destinations	90.46	61.96	68.89	87.82	104.28	97.81	97.15	62.83	33.30	39.73

(Table continued, next page)

Nominal Netback Costs, Actual and Forecast

By netback segment *(Continued)*

Fiscal Year	Dollars per Barrel									
	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Alaska North Slope West Coast	56.00	57.00	58.00	61.00	64.00	65.00	66.00	69.00	72.00	75.00
Netback Costs¹										
Marine Costs	3.41	3.45	3.49	3.54	3.58	3.63	3.67	3.72	3.77	3.83
TAPS Tariff	6.10	6.15	6.32	6.55	6.81	7.01	7.12	7.19	7.26	7.37
Feeder Tariff	0.31	0.29	0.28	0.28	0.29	0.30	0.31	0.32	0.33	0.35
Quality Bank	-0.13	-0.14	-0.16	-0.17	-0.18	-0.18	-0.18	-0.19	-0.20	-0.21
Other ²	0.11	0.11	0.11	0.12	0.13	0.13	0.13	0.14	0.14	0.15
Total of Netback Costs	9.80	9.86	10.04	10.31	10.63	10.89	11.05	11.18	11.31	11.49
ANS Wellhead Weighted Average All Destinations	46.20	47.14	47.96	50.69	53.37	54.11	54.95	57.82	60.69	63.51

¹ Field-specific transportation costs represent the average cost for all barrels, whether or not they incur a specific expense. For example, feeder costs represent the average cost for all barrels, including Prudhoe Bay production not using a feeder pipeline. Slopewide costs are estimated based on reported relevant cost information. The Department of Revenue's data sources are variable and the department has not been able to confirm that these calculations are consistent for all years.

² Primarily tanker and pipeline gains or losses.

Price Difference

Spring 2017 forecast and fall 2017 forecast

Fiscal Year	Dollars per Barrel									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Spring 2017 Forecast										
ANS West Coast	50.05	54.00	60.00	63.00	67.00	71.00	75.00	78.00	84.00	88.00
ANS Wellhead Weighted Average All Destinations	40.79	44.21	49.72	52.24	55.72	59.18	62.64	65.09	70.53	74.05
Fall 2017 Forecast										
ANS West Coast	49.43	56.00	57.00	58.00	61.00	64.00	65.00	66.00	69.00	72.00
ANS Wellhead Weighted Average All Destinations	39.73	46.20	47.14	47.96	50.69	53.37	54.11	54.95	57.82	60.69
Dollar Amount Change from Prior Forecast										
ANS West Coast	-0.62	2.00	-3.00	-5.00	-6.00	-7.00	-10.00	-12.00	-15.00	-16.00
ANS Wellhead Weighted Average All Destinations	-1.06	1.99	-2.58	-4.27	-5.03	-5.81	-8.53	-10.14	-12.72	-13.36
Percent Change from Prior Forecast										
ANS West Coast	-1.2%	3.7%	-5.0%	-7.9%	-9.0%	-9.9%	-13.3%	-15.4%	-17.9%	-18.2%
ANS Wellhead Weighted Average All Destinations	-2.6%	4.5%	-5.2%	-8.2%	-9.0%	-9.8%	-13.6%	-15.6%	-18.0%	-18.0%

Production Difference

Spring 2017 forecast and fall 2017 forecast

Thousand Barrels per Day

Fiscal Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Spring 2017 Forecast										
Alaska North Slope	523.7	459.9	437.3	420.2	405.9	389.2	371.8	356.5	340.7	326.9
Non-North Slope	14.9	17.4	16.3	13.7	11.9	10.6	9.5	8.6	7.9	7.4
Total	538.6	477.3	453.6	433.9	417.8	399.8	381.3	365.1	348.6	334.3
Fall 2017 Forecast										
Alaska North Slope	526.5	533.4	525.7	526.8	518.3	502.5	492.6	491.1	493.4	494.8
Non-North Slope	14.1	16.7	22.2	17.9	15.4	13.9	13.0	12.2	11.6	11.0
Total	540.6	550.1	547.9	544.7	533.7	516.4	505.6	503.4	505.1	505.9
Volume Change from Prior Forecast										
Alaska North Slope	2.8	73.5	88.4	106.6	112.4	113.3	120.8	134.6	152.7	167.9
Non-North Slope	-0.8	-0.7	5.9	4.2	3.5	3.3	3.5	3.6	3.7	3.6
Total	2.0	72.8	94.3	110.8	115.9	116.6	124.3	138.3	156.5	171.6
Percent Change from Prior Forecast										
Alaska North Slope	0.5%	16.0%	20.2%	25.4%	27.7%	29.1%	32.5%	37.8%	44.8%	51.4%
Non-North Slope	-5.4%	-4.2%	36.3%	30.7%	29.2%	31.4%	36.3%	42.3%	47.2%	49.1%
Total	0.4%	15.3%	20.8%	25.5%	27.7%	29.2%	32.6%	37.9%	44.9%	51.3%

Annual Average Daily Crude Oil Production

By production area

Thousand Barrels per Day

Fiscal Year	History									
	2008	2009	2010	2011	2012	2013	2014	2015	2016 ¹	2017
Alaska North Slope										
Prudhoe Bay ^{2,3}	291.1	291.4	276.7	267.6	265.2	247.4	247.5	228.5	232.1	239.8
PBU Satellites ^{2,4}	67.5	67.9	63.1	55.4	50.7	46.5	44.3	41.4	44.0	39.0
Greater Point McIntyre Area ⁵	44.3	38.5	34.0	30.8	29.7	26.3	26.2	22.4	23.3	27.7
Kuparuk	112.6	105.6	99.2	91.0	91.6	86.4	85.9	78.5	78.4	80.6
Kuparuk Satellites ⁶	36.5	36.9	35.0	31.9	27.5	25.3	25.1	26.6	26.0	24.4
Endicott ⁷	14.1	14.2	12.7	11.7	11.3	10.4	9.5	9.0	9.1	8.6
Alpine ⁸	114.9	106.7	93.5	84.6	78.2	64.5	56.8	47.8	55.2	58.9
Offshore ⁹	34.4	31.5	28.4	27.0	25.2	24.8	35.0	46.8	46.4	44.3
NPR-A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Point Thomson	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.1
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Alaska North Slope	715.4	692.8	642.6	599.9	579.3	531.6	530.4	501.0	514.7	526.5
Cook Inlet	13.9	10.1	8.9	10.4	10.7	12.2	16.3	18.3	16.6	14.1
Total Alaska	729.4	702.9	651.5	610.3	590.0	543.8	546.6	519.2	531.3	540.6

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Annual Average Daily Crude Oil Production

By production area *(Continued)*

Fiscal Year	Thousand Barrels per Day									
						Forecast				
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Alaska North Slope										
Prudhoe Bay	228.6	224.9	220.0	216.8	214.4	212.4	210.7	209.3	207.9	206.7
PBU Satellites ⁴	57.5	57.6	52.8	51.9	50.4	48.4	46.8	45.4	44.2	43.1
Greater Point McIntyre Area ⁵	30.5	29.9	28.8	27.9	27.3	26.7	26.1	25.7	25.3	24.9
Kuparuk	82.6	81.2	79.0	77.7	76.6	75.8	75.1	74.4	73.8	73.3
Kuparuk Satellites ⁶	23.9	25.8	25.5	24.5	24.0	23.6	23.3	23.0	22.8	22.6
Endicott ⁷	8.2	8.0	7.9	7.8	7.7	7.6	7.5	7.5	7.4	7.4
Alpine ⁸	63.1	55.0	62.0	57.4	46.9	41.3	39.1	37.9	36.7	34.3
Offshore ⁹	35.8	36.8	35.8	34.1	33.7	33.6	33.5	33.4	33.3	33.3
NPR-A	0.0	1.0	9.5	14.3	15.5	16.4	16.9	17.5	17.5	16.3
Point Thomson	3.1	5.3	5.6	5.8	5.8	5.9	6.0	6.0	6.4	7.4
Other ¹⁰	0.0	0.0	0.0	0.0	0.1	0.8	6.1	13.3	19.6	23.6
Total Alaska North Slope	533.4	525.7	526.8	518.3	502.5	492.6	491.1	493.4	494.8	492.9
Cook Inlet	16.7	22.2	17.9	15.4	13.9	13.0	12.2	11.6	11.0	10.5
Total Alaska	550.1	547.9	544.7	533.7	516.5	505.6	503.4	505.1	505.9	503.4

¹ FY 2016 production figures have been revised from the *Fall 2016 Revenue Sources Book* due to revised company submissions.

² Milne Point Unit production is now being reported with PBU Satellites instead of with PBU volume. Historical volumes, therefore, will not match the *Fall 2011 Revenue Sources Book*.

³ Includes NGLs from Central Gas Facility shipped to TAPS.

⁴ Aurora, Borealis, Midnight Sun, Orion, Polaris, Milne Point, Sag River, Schrader Bluff, Ugnu.

⁵ Lisburne, Niakuk, Point McIntyre, Raven, West Beach, West Niakuk.

⁶ Meltwater, NEWS, Tabasco, Tarn, West Sak.

⁷ Endicott, Minke, Sag Delta, Eider, Badami.

⁸ Alpine, Fiord, Nanuq, Qannik, Mustang, CRU 5th, Fiord West.

⁹ Northstar, Ooguruk, Nikaitchuq, Liberty.

¹⁰ Projects under evaluation that are outside of the preceding areas. Includes Pikka, Placer, Smith Bay.

NOTE: Totals may show slight differences from other sources due to rounding and aggregation differences.

Lease Expenditures

Operating and capital expenditures by geographic region

Millions of Dollars

History

Fiscal Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
North Slope Lease Expenditures										
Operating Expenditures [OPEX]	2,027	2,085	2,270	2,614	3,001	3,110	3,254	3,439	3,267	2,925
Capital Expenditures [CAPEX]	1,953	2,212	2,389	2,317	2,383	2,969	3,738	3,992	3,387	1,875
Total North Slope Lease Expenditures	3,980	4,297	4,659	4,931	5,385	6,079	6,992	7,431	6,654	4,801
Non-North Slope (includes Cook Inlet)										
Operating Expenditures [OPEX]	279	201	165	191	245	261	252	242	285	285
Capital Expenditures [CAPEX]	247	341	168	123	350	415	595	640	382	314
Total Non-North Slope Lease Expenditures	526	542	332	314	594	676	848	881	668	598
Total Statewide Lease Expenditures										
Operating Expenditures [OPEX]	2,306	2,286	2,435	2,805	3,246	3,370	3,506	3,680	3,552	3,210
Capital Expenditures [CAPEX]	2,200	2,553	2,557	2,440	2,733	3,384	4,333	4,632	3,769	2,189
Total Statewide Lease Expenditures	4,506	4,839	4,991	5,245	5,979	6,754	7,839	8,312	7,322	5,399
Additional Detail for North Slope Lease Expenditures										
Operating Expenditures [OPEX]										
Producing Non-GVR Eligible Units	1,987	2,040	2,182	2,488	2,838	2,879	3,021	3,161	2,921	2,575
Other Operating Expenditures	40	45	88	126	163	231	233	278	346	350
Total North Slope OPEX	2,027	2,085	2,270	2,614	3,001	3,110	3,254	3,439	3,267	2,925
Capital Expenditures [CAPEX]										
Producing Non-GVR Eligible Units	1,573	1,648	1,343	1,370	1,367	1,563	2,191	2,454	1,921	1,450
Other Capital Expenditures	380	564	1,046	947	1,016	1,406	1,547	1,538	1,466	425
Total North Slope CAPEX	1,953	2,212	2,389	2,317	2,383	2,969	3,738	3,992	3,387	1,875

(Table continued, next page)

Lease Expenditures

Operating and capital expenditures by geographic region *(Continued)*

Millions of Dollars

Fiscal Year	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
North Slope Lease Expenditures										
Operating Expenditures [OPEX]	2,746	2,845	2,875	2,896	3,204	3,509	3,589	3,665	3,701	3,754
Capital Expenditures [CAPEX]	1,812	2,572	3,127	3,287	2,982	2,636	2,405	1,850	1,723	1,652
Total North Slope Lease Expenditures	4,558	5,417	6,002	6,183	6,186	6,145	5,994	5,515	5,423	5,406
Non-North Slope (includes Cook Inlet)										
Operating Expenditures [OPEX]	263	262	266	271	276	282	283	286	289	293
Capital Expenditures [CAPEX]	238	171	148	150	147	150	153	157	160	164
Total Non-North Slope Lease Expenditures	501	434	414	421	422	432	437	443	449	457
Total Statewide Lease Expenditures										
Operating Expenditures [OPEX]	3,009	3,107	3,141	3,166	3,480	3,791	3,872	3,951	3,990	4,047
Capital Expenditures [CAPEX]	2,050	2,743	3,275	3,437	3,129	2,786	2,559	2,006	1,883	1,816
Total Statewide Lease Expenditures	5,058	5,851	6,415	6,604	6,609	6,576	6,431	5,957	5,873	5,863
Additional Detail for North Slope Lease Expenditures										
Operating Expenditures [OPEX]										
Producing Non-GVR Eligible Units	2,417	2,496	2,508	2,519	2,547	2,733	2,906	2,925	2,958	3,003
Other Operating Expenditures	329	349	367	376	657	776	684	740	742	751
Total North Slope OPEX	2,746	2,845	2,875	2,896	3,204	3,509	3,589	3,665	3,701	3,754
Capital Expenditures [CAPEX]										
Producing Non-GVR Eligible Units	1,323	1,470	1,902	1,947	1,551	1,343	1,434	1,371	1,315	1,243
Other Capital Expenditures	488	1,102	1,225	1,340	1,431	1,293	972	478	408	409
Total North Slope CAPEX	1,812	2,572	3,127	3,287	2,982	2,636	2,405	1,850	1,723	1,652

Production Tax Estimate for FY 2017

Using income statement format

Note: This table presents an approximation of the production tax calculation, and does not match production tax estimates throughout this publication.

	Price	Barrels (Thousands)	Value (Millions of Dollars)
Average ANS Oil Price (dollars per barrel) and Daily Production	\$49.43	526.5	\$26.0
Annual Production			
Total		192,173	\$9,499.1
Royalty, Federal and Other Barrels ¹		-24,982	(\$1,234.8)
Taxable barrels		167,191	\$8,264.2
Downstream (Transportation) Costs (dollars per barrel)			
ANS Marine Transportation	-\$3.18		
TAPS Tariff	-\$6.09		
Other	-\$0.43		
Total Transportation Costs	-\$9.70	167,191	(\$1,621.8)
Gross Value at Point of Production (GVPP)			\$6,642.5
Deductible Lease Expenditures²			
Deductible Operating Expenditures	-\$16.96		(\$2,835.6)
Deductible Capital Expenditures	-\$9.85		(\$1,646.8)
Total Lease Expenditures	-\$26.81	167,191	(\$4,482.4)
Production Tax			
Gross Minimum Tax (4%*GVPP)			\$265.7
Production Tax Value (PTV)			\$2,160.1
Gross Value Reduction (GVR)			(\$73.4)
Production Tax Value (PTV) After GVR			\$2,086.7
Base Tax (35%*PTV After GVR)			\$730.3
Current-Year Tax Before Credits (base tax or minimum tax)			\$730.3
Per-Taxable-Barrel Credits			(\$453.0)
Current-Year Tax After Per-Taxable-Barrel Credits			\$277.3
Adjustments³			(\$142.9)
Total Tax After Credits and Adjustments			\$134.4

¹ Royalty, Federal and Other Barrels represents the Department of Revenue's best estimate of barrels that are not taxed. This estimate includes state and federal royalty barrels, barrels produced from federal offshore property, and barrels used in production.

² Deductible Lease Expenditures represents the department's best estimate of lease expenditures that are applicable to companies that are likely to have a tax liability for the year. The per-barrel expenditures reflect expenditures per taxable barrel and are higher than if this was shown as expenditures per all barrels produced.

³ Adjustments include:

- Any credits other than Per-Taxable-Barrel Credits, such as Small-Producer Credits or Net Operating Loss Credits from prior years.
- Private landowner royalty tax, and conservation surcharge.
- Cook Inlet production tax.
- Any prior-year tax payments other than those deposited into the Constitutional Budget Reserve Fund (CBRF). For FY 2017, this includes negative general fund revenue for retroactive transfer of prior-year revenues to the CBRF.
- Additional detail captured in company-specific revenue models that produces results that can differ slightly from the estimates in the simple model above.

Production Tax Estimate for FY 2018

Using income statement format

Note: This table presents an approximation of the production tax calculation, and does not match production tax estimates throughout this publication.

	Price	Barrels (Thousands)	Value (Millions of Dollars)
Average ANS Oil Price (dollars per barrel) and Daily Production	\$56.00	533.4	\$29.9
Annual Production			
Total		194,702	\$10,903.2
Royalty, Federal and Other Barrels ¹		-23,426	(\$1,311.8)
Taxable Barrels		171,276	\$9,591.4
Downstream (Transportation) Costs (dollars per barrel)			
ANS Marine Transportation	-\$3.41		
TAPS Tariff	-\$6.10		
Other	-\$0.29		
Total Transportation Costs	-\$9.80	171,276	(\$1,677.8)
Gross Value at Point of Production (GVPP)			\$7,913.6
Deductible Lease Expenditures²			
Deductible Operating Expenditures	-\$15.70		(\$2,688.8)
Deductible Capital Expenditures	-\$9.03		(\$1,547.0)
Total Lease Expenditures	-\$24.73	171,276	(\$4,235.9)
Production Tax			
Gross Minimum Tax (4%*GVPP)			\$316.5
Production Tax Value (PTV)			\$3,677.7
Gross Value Reduction (GVR)			(\$45.9)
Production Tax Value (PTV) after GVR			\$3,631.8
Base Tax (35%*PTV after GVR)			\$1,271.1
Current-Year Tax Before Credits (base tax or minimum tax)			\$1,271.1
Per-Taxable-Barrel Credits			(\$955.3)
Current-Year Tax After Per-Taxable-Barrel Credits			\$315.8
Adjustments³			\$142.1
Total Tax After Credits and Adjustments			\$457.8

¹ Royalty, Federal and Other Barrels represents the Department of Revenue's best estimate of barrels that are not taxed. This estimate includes state and federal royalty barrels, barrels produced from federal offshore property, and barrels used in production.

² Deductible Lease Expenditures represents the department's best estimate of lease expenditures that are applicable to companies that are likely to have a tax liability for the year. The per-barrel expenditures reflect expenditures per taxable barrel and are higher than if this was shown as expenditures per all barrels produced.

³ Adjustments include:

- Any credits other than Per-Taxable-Barrel Credits, such as Small-Producer Credits or Net Operating Loss Credits from prior years.
- Private landowner royalty tax, and conservation surcharge.
- Cook Inlet production tax.
- Any prior-year tax payments other than those deposited into the Constitutional Budget Reserve Fund. For FY 2018, this includes supplemental payments to correct FY 2017 underpayments.
- Additional detail captured in company-specific revenue models that produces results that can differ slightly from the estimates in the simple model above.

Production Tax Estimate for FY 2019

Using income statement format

Note: This table presents an approximation of the production tax calculation, and does not match production tax estimates throughout this publication.

	Price	Barrels (Thousands)	Value (Millions of Dollars)
Average ANS Oil Price (dollars per barrel) and Daily Production	\$57.00	525.7	\$30.0
Annual Production			
Total		191,874	\$10,936.8
Royalty, Federal and Other Barrels ¹		-22,847	(\$1,302.3)
Taxable Barrels		169,028	\$9,634.6
Downstream (Transportation) Costs (dollars per barrel)			
ANS Marine Transportation	-\$3.45		
TAPS Tariff	-\$6.15		
Other	-\$0.25		
Total Transportation Costs	-\$9.86	169,028	(\$1,665.8)
Gross Value at Point of Production (GVPP)			\$7,968.8
Deductible Lease Expenditures²			
Deductible Operating Expenditures	-\$16.42		(\$2,774.9)
Deductible Capital Expenditures	-\$10.37		(\$1,753.6)
Total Lease Expenditures	-\$26.79	169,028	(\$4,528.6)
Production Tax			
Gross Minimum Tax (4%*GVPP)			\$318.8
Production Tax Value (PTV)			\$3,440.2
Gross Value Reduction (GVR)			(\$22.9)
Production Tax Value (PTV) after GVR			\$3,417.3
Base Tax (35%*PTV after GVR)			\$1,196.1
Current-Year Tax Before Credits (base tax or minimum tax)			\$1,196.1
Per-Taxable-Barrel Credits			(\$897.0)
Current-Year Tax After Per-Taxable-Barrel Credits			\$299.0
Adjustments³			\$39.8
Total Tax After Credits and Adjustments			\$338.8

¹ Royalty, Federal and Other Barrels represents the Department of Revenue's best estimate of barrels that are not taxed. This estimate includes state and federal royalty barrels, barrels produced from federal offshore property, and barrels used in production.

² Deductible Lease Expenditures represents the department's best estimate of lease expenditures that are applicable to companies that are likely to have a tax liability for the year. The per-barrel expenditures reflect expenditures per taxable barrel and are higher than if this was shown as expenditures per all barrels produced.

³ Adjustments include:

- Any credits other than Per-Taxable-Barrel Credits, such as Small-Producer Credits or Net Operating Loss Credits from prior years.
- Private landowner royalty tax, and conservation surcharge.
- Cook Inlet production tax.
- Any prior-year tax payments not deposited in the Constitutional Budget Reserve Fund.
- Additional detail captured in company-specific revenue models that produces results that can differ slightly from the estimates in the simple model above.

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