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Northwest Natural Holding Co
Form 10-K

March 01, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 1-38681

Commission file number 1-15973

NORTHWEST NATURAL HOLDING COMPANY

NORTHWEST NATURAL GAS COMPANY

(Exact name of registrant as specified in its charter)

(Exact name of registrant as specified in its charter)

Oregon 82-4710680

Oregon 93-0256722

(State or other jurisdiction of (I.R.S. Employer incorporation or organization) Identification No.)

(State or other jurisdiction of (I.R.S. Employer incorporation or organization) Identification No.)

220 N.W. Second Avenue, Portland, Oregon 97209

220 N.W. Second Avenue, Portland, Oregon 97209

(Address of principal executive offices) (Zip Code)

(Address of principal executive offices) (Zip Code)

Registrant's telephone number: (503) 226-4211

Registrant's telephone number: (503) 226-4211

Securities registered pursuant to Section 12(b) of the Act:

Registrant of each class Title

Name of each exchange on which registered

Northwest Natural Holding Company Common Stock

New York Stock Exchange

Northwest Natural Gas Company None

None

Securities registered pursuant to Section 12(g) of the Act: None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

NORTHWEST NATURAL HOLDING COMPANY Yes No

NORTHWEST NATURAL GAS COMPANY Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

NORTHWEST NATURAL HOLDING COMPANY Yes No

NORTHWEST NATURAL GAS COMPANY Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

NORTHWEST NATURAL HOLDING COMPANY Yes No

NORTHWEST NATURAL GAS COMPANY Yes No

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Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

NORTHWEST NATURAL HOLDING
COMPANY Yes[X] No[]

NORTHWEST NATURAL GAS COMPANY
Yes[X] No[]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.[X]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

NORTHWEST NATURAL HOLDING
COMPANY

NORTHWEST NATURAL GAS COMPANY

Large Accelerated Filer [X]

Large Accelerated Filer []

Accelerated Filer []

Accelerated Filer []

Non-accelerated Filer []

Non-accelerated Filer [X]

Smaller Reporting Company []

Smaller Reporting Company []

Emerging Growth Company []

Emerging Growth Company []

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. []

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

NORTHWEST NATURAL HOLDING
COMPANY Yes[] No[X]

NORTHWEST NATURAL GAS COMPANY
Yes[] No[X]

As of the end of the second quarter of 2018, the aggregate market value of the shares of Common Stock of Northwest Natural Gas Company (based upon the closing price of these shares on the New York Stock Exchange on June 29, 2018) held by non-affiliates was \$1,814,276,842.

At February 22, 2019, 28,896,471 shares of Northwest Natural Holding Company's Common Stock (the only class of Common Stock) were outstanding and 28,844,190 shares of Northwest Natural Gas Company's Common Stock (the only class of Common Stock) were outstanding, all of which were held by Northwest Natural Holding Company.

This combined Form 10-K is separately filed by Northwest Natural Holding Company and Northwest Natural Gas Company. Information contained in this document relating to Northwest Natural Gas Company is filed by Northwest Natural Holding Company and separately by Northwest Natural Gas Company. Northwest Natural Gas Company makes no representation as to information relating to Northwest Natural Holding Company or its subsidiaries, except as it may relate to Northwest Natural Gas Company and its subsidiaries.

Northwest Natural Gas Company meets the conditions set forth in General Instruction (I)(1)(a) and (b) of Form 10-K and is therefore filing this report with the reduced disclosure format.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Northwest Natural Holding Company's Proxy Statement, to be filed in connection with the 2019 Annual Meeting of Shareholders, are incorporated by reference in Part III.

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GLOSSARY OF TERMS AND ABBREVIATIONS

AFUDC	Allowance for Funds Used During Construction
AOCI / AOCL	Accumulated Other Comprehensive Income (Loss)
ASC	Accounting Standards Codification
ASU	Accounting Standards Update as issued by the FASB
Average Weather	The 25-year average of heating degree days based on temperatures established in our last Oregon general rate case
Bcf	Billion cubic feet, a volumetric measure of natural gas, where one Bcf is roughly equal to 10 million therms
CNG	Compressed Natural Gas
CODM	Chief Operating Decision Maker. For accounting purposes, an individual or group of individuals responsible for the allocation of resources and assessing the performance of the entity's business units
Core Utility Customers	Residential, commercial, and industrial customers receiving firm service from the utility
Cost of Gas	The delivered cost of natural gas sold to customers, including the cost of gas purchased or withdrawn/produced from storage inventory or reserves, gains and losses from gas commodity hedges, pipeline demand costs, seasonal demand cost balancing adjustments, regulatory gas cost deferrals and Company gas use
CPUC	California Public Utilities Commission, the entity that regulates our California gas storage business at the Gill Ranch facility with respect to rates and terms of service, among other matters
Decoupling	A billing rate mechanism, also referred to as a conservation tariff, which is designed to allow a utility to encourage industrial and small commercial customers to conserve energy while not adversely affecting its earnings due to reductions in sales volumes
Demand Cost	A component in core utility customer rates representing the cost of securing firm pipeline capacity, whether the capacity is used or not
EBITDA	Earnings before interest, taxes, depreciation and amortization, a non-GAAP financial measure
EE/CA	Engineering Evaluation / Cost Analysis
Encana	Encana Oil & Gas (USA) Inc.
Energy Corp	Northwest Energy Corporation, a wholly-owned subsidiary of NW Natural
EPA	Environmental Protection Agency
EPS	Earnings per share
FASB	Financial Accounting Standards Board
FERC	Federal Energy Regulatory Commission; the entity regulating interstate storage services offered by the Mist gas storage facility
Firm Service	Natural gas service offered to customers under contracts or rate schedules that will not be disrupted to meet the needs of other customers
FMBs	First Mortgage Bonds
General Rate Case	A periodic filing with state or federal regulators to establish billing rates for utility customers
GHG	Greenhouse gases
Gill Ranch	Gill Ranch Storage, LLC, a wholly-owned subsidiary of NWN Gas Storage
Gill Ranch Facility	Underground natural gas storage facility near Fresno, California, with 75% owned by Gill Ranch and 25% owned by PG&E
GTN	

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	Gas Transmission Northwest, LLC which owns a transmission pipeline serving California and the Pacific Northwest
Heating Degree Days	Units of measure reflecting temperature-sensitive consumption of natural gas, calculated by subtracting the average of a day's high and low temperatures from 59 degrees Fahrenheit
HATFA	Highway and Transportation Funding Act of 2014
Interruptible Service	Natural gas service offered to customers (usually large commercial or industrial users) under contracts or rate schedules that allow for interruptions when necessary to meet the needs of firm service customers
Interstate Storage Services	The portion of the Mist gas storage facility not used to serve NGD, instead serving utilities, gas marketers, electric generators, and large industrial users
IPUC	Public Utility Commission of Idaho; the entity that regulates NW Holdings' Idaho water business with respect to rates and terms of service, among other matters
IRP	Integrated Resource Plan

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KB	Kelso-Beaver Pipeline, of which 10% is owned by KB Pipeline Company, a subsidiary of NNG Financial
LNG	Liquefied Natural Gas, the cryogenic liquid form of natural gas. To reach a liquid form at atmospheric pressure, natural gas must be cooled to approximately negative 260 degrees Fahrenheit
MAP-21	A federal pension plan funding law called the Moving Ahead for Progress in the 21st Century Act, July 2012
Moody's	Moody's Investors Service, Inc., credit rating agency
NAV	Net Asset Value
NGD	Natural Gas Distribution, a segment of NW Natural Holdings and NW Natural Gas Company that provides regulated natural gas distribution services to residential, commercial, and industrial customers in Oregon and Southwest Washington
NGD Margin	A financial measure consisting of NGD operating revenues less the associated cost of gas, franchise taxes, and environmental recoveries
NNG Financial	NNG Financial Corporation, a wholly-owned subsidiary of NW Holdings
NOL	Net Operating Loss
NRD	Natural Resource Damages
NW Holdings	Northwest Natural Holding Company
NW Natural	Northwest Natural Gas Company, a wholly-owned subsidiary of NW Holdings
NWN Energy	NW Natural Energy, LLC, a wholly-owned subsidiary of NW Holdings
NWN Gas Reserves	NWN Gas Reserves LLC, a wholly-owned subsidiary of Energy Corp
NWN Gas Storage	NW Natural Gas Storage, LLC, a wholly-owned subsidiary of NWN Energy
ODEQ	Oregon Department of Environmental Quality
OPEIU	Office and Professional Employees International Union Local No. 11, AFL-CIO, which is also referred to as the Union representing NW Natural's bargaining unit employees
OPUC	Public Utility Commission of Oregon; the entity that regulates our Oregon natural gas and water utility businesses with respect to rates and terms of service, among other matters; the OPUC also regulates the Mist gas storage facility's intrastate storage services
PBGC	Pension Benefit Guaranty Corporation
PG&E	Pacific Gas & Electric Company; 25% owner of the Gill Ranch Facility
PGA	Purchased Gas Adjustment, a regulatory mechanism which adjusts natural gas customer rates to reflect changes in the forecasted cost of gas and differences between forecasted and actual gas costs from the prior year
Portland General	Portland General Electric; primary customer of the North Mist gas storage expansion
PHMSA	U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration
PRP	Potentially Responsible Parties
RI/FS	Remedial Investigation / Feasibility Study
ROD	Record of Decision
ROE	Return on Equity, a measure of corporate profitability, calculated as net income or loss divided by average common stock equity. Authorized ROE refers to the equity rate approved by a regulatory agency for use in determining utility revenue requirements
ROR	Rate of Return, a measure of return on utility rate base. Authorized ROR refers to the rate of return approved by a regulatory agency and is generally discussed in the context of ROE and capital structure

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S&P	Standard & Poor's, a credit rating agency and division of The McGraw-Hill Companies, Inc.
Sales Service	Service provided whereby a customer purchases both natural gas commodity supply and transportation from the utility
SEC	U.S. Securities and Exchange Commission
SRRM	Site Remediation and Recovery Mechanism, a billing rate mechanism for recovering prudently incurred environmental site remediation costs allocable to Oregon through customer billings, subject to an earnings test
TCJA	The Tax Cuts and Jobs Act enacted on December 22, 2017
Therm	The basic unit of natural gas measurement, equal to one hundred thousand British thermal units
TWH	Trail West Holdings, LLC, 50% owned by NWN Energy
TWP	Trail West Pipeline, LLC, a subsidiary of TWH
TransCanada	TransCanada Pipelines Limited, owner of TransCanada American Investments, Ltd., a 50% owner of TWH, and GTN

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Transportation Service	Service provided whereby a customer purchases natural gas directly from a supplier but pays the utility to transport the gas over its distribution system to the customer's facility
U.S. GAAP	Accounting principles generally accepted in the United States of America
WARM	An Oregon billing rate mechanism applied to natural gas residential and commercial customers to adjust for temperature variances from average weather
WUTC	Washington Utilities and Transportation Commission, the entity that regulates our Washington natural gas and water utility businesses with respect to rates and terms of service, among other matters

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FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995, which are subject to the safe harbors created by such Act. Forward-looking statements can be identified by words such as anticipates, assumes, intends, plans, seeks, believes, estimates, expects, and similar references to future periods. Examples of forward-looking statements include, but are not limited to, statements regarding the following:

- plans, projections and predictions;
- objectives, goals or strategies;
- assumptions, generalizations and estimates;
- ongoing continuation of past practices or patterns;
- future events or performance;
- trends;
- risks;
- uncertainties;
- timing and cyclicalities;
- earnings and dividends;
- capital expenditures and allocation;
- capital or organizational structure, including restructuring as a holding company;
- climate change and our role in a low-carbon, renewable-energy future;
- growth;
- customer rates;
- labor relations and workforce succession;
- commodity costs;
- gas reserves;
- operational performance and costs;
- energy policy, infrastructure and preferences;
- public policy approach and involvement;
- efficacy of derivatives and hedges;
- liquidity, financial positions, and planned securities issuances;
- valuations;
- project and program development, expansion, or investment;
- business development efforts, including acquisitions and integration thereof;
- pipeline capacity, demand, location, and reliability;
- adequacy of property rights and headquarter development;
- technology implementation and cybersecurity practices;
- competition;
- procurement and development of gas supplies;
- estimated expenditures;
- costs of compliance;
- customers bypassing our infrastructure;
- credit exposures;
- rate or regulatory outcomes, recovery or refunds;
- impacts or changes of laws, rules and regulations;
- tax liabilities or refunds, including effects of tax reform;
- levels and pricing of gas storage contracts and gas storage markets;

- outcomes, timing and effects of potential claims, litigation, regulatory actions, and other administrative matters;
- projected obligations, expectations and treatment with respect to retirement plans;
- availability, adequacy, and shift in mix, of gas supplies;
- effects of new or anticipated changes in critical accounting policies or estimates;

- approval and adequacy of regulatory deferrals;
- effects and efficacy of regulatory mechanisms; and
- environmental, regulatory, litigation and insurance costs and recoveries, and timing thereof.

Forward-looking statements are based on our current expectations and assumptions regarding our business, the economy, and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks, and changes in circumstances that are difficult to predict. Our actual results may differ materially from those contemplated by the forward-looking statements. We therefore caution you against relying on any of these forward-looking statements. They are neither statements of historical fact nor guarantees or assurances of future performance. Important factors that could cause actual results to differ materially from those in the forward-looking statements are discussed at Item 1A., "Risk Factors" of Part I and Item 7. and Item 7A., "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Quantitative and Qualitative Disclosures About Market Risk", respectively, of Part II of this report.

Any forward-looking statement made in this report speaks only as of the date on which it is made. Factors or events that could cause actual results to differ may emerge from time to time, and it is not possible for us to predict all of them. We undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by law.

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PART I

FILING FORMAT

This annual report on Form 10-K is a combined report being filed by two separate registrants: Northwest Natural Holding Company (NW Holdings), and Northwest Natural Gas Company (NW Natural). Except where the content clearly indicates otherwise, any reference in the report to "we," "us" or "our" is to the consolidated entity of NW Holdings and all of its subsidiaries, including NW Natural, which is a distinct SEC registrant that is a wholly-owned subsidiary of NW Holdings. Each of NW Holdings' subsidiaries is a separate legal entity with its own assets and liabilities. Information contained herein relating to any individual registrant or its subsidiaries is filed by such registrant on its own behalf. Each registrant makes representations only as to itself and its subsidiaries and makes no other representation whatsoever as to any other company.

Part II - Item 8. Financial statements and supplementary data in this Annual Report on Form 10-K includes separate financial statements (i.e. balance sheets, statements of comprehensive income, statements of cash flows, and statements of equity) for NW Holdings and NW Natural, in that order. References in this discussion to the "Notes" are to the Notes to the Consolidated Financial Statements in Item 8 of this report. The Notes to the Consolidated Financial Statements are presented on a combined basis for both entities except where expressly noted otherwise. All Items other than Part II - Item 8. are combined for the reporting companies.

ITEM 1. BUSINESS

OVERVIEW

On October 1, 2018, we completed a reorganization into a holding company structure. We believe that our holding company structure is an agile and efficient platform from which to pursue, finance, and oversee new opportunities, such as in the water sector, while also providing legal separation between regulated natural gas distribution operations and other businesses. In this reorganization, shareholders of NW Natural (the predecessor publicly held parent company) became shareholders of NW Holdings, on a one-for-one basis, with the same number of shares and same ownership percentage as they held in NW Natural immediately prior to the reorganization. NW Natural became a wholly-owned subsidiary of NW Holdings. Additionally, certain subsidiaries of NW Natural were transferred to NW Holdings. As required under accounting guidance, these subsidiaries are presented as discontinued operations in the consolidated results of NW Natural within this report.

NW Holdings is a holding company headquartered in Portland, Oregon and owns NW Natural, NW Natural Water Company (NW Water), and other businesses and activities. NW Natural is NW Holdings' largest subsidiary.

NW Natural distributes natural gas to residential, commercial, and industrial customers in Oregon and southwest Washington. NW Natural and its predecessors have supplied gas service to the public since 1859, was

incorporated in Oregon in 1910, and began doing business as NW Natural in 1997. NW Natural's natural gas distribution activities are reported in the natural gas distribution (NGD) segment, formerly titled and reported as the utility segment. All other business activities, including certain gas storage activities, water businesses, and other investments and activities are aggregated and reported as "other" at their respective registrant.

In addition, NW Holdings has reported discontinued operations results related to the pending sale of Gill Ranch Storage, LLC (Gill Ranch). NW Natural Gas Storage, LLC (NWN Gas Storage), currently an indirect wholly-owned subsidiary of NW Holdings, entered into a Purchase and Sale Agreement during the second quarter of 2018 that provides for the sale of all membership interests in Gill Ranch. Gill Ranch owns a 75% interest in the natural gas storage facility located near Fresno, California known as the Gill Ranch Gas Storage Facility. Pacific Gas and Electric Company (PG&E) owns the remaining 25% interest in the Gill Ranch Gas Storage Facility.

NATURAL GAS DISTRIBUTION (NGD) SEGMENT

Both NW Holdings and NW Natural have one reportable segment, the NGD segment, which is conducted by NW Natural. The NGD business purchases and distributes natural gas through approximately 750,000 meters in Oregon and southwest Washington. Approximately 89% of customers are located in Oregon and 11% are located in southwest Washington.

NW Natural has been allocated an exclusive service territory by the OPUC and WUTC, which includes the major population centers in western Oregon, including the Portland metropolitan area, most of the Willamette Valley, the Coastal area from Astoria to Coos Bay, and portions of Washington along the Columbia River. Portland serves as one of the largest ports on the West Coast and is a key distribution center. Major businesses located in NW Natural's service territory include retail, manufacturing, and high-technology industries.

Customers

The NGD business serves residential, commercial, and industrial customers with no individual customer accounting for more than 10% of NW Natural or NW Holdings revenues. On an annual basis, residential and commercial customers typically account for approximately 60% of NGD volumes delivered and approximately 90% of margin. Industrial customers largely account for the remaining volumes and margin.

The following table presents summary meter information for the NGD segment as of December 31, 2018:

	Number of Meters	% of Volumes	% of Margin (1)		
Residential	680,134	37	%	65	%
Commercial	69,259	22	%	27	%
Industrial	1,028	41	%	8	%
Other	N/A	N/A		—	%
Total	750,421	100	%	100	%

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(1) NGD margin is also affected by other items, including miscellaneous services, gains or losses from our gas cost incentive sharing mechanism, and other service fees.

Generally, residential and commercial customers purchase both their natural gas commodity (gas sales) and natural gas delivery services (transportation services) from the NGD business. Industrial customers also purchase transportation services, but may buy the gas commodity either from NW Natural or directly from a third-party gas marketer or supplier. Gas commodity cost is primarily a pass-through cost to customers; therefore, profit margins are not materially affected by an industrial customer's decision to purchase gas from NW Natural or from third parties. Industrial and large commercial customers may also select between firm and interruptible service levels, with firm services generally providing higher profit margins compared to interruptible services.

To help manage gas supplies, industrial tariffs are designed to provide some certainty regarding industrial customers' volumes by requiring an annual service election, special charges for changes between elections, and in some cases, a minimum or maximum volume requirement before changing options.

Customer growth rates for natural gas utilities in the Pacific Northwest historically have been among the highest in the nation due to lower market saturation as natural gas became widely available as a residential heating source after other fuel options. We estimate natural gas was in approximately 63% of single-family residential homes in NW Natural's service territory in 2018. Customer growth in our region comes mainly from the following sources: single-family housing, both new construction and conversions; multifamily housing new construction; and commercial buildings, both new construction and conversions. Single-family new construction has consistently been our strongest performing source of growth. Continued customer growth is closely tied to the comparative price of natural gas to electricity and fuel oil and the economic health of Portland, Oregon and Vancouver, Washington. We believe there is potential for continued growth as natural gas is a preferred energy source due to its affordable, reliable, and clean qualities.

Competitive Conditions

In its service areas, the NGD business has no direct competition from other natural gas distributors. However, it competes with other forms of energy in each customer class. This competition among energy suppliers is based on price, efficiency, reliability, performance, preference, market conditions, technology, federal, state, and local energy policy, and environmental impacts.

For residential and small to mid-size commercial customers, the NGD business competes primarily with providers of electricity, fuel oil, and propane.

In the industrial and large commercial markets, the NGD business competes with all forms of energy, including competition from wholesale natural gas marketers. In addition, large industrial customers could bypass NW Natural's natural gas distribution system by installing their own direct pipeline connection to the interstate pipeline

system. NW Natural has designed custom transportation service agreements with several large industrial customers to provide transportation service rates that are competitive with the customer's costs of installing their own pipeline.

Seasonality of Business

The NGD business is seasonal in nature due to higher gas usage by residential and commercial customers during the cold winter heating months. Other categories of customers experience similar seasonality in their usage but to a lesser extent.

Regulation and Rates

The NGD business is subject to regulation by the OPUC and WUTC. These regulatory agencies authorize rates and allow recovery mechanisms to provide the opportunity to recover prudently incurred capital and operating costs from customers, while also earning a reasonable return on investment for investors. In addition, the OPUC and WUTC also regulate the system of accounts and issuance of securities by NW Natural.

NW Natural files general rate cases and rate tariff requests periodically with the OPUC and WUTC to establish approved rates, an authorized ROE, an overall rate of return on rate base (ROR), an authorized capital structure, and other revenue/cost deferral and recovery mechanisms.

NW Natural is also regulated by the FERC. Under NW Natural's Mist interstate storage certificate with FERC, NW Natural is required to file either a petition for rate approval or a cost and revenue study every five years to change or justify maintaining the existing rates for the interstate storage service.

For further discussion on our most recent general rate cases, see Part II, Item 7, "Results of Operations—Regulatory Matters—Regulation and Rates".

Gas Supply

NW Natural strives to secure sufficient, reliable supplies of natural gas to meet the needs of customers at the lowest reasonable cost, while maintaining price stability and managing gas purchase costs prudently. This is accomplished through a comprehensive strategy focused on the following items:

- Reliability - ensuring gas resource portfolios are sufficient to satisfy customer requirements under extreme cold weather conditions;
- Diverse Supply - providing diversity of supply sources;
- Diverse Contracts - maintaining a variety of contract durations, types, and counterparties; and
- Cost Management and Recovery - employing prudent gas cost management strategies.

Reliability

The effectiveness of the natural gas distribution system ultimately rests on whether reliable service is provided to NGD customers. To ensure effectiveness, the NGD business has developed a risk-based methodology in which it uses a planning standard to serve the highest firm sales demand day in any year with 99% certainty.

The projected maximum design day firm NGD customer sendout is approximately 10.0 million therms. Of this total,

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the NGD business is currently capable of meeting about 56% of requirements with gas from storage located within or adjacent to the service territory, while the remaining supply requirements would come from gas purchases under firm gas purchase contracts and recall agreements.

To supplement near-term natural gas supplies, NW Natural can segment transportation capacity, if needed. Pipeline segmentation is a natural gas transportation mechanism under which a shipper can leverage its firm pipeline transportation capacity by separating it into multiple segments with alternate delivery routes. The reliability of service on these alternate routes will vary depending on the constraints of the pipeline system. For those segments with acceptable reliability, segmentation provides a shipper with increased flexibility and potential cost savings compared to traditional pipeline service. Since 2014, the NGD business has relied on segmentation of firm pipeline transportation capacity that flows from Stanfield, Oregon to various points south of Molalla, Oregon.

We believe gas supplies would be sufficient to meet existing NGD firm customer demand in the event of maximum design day weather conditions.

The following table shows the sources of supply projected to be used to satisfy the design day sendout for the 2018-2019 winter heating season:

Therms in millions	Therms	Percent
Sources of NGD supply:		
Firm supply purchases	3.4	34 %
Mist underground storage (NGD only)	3.1	31 %
Company-owned LNG storage	1.9	19 %
Off-system storage contract	0.5	5 %
Pipeline segmentation capacity	0.6	6 %
Recall agreements	0.4	4 %
Peak day citygate deliveries	0.1	1 %
Total	10.0	100 %

The OPUC and WUTC have IRP processes in which utilities define different growth scenarios and corresponding resource acquisition strategies in an effort to evaluate supply and demand resource requirements, consider uncertainties in the planning process and the need for flexibility to respond to changes, and establish a plan for providing reliable service at the least cost.

NW Natural files a full IRP biennially for Oregon and Washington with the OPUC and the WUTC, respectively, and files updates between filings. The OPUC acknowledges NW Natural's action plan; whereas the WUTC provides notice that the IRP has met the requirements of the Washington Administrative Code. OPUC acknowledgment of the IRP does not constitute ratemaking approval of any specific resource acquisition strategy or expenditure. However, the Commissioners generally indicate that they would give considerable weight in prudence reviews to actions consistent with acknowledged plans. The WUTC has indicated the IRP process is one factor it will consider in a prudence review. For additional information see Part II, Item 7, "Results of Operations—Regulatory Matters".

Diversity of Supply Sources

NW Natural purchases gas supplies primarily from the Alberta and British Columbia provinces of Canada and multiple receipt points in the U.S. Rocky Mountains to protect against regional supply disruptions and to take advantage of price differentials. For 2018, 61% of gas supply came from Canada, with the balance primarily coming

from the U.S. Rocky Mountain region. We believe gas supplies available in the western United States and Canada are adequate to serve NGD customer requirements for the foreseeable future. NW Natural continues to evaluate the long-term supply mix based on projections of gas production and pricing in the U.S. Rocky Mountain region as well as other regions in North America. Additionally, the extraction of shale gas has increased the availability of gas supplies throughout North America for the foreseeable future.

NW Natural supplements firm gas supply purchases with gas withdrawals from gas storage facilities, including underground reservoirs and LNG storage facilities. Storage facilities are generally injected with natural gas during the off-peak months in the spring and summer, and the gas is withdrawn for use during peak demand months in the winter.

The following table presents the storage facilities available for NGD business supply:

	Maximum Daily Deliverability (therms in millions)	Designed Storage Capacity (Bcf)
Gas Storage Facilities		
Owned Facility		
Mist, Oregon ⁽¹⁾	3.1	10.6
Contracted Facility		
Jackson Prairie, Washington ⁽²⁾	0.5	1.1
LNG Facilities		
Owned Facilities		
Newport, Oregon	0.6	1.0
Portland, Oregon	1.3	0.6
Total	5.5	13.3

⁽¹⁾ The Mist gas storage facility has a total maximum daily deliverability of 5.4 million therms and a total designed storage capacity of about 16.0 Bcf, of which 3.1 million therms of daily deliverability and 10.6 Bcf of storage capacity are reserved for NGD business customers.

⁽²⁾ The storage facility is located near Chehalis, Washington and is contracted from Northwest Pipeline, a subsidiary of The Williams Companies.

The Mist facility serves NGD segment customers and is also used for non-NGD purposes, primarily for contracts with gas storage customers, including utilities and third-party marketers. Under regulatory agreements with the OPUC and WUTC, gas storage at Mist can be developed in advance of NGD customer needs but is subject to recall when needed to serve such customers as their demand increases. When storage capacity is recalled for NGD purposes it becomes part of the NGD segment. In 2018, the NGD business did not recall additional deliverability or associated storage capacity to serve customer needs.

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In addition, pipeline capacity and supply resources from certain NW Natural customers may be recalled if needed to meet high demand requirements.

Diverse Contract Durations and Types

NW Natural has a diverse portfolio of short-, medium-, and long-term firm gas supply contracts and a variety of contract types including firm and interruptible supplies as well as supplemental supplies from gas storage facilities.

The portfolio of firm gas supply contracts typically includes the following gas purchase contracts: year-round and winter-only baseload supplies; seasonal supply with an option to call on additional daily supplies during the winter heating season; and daily or monthly spot purchases.

During 2018, a total of 743 million therms were purchased under contracts with durations outlined in the chart below:

Contract Duration (primary term)	Percent of Purchases
Long-term (one year or longer)	28 %
Short-term (more than one month, less than one year)	27
Spot (one month or less)	45
Total	100 %

Gas supply contracts are renewed or replaced as they expire. During 2018, no individual supplier provided over 10% of the NGD business gas supply requirements.

Gas Cost Management

The cost of gas sold to NGD customers primarily consists of the following items, which are included in annual PGA rates: gas purchases from suppliers; charges from pipeline companies to transport gas to our distribution system; gas storage costs; gas reserves contracts; and gas commodity derivative contracts.

The NGD business employs a number of strategies to mitigate the cost of gas sold to customers. The primary strategies for managing gas commodity price risk include:

- negotiating fixed prices directly with gas suppliers;
- negotiating financial derivative contracts that: (1) effectively convert floating index prices in physical gas supply contracts to fixed prices (referred to as commodity price swaps); or (2) effectively set a ceiling or floor price, or both, on floating index priced physical supply contracts (referred to as commodity price options such as calls, puts, and collars);
- buying physical gas supplies at a set price and injecting the gas into storage for price stability and to minimize pipeline capacity demand costs; and
- investing in gas reserves for longer term price stability. See Note 12 for additional information about our gas reserves.

NW Natural also contracts with an independent energy marketing company to capture opportunities regarding storage and pipeline capacity when those assets are not serving the needs of NGD business customers. Asset management activities provide opportunities for cost of gas savings for customers and incremental revenues for NW Natural through regulatory incentive-sharing mechanisms.

These activities, net of the amount shared, are included in other for segment reporting purposes.

Gas Cost Recovery

Mechanisms for gas cost recovery are designed to be fair and reasonable, with an appropriate balance between the interests of customers and NW Natural. In general, natural gas distribution rates are designed to recover the costs of, but not to earn a return on, the gas commodity sold. Risks associated with gas cost recovery are minimized by resetting customer rates annually through the PGA and aligning customer and shareholder interests through the use of sharing, weather normalization, and conservation mechanisms in Oregon. See Part II, Item 7, "Results of Operations—Regulatory Matters" and "Results of Operations—Business Segments—Natural Gas Distribution Operations—Cost of Gas."

Transportation of Gas Supplies

NW Natural's gas distribution system is reliant on a single, bi-directional interstate transmission pipeline to bring gas supplies into the natural gas distribution system. Although dependent on a single pipeline, the pipeline's gas flows into the Portland metropolitan market from two directions: (1) the north, which brings supplies from the British Columbia and Alberta supply basins; and (2) the east, which brings supplies from Alberta as well as the U.S. Rocky Mountain supply basins.

NW Natural incurs monthly demand charges related to firm pipeline transportation contracts. These contracts are multi-year contracts with expirations ranging from 2019 to 2060. The largest pipeline agreements are with Northwest Pipeline. NW Natural actively works with Northwest Pipeline and others to renew contracts in advance of expiration to ensure gas transportation capacity is sufficient to meet customer needs.

Rates for interstate pipeline transportation services are established by FERC within the U.S. and by Canadian authorities for services on Canadian pipelines.

As mentioned above, the service territory is dependent on a single pipeline for its natural gas supply. In October 2018, a critical natural gas pipeline in western Canada experienced a rupture and gas supply to the Pacific Northwest was disrupted. NW Natural was able to serve firm NGD business customers during the incident with natural gas from the Mist storage facility and realignment of other supplies. Pipeline disruptions, replacement projects, and long-term projected natural gas demand in our region underscore the need for pipeline transportation diversity. In addition, there are potential industrial projects in the region, which could increase the demand for natural gas and the need for additional pipeline capacity and diversity.

Currently, there are various interstate pipeline projects proposed, including the Trail West pipeline in which NW Holdings has an interest, that could meet the forecasted demand growth for NW Natural and the region. However, the location of any future pipeline project will likely depend on the location of committed industrial projects. NW Holdings and NW Natural will continue to evaluate and closely monitor the currently prospected projects to determine the best option for our customers. NW Holdings

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has an equity investment in Trail West Holdings, LLC (TWH), which is developing plans to build the Trail West pipeline. This pipeline would connect TransCanada Pipelines Limited's (TransCanada) Gas Transmission Northwest (GTN) interstate transmission line to NW Natural's natural gas distribution system. If constructed, this pipeline would provide another transportation path for gas purchases from Alberta and the U.S. Rocky Mountains in addition to the one that currently moves gas through the Northwest Pipeline system.

Gas Distribution

The primary goals of gas distribution operations are safety and reliability of the system, which entails building and maintaining a safe pipeline distribution system.

Safety and the protection of employees, customers, and the public at large are, and will remain, top priorities. NW Natural constructs, operates, and maintains the pipeline distribution system and storage operations with the goal of ensuring natural gas is delivered and stored safely, reliably, and efficiently.

NW Natural has one of the most modern distribution systems in the country with no identified cast iron pipe or bare steel main. The final known bare steel was removed from the system in 2015 and cast iron pipe removal was completed in 2000. Since the 1980s, NW Natural has taken a proactive approach to replacement programs and partnered with the OPUC and WUTC on progressive regulation to further safety and reliability efforts for the distribution system. In the past, NW Natural had a cost recovery program in Oregon that encompassed programs for bare steel replacement, transmission pipeline integrity management, and distribution pipeline integrity management as appropriate. For discussion on current regulatory programs, see Part II, Item 7, "Results of Operations—Regulatory Matters".

Natural gas distribution businesses will continue to be subject to greater federal and state regulation in the future due to pipeline incidents involving other companies.

Additional operating and safety regulations from the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) are currently under development. In 2016, PHMSA issued proposed regulations to update safety requirements for natural gas transmission pipelines. Final regulations are anticipated to be issued in 2019. Current proposed regulations indicate a 15-year timeline for implementation of compliance requirements. NW Natural will continue to work diligently with industry associations as well as federal and state regulators to ensure the safety of the system and compliance with new laws and regulations. The costs associated with compliance with federal, state, and local rules are expected to be recovered in rates.

North Mist Gas Storage Expansion Project

In Oregon, there is a need to integrate intermittent resources, such as wind and solar, into the power system with policymakers committing to the elimination of coal-fired electric generation and moving toward a 50% renewable electricity standard by 2040. Flexible natural gas-fired electric generation facilities and associated gas storage are necessary to support the integration of renewable

resources. In 2016, NW Natural began expanding its gas storage facility near Mist, Oregon to provide innovative long-term, no-notice underground gas storage service to support gas-fired electric generating facilities that are intended to facilitate the integration of more wind power into the region's electric generation mix. Natural gas storage enables generation to adjust quickly when renewable energy, such as wind and solar, rises and falls.

This expansion project will be dedicated solely to Portland General Electric (Portland General), a local electric company, to support their gas-fired electric power generation facilities under an initial 30-year contract with options to

extend, totaling up to an additional 50 years upon mutual agreement of the parties.

The expansion project includes a new reservoir providing up to 2.5 Bcf of available storage, an additional compressor station with design capacity of 120,000 dekatherms of gas per day, no-notice service that can be drawn on rapidly, and a 13-mile pipeline to connect to Portland General's gas plants at Port Westward. The expansion project is considered part of the NGD segment and has an estimated cost of approximately \$149 million, with a targeted in-service date during the spring of 2019. See additional discussion in Part II, Item 7 "Financial Condition—Cash Flows—Investing Activities".

When the expansion is placed into service, the investment will be included in rate base under an established tariff schedule already approved by the OPUC, with revenues recognized consistent with the schedule. Billing rates will be updated annually to the current depreciable asset level and forecasted operating expenses.

While there are additional expansion opportunities in the Mist storage field, further development is not contemplated at this time and any expansion would be based on market demand, project execution, cost effectiveness, available financing, receipt of future permits, and other rights.

OTHER

Certain businesses and activities of NW Holdings and NW Natural are aggregated and reported as other for segment reporting purposes. These include the following businesses and activities aggregated and reported as other under NW Holdings:

- water businesses and water acquisition activities;
- an equity method investment in TWH, a joint venture to build and operate a gas transmission pipeline in Oregon. TWH is owned 50% by NWN Energy, a wholly-owned subsidiary of NW Holdings, and 50% by TransCanada American Investments Ltd., an indirect wholly-owned subsidiary of TransCanada Corporation;
- a minority interest in the Kelso-Beaver Pipeline held by our wholly-owned subsidiary NNG Financial Corporation (NNG Financial); and
- holding company and corporate activities as well as adjustments made in consolidation.

Additionally, the following businesses and activities are aggregated and reported as other under NW Natural, a wholly owned subsidiary of NW Holdings:

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5.4 Bcf of the Mist gas storage facility contracted to utilities and third-party marketers;
natural gas asset management activities; and
appliance retail center operations.

WATER. During 2018, NW Water completed the purchase of four privately-owned regulated water utilities serving approximately 22,000 people through 7,400 connections in the Pacific Northwest. Several additional acquisition agreements for privately-owned water utilities have been signed, the largest of which is a water and wastewater business in Sunriver, Oregon serving 9,400 connections. These pending transactions are subject to public utility commission approvals and are expected to close during 2019.

MIST GAS STORAGE. The Mist gas storage facility began operations in 1989. It is a 16 Bcf facility with 10.6 Bcf used to provide gas storage for the NGD business. The remaining 5.4 Bcf of the facility is contracted with other utilities and third-party marketers with these results reported in other.

The overall facility consists of seven depleted natural gas reservoirs, 22 injection and withdrawal wells, a compressor station, dehydration and control equipment, gathering lines, and other related facilities. The capacity at Mist serving other utilities and third-party marketers provides multi-cycle gas storage services to customers in the interstate and intrastate markets. The interstate storage services are offered under a limited jurisdiction blanket certificate issued by FERC. Under NW Natural's interstate storage certificate with FERC, NW Natural is required to file either a petition for rate approval or a cost and revenue study every five years to change or justify maintaining the existing rates for the interstate storage service. Intrastate firm storage services in Oregon are offered under an OPUC-approved rate schedule as an optional service to certain eligible customers. Gas storage revenues from the 5.4 Bcf are derived primarily from firm service customers who provide energy-related services, including natural gas distribution, electric generation, and energy marketing. The Mist facility benefits from limited competition as there are few storage facilities in the Pacific Northwest region. Therefore, NW Natural is able to acquire high value, multi-year contracts.

ASSET MANAGEMENT ACTIVITIES. NW Natural contracts with an independent energy marketing company to provide asset management services, primarily through the use of natural gas commodity exchange agreements and natural gas pipeline capacity release transactions. The results of these activities are included in other, except for the asset management revenues allocated to NGD business customers pursuant to regulatory agreements, which are reported in the NGD segment.

ENVIRONMENTAL MATTERS

Properties and Facilities

NW Natural owns, or previously owned, properties and facilities that are currently being investigated that may require environmental remediation and are subject to federal, state, and local laws and regulations related to environmental matters. These laws and regulations may require expenditures over a long time frame to address certain environmental impacts. Estimates of liabilities for environmental costs are difficult to determine with precision because of the various factors that can affect their ultimate disposition. These factors include, but are not limited to, the following:

- the complexity of the site;
- changes in environmental laws and regulations at the federal, state, and local levels;
- the number of regulatory agencies or other parties involved;
-

new technology that renders previous technology obsolete, or experience with existing technology that proves ineffective;

the ultimate selection of a particular technology;

the level of remediation required;

variations between the estimated and actual period of time that must be dedicated to respond to an environmentally-contaminated site; and

the application of environmental laws that impose joint and several liabilities on all potentially responsible parties.

NW Natural has received recovery of a portion of such environmental costs through insurance proceeds, seeks the remainder of such costs through customer rates, and believes recovery of these costs is probable. In Oregon, NW Natural has a mechanism to recover expenses, subject to an earnings test and allocation rules. See Part II, Item 7, "Results of Operations—Rate Matters—Rate Mechanisms—Environmental Costs", Note 2, and Note 17.

Greenhouse Gas Matters

We recognize our businesses are likely to be affected by requirements to address greenhouse gas emissions. Future federal, state or local requirements may seek to limit emissions of greenhouse gases, including both carbon dioxide (CO₂) and methane. These potential laws and regulations may require certain activities to reduce emissions and/or increase the price paid for energy based on its carbon content.

Current federal rules require the reporting of greenhouse gas emissions. In September 2009, the Environmental Protection Agency (EPA) issued a final rule requiring the annual reporting of greenhouse gas emissions from certain industries, specified large greenhouse gas emission sources, and facilities that emit 25,000 metric tons or more of CO₂ equivalents per year. NW Natural began reporting emission information in 2011. Under this reporting rule, local natural gas distribution companies like NW Natural are required to report system throughput to the EPA on an annual basis. The EPA also has required additional greenhouse gas reporting regulations to which NW Natural is subject, requiring the annual reporting of fugitive emissions from operations.

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The Oregon and Washington legislatures and governors continue to consider various greenhouse gas reduction proposals and initiatives. For example, the Oregon legislature will be considering a cap and trade bill during the 2019 legislative session that could create a declining cap on greenhouse gas emissions emitted by a wide variety of emission sources, including electric and natural gas utilities, and would require those entities with a compliance obligation to hold permits, or allowances, to emit greenhouse gas emissions on a per ton basis. While there is uncertainty regarding the extent of the legislation, potential compliance costs, and cost sharing impacts of these and other similar proposals, NW Natural currently expects to be able to recover compliance costs associated with this type of legislation in rates.

The state of Washington's Department of Ecology (DOE) enacted the Clean Air Rule (CAR) in 2016, which capped the maximum greenhouse gas emissions allowed from stationary sources, such as natural gas utilities. For gas distribution utilities, the production of emissions from usage by their customers was considered to be production of emissions attributable to the utility. In December 2017, a Washington State Court ruled that the DOE lacked legislative authority to regulate non-emitting sources, such as local distribution companies. The DOE has appealed the ruling and oral arguments for the appeal are expected to take place during 2019.

The outcome of these or any additional federal, state or local climate change policy developments cannot be determined at this time, but these initiatives could produce a number of results including new regulations, legal actions, additional charges to fund energy efficiency activities, or other regulatory actions. The adoption and implementation of any regulations limiting emissions of greenhouse gases could require NW Natural to incur compliance costs associated with our customers' use, resulting in an increase in the prices charged to those customers and in a potential decline in the demand for natural gas over time.

With environmental stewardship as one of our core values, we continue to take proactive steps to address greenhouse gas emissions in our region and the communities we serve. We believe NW Natural and its modern pipeline system has an important role to play in helping the Pacific Northwest move to a low-carbon, renewable-energy future.

We intend to vigorously pursue our role in a low-carbon future, and believe we are positioned to do so. Currently, NW Natural delivers more energy in Oregon than any other utility, and use of natural gas by our Sales and Transportation customers' accounts for approximately 8% of Oregon's greenhouse gas emissions according to the State of Oregon Department of Environmental Quality In-Boundary GHG Inventory Preliminary 2015 Figures. Sales of natural gas to residential and commercial customers - customers NW Natural procures gas for - accounts for approximately 5% of the state's emissions. Using this as a starting baseline, in 2017, NW Natural initiated a multi-pronged, multi-year core utility strategy to deliver greater emission reductions. Key components of this strategy include energy efficiency and the continued adoption of the company's voluntary Smart Energy carbon offset program. NW Natural is also actively pursuing the potential to procure

renewable natural gas for our customers, and is engaging in longer-term efforts to explore the development of renewable hydrogen through power to gas.

EMPLOYEES

At December 31, 2018, our workforce consisted of the following:

NW Natural:

Unionized Employees ⁽¹⁾	635
Non-Unionized Employees	532
Total NW Natural	1,167

Other Entities:

Water Company Employees	16
Other	15
Total Other Entities	31

Total Employees 1,198

⁽¹⁾ Members of the Office and Professional Employees International Union (OPEIU) Local No. 11, AFL-CIO.

NW Natural's labor agreement with members of OPEIU covers wages, benefits, and working conditions. On May 22, 2014, NW Natural's unionized employees ratified a labor agreement (Joint Accord) that extends to November 30, 2019, and thereafter from year to year unless either party serves notice of its intent to negotiate modifications to the collective bargaining agreement.

Certain subsidiaries may receive services from employees of other subsidiaries. When such services involve regulated entities, those entities receiving services reimburse the entity providing services pursuant to shared services agreements.

EXECUTIVE OFFICERS OF THE REGISTRANTS

For information concerning executive officers, see Part III, Item 10.

AVAILABLE INFORMATION

NW Holdings and NW Natural file annual, quarterly and current reports and other information with the Securities and Exchange Commission (SEC). The SEC maintains an Internet site where reports, proxy statements, and other information filed can be read, copied, and requested online at its website (www.sec.gov). In addition, we make available, free of charge, on our website (www.nwnaturalholdings.com), our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) and proxy materials filed under Section 14 of the Securities Exchange Act of 1934, as amended (Exchange Act), as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We have included our website address as an inactive textual reference only. Information contained on our website is not incorporated by reference into this annual report on Form 10-K.

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NW Holdings and NW Natural have adopted a Code of Ethics for all employees, officers, and directors that is available on our website. We intend to disclose revisions and amendments to, and any waivers from, the Code of Ethics for officers and directors on our website. Our Corporate Governance Standards, Director Independence Standards, charters of each of the committees of the Board of Directors, and additional information about NW Holdings and NW Natural are also available at the website. Copies of these documents may be requested, at no cost, by writing or calling Shareholder Services, NW Natural, One Pacific Square, 220 N.W. Second Avenue, Portland, Oregon 97209, telephone 503-226-4211 ext. 2402.

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ITEM 1A. RISK FACTORS

NW Holdings' and NW Natural's business and financial results are subject to a number of risks and uncertainties, many of which are not within our control, which could adversely affect our business, financial condition, and results of operations. Additional risks and uncertainties that are not currently known to us or that are not currently believed by us to be material may also harm our businesses, financial condition, and results of operations. When considering any investment in NW Holdings' or NW Natural's securities, investors should carefully consider the following information, as well as information contained in the caption "Forward-Looking Statements", Item 7A, and our other documents filed with the SEC. This list is not exhaustive and the order of presentation does not reflect management's determination of priority or likelihood. Additionally, our listing of risk factors that primarily affects one of our businesses does not mean that such risk factor is inapplicable to our other businesses.

Risks Related to our Business Generally

REGULATORY RISK. Regulation of NW Holdings' and NW Natural's regulated businesses, including changes in the regulatory environment, failure of regulatory authorities to approve rates which provide for timely recovery of costs and an adequate return on invested capital, or an unfavorable outcome in regulatory proceedings may adversely impact NW Holdings' and NW Natural's financial condition and results of operations.

The OPUC and WUTC have general regulatory authority over NW Natural's gas and NW Holdings' water utility businesses in Oregon and Washington, respectively, including: the rates charged to customers; authorized rates of return on rate base, including ROE; the amounts and types of securities our regulated utility companies, like NW Natural, may issue; services our regulated utility companies provide and the manner in which they provide them; the nature of investments our utility companies make; and, deferral and recovery of various expenses, including, but not limited to, pipeline replacement, environmental remediation costs, commodity hedging expense, transactions with affiliated interests, certain employee benefit expenses such as pension, weather adjustment mechanisms, and other matters. The OPUC and WUTC also regulate actions investors may take with respect to our utility companies, NW Natural and NW Holdings. Similarly, FERC has regulatory authority over NW Natural's interstate storage services, and the CPUC has regulatory authority over NW Holdings' Gill Ranch storage operations. Additionally, expansion of our businesses, including into water or other sectors, could result in regulation by other regulatory authorities. For example, NW Holdings' has acquired a water utility business in Idaho that is correspondingly subject to regulatory authority of the IPUC.

The prices the OPUC, WUTC, IPUC, and possible future regulators allow us to charge for retail service, and the maximum FERC-approved rates FERC authorizes us to charge for interstate storage and related transportation services, are the most significant factors affecting both NW Natural's and NW Holdings' financial position, results of operations and liquidity. The OPUC, WUTC, IPUC and

possible future regulators have the authority to disallow recovery of costs they find imprudently incurred or otherwise disallowed. Additionally, the rates allowed may be insufficient for recovery of costs incurred. We expect to continue to make expenditures to expand, improve and operate our gas and water utility distribution and gas storage systems. Regulators can find such expansions or improvements of expenditures were not prudently incurred, and deny recovery. Additionally, while the OPUC, WUTC and IPUC have established an authorized rate of return for our utility businesses through the ratemaking process, the regulatory process does not provide assurance that we will be able to achieve the earnings level authorized. Moreover, in the normal course of business we may place assets in service or incur higher than expected levels of operating expense before rate cases can be filed to recover those costs-this is commonly referred to as regulatory lag. The failure of any regulatory commission to approve requested rate increases

on a timely basis to recover increased costs or to allow an adequate return could adversely impact NW Holdings' or NW Natural's financial condition and results of operations.

As companies with regulated utility businesses, we frequently have dockets open with our regulators. The regulatory proceedings for these dockets typically involve multiple parties, including governmental agencies, consumer advocacy groups, and other third parties. Each party has differing concerns, but all generally have the common objective of limiting amounts included in rates. We cannot predict the timing or outcome of these deferred proceedings or the effects of those outcomes on NW Holdings' and NW Natural's results of operations and financial condition.

ENVIRONMENTAL LIABILITY RISK. Certain of NW Natural's, and possibly NW Holdings', properties and facilities may pose environmental risks requiring remediation, the costs of which are difficult to estimate and which could adversely affect NW Holdings' and NW Natural's financial condition, results of operations, and cash flows.

NW Natural owns, or previously owned, properties that require environmental remediation or other action. NW Holdings or NW Natural may now, or in the future, own other properties that require environmental remediation or other action. NW Natural and NW Holdings accrue all material loss contingencies relating to these properties. A regulatory asset at NW Natural has been recorded for estimated costs pursuant to a Deferral Order from the OPUC and WUTC. In addition to maintaining regulatory deferrals, NW Natural settled with most of its historical liability insurers for only a portion of the costs it has incurred to date and expects to incur in the future. To the extent amounts NW Natural recovered from insurance are inadequate and it is unable to recover these deferred costs in utility customer rates, NW Natural would be required to reduce its regulatory assets which would result in a charge to earnings in the year in which regulatory assets are reduced. In addition, in Oregon, the OPUC approved the SRRM, which limits recovery of deferred amounts to those amounts which satisfy an annual prudence review and an earnings test that requires NW Natural to contribute additional amounts toward environmental remediation costs above approximately \$10 million in years in which NW Natural earns above its

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authorized ROE. To the extent NW Natural earns more than its authorized ROE in a year, it would be required to cover environmental expenses greater than the \$10 million with those earnings that exceed its authorized ROE. The OPUC ordered a review of the SRRM in 2018 or when we obtain greater certainty of environmental costs, whichever occurs first. We submitted information for review in 2018, and believe we could be subject to further review. These ongoing prudence reviews, the earnings test, or the periodic review could reduce the amounts NW Natural is allowed to recover, and could adversely affect NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

Moreover, we may have disputes with regulators and other parties as to the severity of particular environmental matters, what remediation efforts are appropriate, and the portion of the costs NW Natural or NW Holdings should bear. We cannot predict with certainty the amount or timing of future expenditures related to environmental investigations, remediation or other action, the portions of these costs allocable to NW Natural or NW Holdings, or disputes or litigation arising in relation thereto.

Environmental liability estimates are based on current remediation technology, industry experience gained at similar sites, an assessment of probable level of responsibility, and the financial condition of other potentially responsible parties. However, it is difficult to estimate such costs due to uncertainties surrounding the course of environmental remediation, the preliminary nature of certain site investigations, and the application of environmental laws that impose joint and several liabilities on all potentially responsible parties. These uncertainties and disputes arising therefrom could lead to further adversarial administrative proceedings or litigation, with associated costs and uncertain outcomes, all of which could adversely affect NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

ENVIRONMENTAL REGULATION COMPLIANCE RISK. NW Holdings and NW Natural are subject to environmental regulations for our ongoing businesses, compliance with which could adversely affect our operations or financial results.

NW Holdings and NW Natural are subject to laws, regulations and other legal requirements enacted or adopted by federal, state and local governmental authorities relating to protection of the environment, including those legal requirements that govern discharges of substances into the air and water, the management and disposal of hazardous substances and waste, groundwater quality and availability, plant and wildlife protection, and other aspects of environmental regulation. For example, our natural gas operations are subject to reporting requirements to the EPA and the ODEQ regarding greenhouse gas emissions. These and other current and future additional environmental regulations could result in increased compliance costs or additional operating restrictions, which may or may not be recoverable in customer rates or through insurance. If these costs are not recoverable, they could have an adverse effect on NW Holdings' or NW Natural's financial condition and results of operations.

GLOBAL CLIMATE CHANGE RISK. Future legislation, regulation or other initiatives (including ballot initiatives) to address global climate change may expose NW Holdings and NW Natural to regulatory and financial risk. Additionally, our businesses may be subject to physical risks associated with climate change, all of which could adversely affect NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

There are a number of international, federal and state legislative and regulatory initiatives being proposed and adopted in an attempt to measure, control or limit the effects of global warming and climate change, including greenhouse gas emissions such as carbon dioxide and methane. For example, there are current legislative efforts in Oregon,

Washington, and other states in which we operate to cap or otherwise restrict the maximum GHGs an entity may emit without reduction efforts or other undertakings. Such current or future legislation, regulation or other initiatives (including ballot initiatives) could impose on our natural gas businesses operational requirements, additional charges to fund energy efficiency initiatives, or levy a tax based on carbon content. Such initiatives could result in us incurring additional costs to comply with the imposed restrictions, provide a cost advantage to energy sources other than natural gas, reduce demand for natural gas, impose costs or restrictions on end users of natural gas, impact the prices we charge our customers, impose increased costs on us associated with the adoption of new infrastructure and technology to respond to such requirements, and may impact cultural perception of our services or products negatively, diminishing the value of our brand, all of which could adversely affect NW Holdings' or NW Natural's business practices, financial condition and results of operations.

Climate change may cause physical risks, including an increase in sea level, intensified storms, water scarcity and changes in weather conditions, such as changes in precipitation, average temperatures and extreme wind or other climate conditions. A significant portion of the nation's gas infrastructure is located in areas susceptible to storm damage that could be aggravated by wetland and barrier island erosion, which could give rise to gas supply interruptions and price spikes.

These and other physical changes could result in disruptions to natural gas production and transportation systems potentially increasing the cost of gas and affecting our natural gas businesses' ability to procure gas to meet customer demand. These changes could also affect our distribution systems resulting in increased maintenance and capital costs, disruption of service, regulatory actions and lower customer satisfaction. Similar disruptions could occur in NW Holdings' water utility businesses. Additionally, to the extent that climate change adversely impacts the economic health or weather conditions of our service territory directly, it could adversely impact customer demand or our customers' ability to pay. Such physical risks could have an adverse effect on NW Holdings' or NW Natural's financial condition, results of operations, and cash flows.

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STRATEGIC TRANSACTION RISK. NW Holdings' and NW Natural's ability to successfully complete strategic transactions, including merger, acquisition, divestiture, joint venture, business development projects or other strategic transactions is subject to significant risks, including the risk that required regulatory or governmental approvals may not be obtained, risks relating to unknown problems or liabilities or problems or liabilities undisclosed to us, and the risk that for these or other reasons, we may be unable to achieve some or all of the benefits that we anticipate from such transactions, which could adversely affect NW Holdings' or NW Natural's financial condition, results of operations, and cash flows.

From time to time, NW Holdings and NW Natural have pursued and may continue to pursue strategic transactions including merger, acquisition, divestiture, joint venture, business development projects or other strategic transactions, including the entry by NW Holdings into the water sector through the acquisition of a number of water utilities and a water services company, with NW Holdings' continuing to seek other such opportunities to acquire additional water companies. Any such transactions involve substantial risks, including the following:

- purchase or sale transactions that are contracted for may fail to close for a variety of reasons;
 - acquired businesses or assets may not produce revenues, earnings or cash flow at anticipated levels;
 - acquired businesses or assets could have, environmental, permitting, or other problems for which contractual protections prove inadequate;
 - there may be difficulties in integration or operation costs of new businesses;
 - there may be liabilities that were not disclosed to us, that exceed our estimates, or for which our rights to indemnification from the seller are limited;
- we may be unable to obtain the necessary regulatory or governmental approvals to close a transaction, such approvals may be granted subject to terms that are unacceptable to us, or we may be unable to achieve anticipated regulatory treatment of any such transaction, or such benefits may be delayed or not occur at all; or
- we may agree to sell assets for a price that is less than the book value of those assets.

One or more of these conditions could affect NW Holdings' and NW Natural's financial condition, results of operations, and cash flows.

BUSINESS DEVELOPMENT RISK. NW Holdings' and NW Natural's business development projects may encounter unanticipated obstacles, costs, changes or delays that could result in a project becoming impaired, which could negatively impact NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

Business development projects involve many risks. We are currently engaged in several business development projects, including, but not limited to, NW Holdings' early planning and development stages for a regional pipeline in Oregon, and NW Natural's expansion of its gas storage facility at Mist. We may also engage in other business

development projects such as investments in additional long-term gas reserves, CNG refueling stations, RNG projects, or projects in the water sector. These projects may not be successful. Additionally, we may not be able to obtain required governmental permits and approvals to complete our projects in a cost-efficient or timely manner, potentially resulting in delays or abandonment of the projects. We could also experience issues such as: startup and construction delays; construction cost overruns; disputes with contractors; the inability to negotiate acceptable agreements such as rights-of-way, easements, construction, gas supply or other material contracts; changes in customer demand or commitment; public opposition to projects; changes in market prices; and operating cost increases. Additionally, we may be unable to finance our business development projects at acceptable interest rates or within a scheduled time frame necessary for completing the project. One or more of these events could result in the project becoming impaired, and such impairment could have an adverse effect on NW Holdings' or NW Natural's financial condition and

results of operations.

JOINT PARTNER RISK. Investing in business development projects through partnerships, joint ventures or other business arrangements affects our ability to manage certain risks and could adversely impact NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

We use joint ventures and other business arrangements to manage and diversify the risks of certain development projects, including NW Holdings' Trail West pipeline and Gill Ranch Facility and NW Natural's gas reserves agreements. NW Holdings or NW Natural may acquire or develop part-ownership interests in other projects in the future, including but not limited to, in the water sector. Under these arrangements, we may not be able to fully direct the management and policies of the business relationships, and other participants in those relationships may take action contrary to our interests, including making operational decisions that could negatively affect our costs and liabilities. In addition, other participants may withdraw from the project, divest important assets, become financially distressed or bankrupt, or have economic or other business interests or goals that are inconsistent with ours. For example, in January 2019, Pacific Gas & Electric Company, which owns the remaining 25 percent of the Gill Ranch Facility (75 percent of which is owned by NW Holdings), filed for bankruptcy protection. While NW Holdings will monitor that bankruptcy proceeding, and take appropriate actions in an attempt to protect its interests, it does not control, and cannot predict, the outcome of such proceedings and the impact, if any, of the proceeding on the operations of Gill Ranch or the planned sale by NW Holdings' of its interest in Gill Ranch.

NW Natural's gas reserves arrangements, which operate as a hedge backed by physical gas supplies, involve a number of risks, including: gas production that is significantly less than the expected volumes, or no gas volumes; operating costs that are higher than expected; changes in the consolidated tax position or tax laws that could affect NW Natural's ability to take, or the timing of, certain tax benefits that impact the financial outcome of this transaction; inherent risks of gas production, including disruption to

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operations or a complete shut-in of the field; and one or more participants in one of these gas reserves arrangements acting contrary to NW Natural's interests. In addition, while the cost of the original gas reserves venture is currently included in customer rates and additional wells under that arrangement are recovered at specific costs, the occurrence of one or more of these risks could affect NW Natural's ability to recover this hedge in rates. Further, new gas reserves arrangements have not been approved for inclusion in rates, and regulators may ultimately determine to not include all or a portion of future transactions in rates. The realization of any of the above mentioned situations could adversely impact NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

OPERATING RISK. Transporting and storing natural gas involves numerous risks that may result in accidents and other operating risks and costs, some or all of which may not be fully covered by insurance, and which could adversely affect NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

NW Holdings and NW Natural are subject to all of the risks and hazards inherent in the businesses of gas distribution and storage, and water distribution, including:

- earthquakes, floods, storms, landslides and other severe weather incidents and natural hazards;
- leaks, losses or contamination of natural gas by other chemicals or compounds or by or of local water as a result of the malfunction of equipment or facilities;
- damages from third parties, including construction, farm and utility equipment or other surface users;
- operator errors;
- negative performance by our storage reservoirs, facilities, or wells that could cause us to fail to meet expected or forecasted operational levels or contractual commitments to our customers;
- problems maintaining, or the malfunction of, pipelines, wellbores and related equipment and facilities that form a part of the infrastructure that is critical to the operation of our gas distribution and storage facilities;
- collapse of underground storage caverns;
- operating costs that are substantially higher than expected;
- migration of natural gas through faults in the rock or to some area of the reservoir where existing wells cannot drain the gas effectively, resulting in loss of the gas;
- blowouts (uncontrolled escapes of gas from a pipeline or well) or other accidents, fires and explosions; and
- risks and hazards inherent in the drilling operations associated with the development of the gas storage facilities, and wells.

These risks could result in personal injury or loss of human life, damage to and destruction of property and equipment, pollution or other environmental damage, breaches of our contractual commitments, and may result in curtailment or suspension of operations, which in turn could lead to significant costs and lost revenues. Further, because our pipeline, storage and distribution facilities are in or near populated areas, including residential areas, commercial business centers, and industrial sites, any loss of human life or adverse financial outcomes resulting from such events could be significant. Additionally, we may not be able to maintain the level or types of insurance we desire, and the

insurance coverage we do obtain may contain large deductibles or fail to cover certain hazards or cover all potential losses. The occurrence of any operating risks not covered by insurance could adversely affect NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

BUSINESS CONTINUITY RISK. NW Holdings and NW Natural may be adversely impacted by local or national disasters, pandemic illness, terrorist activities, cyber-attacks or data breaches, and other extreme events to which we may not be able to promptly respond, which could adversely affect NW Holdings' or NW Natural's operations or financial condition.

Local or national disasters, pandemic illness, terrorist activities, cyber-attacks and data breaches, and other extreme events are a threat to our assets and operations. Companies in critical infrastructure industries may face a heightened risk due to exposure to acts of terrorism, including physical and security breaches of our information technology infrastructure in the form of cyber-attacks. These attacks could target or impact our technology or mechanical systems that operate our distribution, transmission or storage facilities and result in a disruption in our operations, damage to our system and inability to meet customer requirements. In addition, the threat of terrorist activities could lead to increased economic instability and volatility in the price of natural gas or other necessary commodities that could affect our operations. Threatened or actual national disasters or terrorist activities may also disrupt capital or bank markets and our ability to raise capital or obtain debt financing, or impact our suppliers or our customers directly. Local disaster or pandemic illness could result in part of our workforce being unable to operate or maintain our infrastructure or perform other tasks necessary to conduct our business. A slow or inadequate response to events may have an adverse impact on our operations and earnings. We may not be able to maintain sufficient insurance to cover all risks associated with local and national disasters, pandemic illness, terrorist activities and other events. Additionally, large scale natural disasters or terrorist attacks could destabilize the insurance industry making insurance we do have unavailable, which could increase the risk that an event could adversely affect NW Holdings' or NW Natural's operations or financial results.

HOLDING COMPANY DIVIDEND RISK. As a holding company, NW Holdings depends on its operating subsidiaries, including NW Natural, to meet financial obligations and the ability of NW Holdings to pay dividends on its common stock is dependent on the receipt of dividends and other payments from its subsidiaries, including NW Natural.

As a holding company, NW Holdings' only significant assets are the stock and membership interests of its operating subsidiaries, which at this time is primarily NW Natural. NW Holdings' direct and indirect subsidiaries are separate and distinct legal entities, managed by their own boards of directors, and have no obligation to pay any amounts to their respective shareholders, whether through dividends, loans or other payments. The ability of these companies to pay dividends or make other distributions on their common stock is subject to, among other things: their results of operations, net income, cash flows and financial condition, as well as the success of their business strategies and

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general economic and competitive conditions; the prior rights of holders of existing and future debt securities and any future preferred stock issued by those companies; and any applicable legal restrictions.

In addition, the ability of NW Holdings' subsidiaries to pay upstream dividends and make other distributions is subject to applicable state law and regulatory restrictions. Under the OPUC and WUTC regulatory approvals for the holding company formation, if NW Natural ceases to comply with credit and capital structure requirements approved by the OPUC and WUTC, it will not, with limited exceptions, be permitted to pay dividends to NW Holdings. Under the OPUC and WUTC orders authorizing the holding company reorganization, NW Natural may not pay dividends or make distributions to NW Holdings if NW Natural's credit ratings and common equity levels fall below specified ratings and levels. If NW Natural's long-term secured credit ratings are below A- for S&P and A3 for Moody's, dividends may be issued so long as NW Natural's common equity is 45% or above. If NW Natural's long-term secured credit ratings are below BBB for S&P and Baa2 for Moody's, dividends may be issued so long as NW Natural's common equity is 46% or above. Dividends may not be issued if NW Natural's long-term secured credit ratings fall to BB+ or below for S&P or Ba1 or below for Moody's, or if NW Natural's common equity is below 44%. In each case, with the common equity level to be determined on a preceding or projected 13-month basis.

EMPLOYEE BENEFIT RISK. The cost of providing pension and postretirement healthcare benefits is subject to changes in pension assets and liabilities, changing employee demographics and changing actuarial assumptions, which may have an adverse effect on NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

Until NW Natural closed the pension plans to new hires, which for non-union employees was in 2006 and for union employees was in 2009, it provided pension plans and postretirement healthcare benefits to eligible full-time utility employees and retirees. About half of NW Natural's current utility employees were hired prior to these dates, and therefore remain eligible for these plans. Other businesses we acquire may also have pension plans. The costs of NW Natural, or the other applicable businesses we may acquire, for providing such benefits is subject to change in the market value of the pension assets, changes in employee demographics including longer life expectancies, increases in healthcare costs, current and future legislative changes, and various actuarial calculations and assumptions. The actuarial assumptions used to calculate our future pension and postretirement healthcare expenses may differ materially from actual results due to significant market fluctuations and changing withdrawal rates, wage rates, interest rates and other factors. These differences may result in an adverse impact on the amount of pension contributions, pension expense or other postretirement benefit costs recorded in future periods. Sustained declines in equity markets and reductions in bond rates may have a material adverse effect on the value of the pension fund assets and liabilities. In these circumstances, NW Natural may be required to recognize increased contributions and pension expense earlier than it had planned to the extent that the value of pension assets is less than the total

anticipated liability under the plans, which could have a negative impact on NW Holdings' and NW Natural's financial condition, results of operations and cash flows.

WORKFORCE RISK. NW Holdings' and NW Natural's businesses are heavily dependent on being able to attract and retain qualified employees and maintain a competitive cost structure with market-based salaries and employee benefits, and workforce disruptions could adversely affect NW Holdings' or NW Natural's operations and results.

NW Holdings' and NW Natural's ability to implement our business strategy and serve our customers is dependent upon our continuing ability to attract and retain talented professionals and a technically skilled workforce, and being able to transfer the knowledge and expertise of our workforce to new employees as our largely older workforce retires. We expect that a significant portion of our workforce will retire within the current decade, which will require that we

attract, train and retain skilled workers to prevent loss of institutional knowledge or skills gaps. Without an appropriately skilled workforce, our ability to provide quality service and meet our regulatory requirements will be challenged and this could negatively impact NW Holding's and NW Natural's earnings. Additionally, a majority of NW Natural workers are represented by the OPEIU Local No.11 AFL-CIO, and are covered by a collective bargaining agreement that extends to November 30, 2019. Disputes with the union representing NW Natural employees over terms and conditions of their agreement, or failure to timely and effectively renegotiate the agreement, could result in instability in our labor relationship and work stoppages that could impact the timely delivery of gas and other services from our utility and storage facilities, which could strain relationships with customers and state regulators and cause a loss of revenues. The collective bargaining agreements may also limit our flexibility in dealing with NW Natural's workforce, and the ability to change work rules and practices and implement other efficiency-related improvements to successfully compete in today's challenging marketplace, which may negatively affect NW Holdings' and NW Natural's financial condition and results of operations.

LEGISLATIVE, COMPLIANCE AND TAXING AUTHORITY RISK. NW Holdings and NW Natural are subject to governmental regulation, and compliance with local, state and federal requirements, including taxing requirements, and unforeseen changes in or interpretations of such requirements could affect NW Holdings' or NW Natural's financial condition and results of operations.

NW Holdings and NW Natural are subject to regulation by federal, state and local governmental authorities. We are required to comply with a variety of laws and regulations and to obtain authorizations, permits, approvals and certificates from governmental agencies in various aspects of our business. Significant changes in federal, state, or local governmental leadership can accelerate or amplify changes in existing laws or regulations, or the manner in which they are interpreted or enforced. For example, the current U.S. presidential administration has made numerous leadership changes at federal administrative agencies since the 2016 U.S. presidential election. Moreover, the U.S. Congress and the U.S. presidential administration may

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make substantial changes to fiscal, tax, regulation and other federal policies. The current U.S. presidential administration has called for and implemented significant changes to U.S. fiscal policies, U.S. trade, healthcare, immigration, foreign, and government regulatory policy. To the extent the U.S. Congress or U.S. presidential administration implements changes to U.S. policy, those changes may impact, among other things, the U.S. and global economy, international trade and relations, unemployment, immigration, corporate taxes, healthcare, the U.S. regulatory environment, inflation and other areas. In addition, foreign governments may implement changes to their policies, in response to changes to U.S. policy or otherwise. Although we cannot predict the impact, if any, of these changes to our businesses, they could adversely affect NW Holdings' or NW Natural's financial condition and results of operations. Until we know what policy changes are made and how those changes impact our businesses and the business of our competitors over the long term, we will not know if, overall, we will benefit from them or be negatively affected by them.

Though we cannot predict changes in laws, regulations, or enforcement, we expect there to continue to be a number of significant changes. We cannot predict with certainty the impact of any future revisions or changes in interpretations of existing regulations or the adoption of new laws and regulations. Additionally, any failure to comply with existing or new laws and regulations could result in fines, penalties or injunctive measures that could affect operating assets. For example, under the Energy Policy Act of 2005, the FERC has civil authority under the Natural Gas Act to impose penalties for current violations of in excess of \$1 million per day for each violation. In addition, as the regulatory environment for our businesses increases in complexity, the risk of inadvertent noncompliance may also increase. Changes in regulations, the imposition of additional regulations, and the failure to comply with laws and regulations could negatively influence NW Holdings' or NW Natural's operating environment and results of operations.

Additionally, changes in federal, state or local tax laws and their related regulations, or differing interpretations or enforcement of applicable law by a federal, state or local taxing authority, could result in substantial cost to us and negatively affect our results of operations. Tax law and its related regulations and case law are inherently complex and dynamic. Disputes over interpretations of tax laws may be settled with the taxing authority in examination, upon appeal or through litigation. Our judgments may include reserves for potential adverse outcomes regarding tax positions that have been taken that may be subject to challenge by taxing authorities. Changes in laws, regulations or adverse judgments and the inherent difficulty in quantifying potential tax effects of business decisions may negatively affect NW Holdings' or NW Natural's financial condition and results of operations.

In this regard, the Tax Cuts and Jobs Act of 2017 was approved by the U.S. Congress on December 20, 2017 and signed into law by the U.S. President on December 22, 2017. This legislation makes significant changes to the U.S. Internal Revenue Code. Such changes include a reduction in the corporate tax rate from 35% to 21% and limitations on certain corporate deductions and credits, among other

changes. Certain of these changes may negatively affect NW Holdings' and NW Natural's financial condition and results of operations.

There is uncertainty as to how our regulators will reflect the impact of the legislation in rates. The resulting ratemaking treatment may negatively affect NW Holdings' or NW Natural's financial condition and results of operations.

SAFETY REGULATION RISK. NW Holdings and NW Natural may experience increased federal, state and local regulation of the safety of our systems and operations, which could adversely affect NW Holdings' or NW Natural's operating costs and financial results.

The safety and protection of the public, our customers and our employees is and will remain our top priority. We are committed to consistently monitoring and maintaining our distribution systems and storage operations to ensure that natural gas is acquired, stored and delivered safely, reliably and efficiently. Given recent high-profile natural gas explosions, leaks and accidents in other parts of the country involving both distribution systems and storage facilities, we anticipate that the natural gas industry may be the subject of even greater federal, state and local regulatory oversight. For example, in 2016, the Protecting our Infrastructure of Pipelines and Enhancing Safety Act (PIPES Act) was signed into law increasing regulations for natural gas storage pipelines and underground storage facilities. Similarly, in 2016, California passed legislation directing the Department of Oil, Gas and Geothermal Resources (DOGGR) to develop regulations affecting gas storage operations. DOGGR has issued regulations which require certain integrity testing and tubing for wells at the Gill Ranch Facility within the next 7 years.

We intend to work diligently with industry associations and federal and state regulators to seek to ensure compliance with these and other new laws. We expect there to be increased costs associated with compliance, and those costs could be significant. If these costs are not recoverable in our customer rates, they could have a negative impact on NW Holdings' and NW Natural's operating costs and financial results.

HEDGING RISK. NW Natural's risk management policies and hedging activities cannot eliminate the risk of commodity price movements and other financial market risks, and its hedging activities may expose it to additional liabilities for which rate recovery may be disallowed, which could result in an adverse impact on NW Holdings' and NW Natural's operating revenues, costs, derivative assets and liabilities and operating cash flows.

NW Natural's gas purchasing requirements expose it to risks of commodity price movements, while its use of debt and equity financing exposes it to interest rate, liquidity and other financial market risks. NW Natural attempts to manage these exposures with both financial and physical hedging mechanisms, including its gas reserves transactions which are hedges backed by physical gas supplies. While NW Natural has risk management procedures for hedging in place, they may not always work as planned and cannot entirely eliminate the risks associated with hedging. Additionally, NW Natural's hedging activities may cause it to

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incur additional expenses to obtain the hedge. NW Natural does not hedge its entire interest rate or commodity cost exposure, and the unhedged exposure will vary over time. Gains or losses experienced through hedging activities, including carrying costs, generally flow through NW Natural's PGA mechanism or are recovered in future general rate cases. However, the hedge transactions NW Natural enters into for utility purposes are subject to a prudence review by the OPUC and WUTC, and, if found imprudent, those expenses may be, and have been previously, disallowed, which could have an adverse effect on NW Holdings' or NW Natural's financial condition and results of operations.

In addition, NW Natural's actual business requirements and available resources may vary from forecasts, which are used as the basis for its hedging decisions, and could cause its exposure to be more or less than anticipated. Moreover, if NW Natural's derivative instruments and hedging transactions do not qualify for regulatory deferral and it does not elect hedge accounting treatment under U.S. GAAP, NW Holdings' or NW Natural's results of operations and financial condition could be adversely affected.

NW Natural also has credit-related exposure to derivative counterparties. Counterparties owing NW Natural or its subsidiaries money or physical natural gas commodities could breach their obligations. Should the counterparties to these arrangements fail to perform, NW Natural may be forced to enter into alternative arrangements to meet its normal business requirements. In that event, NW Holdings' or NW Natural's financial results could be adversely affected. Additionally, under most of NW Natural's hedging arrangements, any downgrade of its senior unsecured long-term debt credit rating could allow its counterparties to require NW Natural to post cash, a letter of credit or other form of collateral, which would expose NW Natural to additional costs and may trigger significant increases in borrowing from its credit facilities or equity contribution needs from NW Holdings, if the credit rating downgrade is below investment grade. Further, based on current interpretations, NW Natural is not considered a "swap dealer" or "major swap participant" in 2019, so NW Natural is exempt from certain requirements under the Dodd-Frank Act. If NW Natural is unable to claim this exemption, it could be subject to higher costs for its derivatives activities, and such higher costs could have a negative impact on NW Holdings' and NW Natural's operating costs and financial results.

INABILITY TO ACCESS CAPITAL MARKET RISK. NW Holdings' or NW Natural's inability to access capital, or significant increases in the cost of capital, could adversely affect NW Holdings' or NW Natural's financial condition and results of operations.

NW Holdings' and NW Natural's ability to obtain adequate and cost effective short-term and long-term financing depends on maintaining investment grade credit profiles as well as the existence of liquid and stable financial markets. NW Holdings relies on access to equity and bank markets to finance equity contributions to subsidiaries and other business requirements. NW Natural relies on access to capital and bank markets, including commercial paper and bond markets, to finance its operations, construction

expenditures and other business requirements, and to refund maturing debt that cannot be funded entirely by internal cash flows. Disruptions in capital markets could adversely affect our ability to access short-term and long-term financing. Our access to funds under committed credit facilities, which are currently provided by a number of banks, is dependent on the ability of the participating banks to meet their funding commitments. Those banks may not be able to meet their funding commitments if they experience shortages of capital and liquidity. Disruptions in the bank or capital financing markets as a result of economic uncertainty, changing or increased regulation of the financial sector, or failure of major financial institutions could adversely affect NW Holdings' and NW Natural's access to capital and negatively impact our ability to run our businesses and make strategic investments.

NW Natural is currently rated by S&P and Moody's and a negative change in its credit ratings, particularly below investment grade, could adversely affect its cost of borrowing and access to sources of liquidity and capital.

Such a downgrade could further limit its access to borrowing under available credit lines. Additionally, downgrades in its current credit ratings below investment grade could cause additional delays in NW Natural's ability to access the capital markets while it seeks supplemental state regulatory approval, which could hamper its ability to access credit markets on a timely basis. NW Holdings' credit profile is largely supported by NW Natural's credit ratings and any negative change in NW Natural's credit ratings would likely negatively impact NW Holdings' access to sources of liquidity and capital and cost of borrowing. A credit downgrade to NW Natural, or resulting negative impact on NW Holdings, could also require additional support in the form of letters of credit, cash or other forms of collateral and otherwise adversely affect NW Holdings' or NW Natural's financial condition and results of operations.

REPUTATIONAL RISKS. Customers', legislators', and regulators' opinions of NW Holdings and NW Natural are affected by many factors, including system reliability and safety, protection of customer information, rates, media coverage, and public sentiment. To the extent that customers, legislators, or regulators have or develop a negative opinion of our businesses, NW Holdings' and NW Natural's financial positions, results of operations and cash flows could be adversely affected.

A number of factors can affect customer satisfaction including: service interruptions or safety concerns due to failures of equipment or facilities or from other causes, and our ability to promptly respond to such failures; our ability to safeguard sensitive customer information; the timing and magnitude of rate increases; and volatility of rates. Customers', legislators', and regulators' opinions of us can also be affected by media coverage, including the proliferation of social media, which may include information, whether factual or not, that damages our brand and reputation.

If customers, legislators, or regulators have or develop a negative opinion of us and our services, this could result in increased regulatory oversight and could affect the returns on common equity we are allowed to earn. Additionally,

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negative opinions about us could make it more difficult for us to achieve favorable legislative or regulatory outcomes. Negative opinions could also result in sales volumes reductions or increased use of other sources of energy. Any of these consequences could adversely affect NW Holdings' or NW Natural's financial position, results of operations and cash flows.

RELIANCE ON TECHNOLOGY RISK. NW Holdings' and NW Natural's efforts to integrate, consolidate and streamline each of their operations has resulted in increased reliance on technology, the failure or security breach of which could adversely affect NW Holdings' or NW Natural's financial condition and results of operations.

Over the last several years NW Holdings and NW Natural have undertaken a variety of initiatives to integrate, standardize, centralize and streamline operations. These efforts have resulted in greater reliance on technological tools such as, at NW Natural: an enterprise resource planning system, an automated dispatch system, an automated meter reading system, a customer information system, a web-based ordering and tracking system, and other similar technological tools and initiatives. The failure of any of these or other similarly important technologies, or our inability to have these technologies supported, updated, expanded or integrated into other technologies, could adversely impact operations. We take precautions to protect our systems, but there is no guarantee that the procedures we have implemented to protect against unauthorized access to secured data and systems are adequate to safeguard against all security breaches. Our businesses could experience breaches of security pertaining to sensitive customer, employee, and vendor information maintained by us in the normal course of business, which could adversely affect our reputation, diminish customer confidence, disrupt operations, materially increase the costs we incur to protect against these risks, and subject us to possible financial liability or increased regulation or litigation, any of which could adversely affect NW Holdings' or NW Natural's financial condition and results of operations.

Furthermore, we rely on information technology systems in the operation of our businesses. There are various risks associated with these systems, including hardware and software failure, communications failure, data distortion or destruction, unauthorized access to data, misuse of proprietary or confidential data, unauthorized control through electronic means, programming mistakes and other inadvertent errors or deliberate human acts. In particular, cyber security attacks, data breaches, terrorism or other malicious acts could damage, destroy or disrupt all of our business systems. Any failure of information technology systems could result in a loss of operating revenues, an increase in operating expenses and costs to repair or replace damaged assets. As these potential cyber security attacks become more common and sophisticated, we could be required to incur costs to strengthen our systems or obtain specific insurance coverage against potential losses.

REGULATORY ACCOUNTING RISK. In the future, NW Holdings or NW Natural may no longer meet the criteria for continued application of regulatory accounting practices for all or a portion of our regulated operations.

If we can no longer apply regulatory accounting, we could be required to write off our regulatory assets and precluded from the future deferral of costs not recovered through rates at the time such amounts are incurred, even if we are expected to recover these amounts from customers in the future.

GAS PRICE RISK. Higher natural gas commodity prices and volatility in the price of gas may adversely affect NW Natural's NGD business, whereas lower gas price volatility may adversely affect NW Natural's and NW Holdings' gas storage business, in each case negatively affecting NW Holdings' and NW Natural's results of operations and cash flows.

The cost of natural gas is affected by a variety of factors, including weather, changes in demand, the level of production and availability of natural gas supplies, transportation constraints, availability and cost of pipeline capacity, federal and state energy and environmental regulation and legislation, natural disasters and other catastrophic events, national and worldwide economic and political conditions, and the price and availability of alternative fuels. At NW Natural, the cost we pay for natural gas is generally passed through to customers through an annual PGA rate adjustment. If gas prices were to increase significantly, it would raise the cost of energy to NW Natural's customers, potentially causing those customers to conserve or switch to alternate sources of energy. Significant price increases could also cause new home builders and commercial developers to select alternative energy sources. Decreases in the volume of gas NW Natural sells could reduce NW Holdings or NW Natural's earnings, and a decline in customers could slow growth in future earnings. Additionally, because a portion (10% or 20%) of any difference between the estimated average PGA gas cost in rates and the actual average gas cost incurred is recognized as current income or expense, higher average gas costs than those assumed in setting rates can adversely affect NW Holdings' and NW Natural's operating cash flows, liquidity and results of operations. Additionally, notwithstanding NW Natural's current rate structure, higher gas costs could result in increased pressure on the OPUC or the WUTC to seek other means to reduce NW Natural's rates, which also could adversely affect NW Holdings' and NW Natural's results of operations and cash flows.

Higher gas prices may also cause NW Natural to experience an increase in short-term debt and temporarily reduce liquidity because it pays suppliers for gas when it is purchased, which can be in advance of when these costs are recovered through rates. Significant increases in the price of gas can also slow collection efforts as customers experience increased difficulty in paying their higher energy bills, leading to higher than normal delinquent accounts receivable resulting in greater expense associated with collection efforts and increased bad debt expense.

Conversely, storage businesses benefit from price volatility, which impacts the level of demand for services and the rates that can be charged for storage services. Largely due to the abundant supply of natural gas made available by hydraulic fracturing techniques, natural gas prices have dropped significantly to levels that are near historic lows. If prices and volatility remain low or decline further, then the

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demand for storage services, and the prices that we will be able to charge for those services, may decline or be depressed for a prolonged period of time. Prices below the costs to operate a storage facility could result in a decision to shut-in all or a portion of the facility. A sustained decline in these prices or a shut-in of all or a portion of the facility could have an adverse impact on NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

IMPAIRMENT OF LONG-LIVED ASSETS OR GOODWILL RISK. Impairments of the value of long-lived assets or goodwill could have a material effect on NW Holdings' or NW Natural's financial condition, or results of operations.

NW Holdings and NW Natural review the carrying value of long-lived assets whenever events or changes in circumstances indicate the carrying amount of the assets might not be recoverable. The determination of recoverability is based on the undiscounted net cash flows expected to result from the operation of such assets. Projected cash flows depend on the future operating costs and projected revenues associated with the asset. In 2017, NW Natural recognized a \$192.5 million impairment of long-lived assets at the Gill Ranch Facility as of December 31, 2017. We review our other long-lived assets to determine if an impairment analysis is necessary.

We review the carrying value of goodwill annually or whenever events or changes in circumstances indicate that such carrying value may not be recoverable. A goodwill impairment analysis begins with a qualitative analysis of events and circumstances. If the qualitative assessment indicates that the carrying value may be at risk, we will perform a quantitative assessment and recognize a goodwill impairment for any amount in which the fair value of a reporting unit exceeds its fair value. Any impairment charge taken with respect to our long-lived assets or goodwill could be material and could have a material effect on NW Holdings' or NW Natural's financial condition and results of operations.

CUSTOMER GROWTH RISK. NW Holdings' and NW Natural's NGD margin, earnings and cash flow may be negatively affected if we are unable to sustain customer growth rates in our NGD segment.

NW Natural's NGD margins and earnings growth have largely depended upon the sustained growth of its residential and commercial customer base due, in part, to the new construction housing market, conversions of customers to natural gas from other energy sources and growing commercial use of natural gas. The last recession slowed new construction. While new home construction has resumed and the multi-family composition has been higher than its pre-recession pace, overall construction has not returned to the pre-recession pace, and there are predictions of an impending new recessionary cycle. Insufficient growth in these markets, for economic, political or other reasons could adversely affect NW Holdings' or NW Natural's utility margin, earnings and cash flows.

RISK OF COMPETITION. Our NGD business is subject to increased competition which could negatively affect NW Holdings' or NW Natural's results of operations.

In the residential and commercial markets, NW Natural's NGD business competes primarily with suppliers of electricity, fuel oil, and propane. In the industrial market, NW Natural competes with suppliers of all forms of energy. Competition among these forms of energy is based on price, efficiency, reliability, performance, market conditions, technology, environmental impacts and public perception. Technological improvements in other energy sources such as heat pumps, batteries or other alternative technologies could erode NW Natural's competitive advantage. If natural gas prices rise relative to other energy sources, or if the cost, environmental impact or public perception of such other energy sources improves relative to natural gas, it may negatively affect NW Natural's ability to attract new customers

or retain our existing residential, commercial and industrial customers, which could have a negative impact on our customer growth rate and NW Holdings' and NW Natural's results of operations.

Our natural gas storage operations compete primarily with other storage facilities and pipelines. Natural gas storage is an increasingly competitive business, with the ability to expand or build new storage capacity in California, the U.S. Rocky Mountains and elsewhere in the United States and Canada. Increased competition in the natural gas storage business could reduce the demand for our natural gas storage services, drive prices down for our storage business, and adversely affect our ability to renew or replace existing contracts at rates sufficient to maintain current revenues and cash flows, which could adversely affect NW Holdings' and NW Natural's financial condition, results of operations and cash flows.

RELIANCE ON THIRD PARTIES TO SUPPLY NATURAL GAS RISK. NW Natural relies on third parties to supply the natural gas in its NGD segment, and limitations on NW Natural's ability to obtain supplies, or failure to receive expected supplies for which it has contracted, could have an adverse impact on NW Holdings' or NW Natural's financial results.

NW Natural's ability to secure natural gas for current and future sales depends upon its ability to purchase and receive delivery of supplies of natural gas from third parties. NW Natural, and in some cases, its suppliers of natural gas, does not have control over the availability of natural gas supplies, competition for those supplies, disruptions in those supplies, priority allocations on transmission pipelines, or pricing of those supplies. Additionally, third parties on whom NW Natural relies may fail to deliver gas for which it has contracted. For example, on October 9, 2018, a 36-inch pipeline near Prince George, British Columbia owned by Enbridge ruptured, disrupting natural gas flows from Canada into Washington while the ruptured pipeline and an adjacent pipeline were assessed and the ruptured pipeline was repaired. Once repaired, pressurization levels for those pipelines were reduced for assessment and testing. If NW Natural is unable or limited in its ability to obtain natural gas from its current suppliers or new sources, it may not be able to meet customers' gas requirements and would likely incur costs associated with actions necessary to mitigate service disruptions, both of which could significantly and negatively impact NW Holdings' and NW Natural's results of operations.

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SINGLE TRANSPORTATION PIPELINE RISK. NW Natural relies on a single pipeline company for the transportation of gas to its service territory, a disruption of which could adversely impact its ability to meet customers' gas requirements, which could significantly and negatively impact NW Holdings' and NW Natural's results of operations.

NW Natural's distribution system is directly connected to a single interstate pipeline, which is owned and operated by Northwest Pipeline. The pipeline's gas flows are bi-directional, transporting gas into the Portland metropolitan market from two directions: (1) the north, which brings supplies from the British Columbia and Alberta supply basins; and (2) the east, which brings supplies from the Alberta and the U.S. Rocky Mountain supply basins. If there is a rupture or inadequate capacity in the pipeline, NW Natural may not be able to meet its customers' gas requirements and we would likely incur costs associated with actions necessary to mitigate service disruptions, both of which could significantly and negatively impact NW Holdings' and NW Natural's results of operations.

THIRD PARTY PIPELINE RISK. NW Holdings' and NW Natural's gas storage businesses depend on third-party pipelines that connect our storage facilities to interstate pipelines, the failure or unavailability of which could adversely affect NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

Our gas storage facilities are reliant on the continued operation of a third-party pipeline and other facilities that provide delivery options to and from our storage facilities. Because we do not own all of these pipelines, their operations are not within our control. If the third-party pipeline to which we are connected were to become unavailable for current or future withdrawals or injections of natural gas due to repairs, damage to the infrastructure, lack of capacity or other reasons, our ability to operate efficiently and satisfy our customers' needs could be compromised, thereby potentially having an adverse impact on NW Holdings' or NW Natural's financial condition, results of operations and cash flows.

WEATHER RISK. Warmer than average weather may have a negative impact on our revenues and results of operations.

We are exposed to weather risk in our natural gas business, primarily at NW Natural. A majority of NW Natural's gas volume is driven by gas sales to space heating residential and commercial customers during the winter heating season. Current NW Natural rates are based on an assumption of average weather. Warmer than average weather typically results in lower gas sales. Colder weather typically results in higher gas sales. Although the effects of warmer or colder weather on utility margin in Oregon are expected to be mitigated through the operation of NW Natural's weather normalization mechanism, weather variations from normal could adversely affect utility margin because NW Natural may be required to purchase more or less gas at spot rates, which may be higher or lower than the rates assumed in its PGA. Also, a portion of NW Natural's Oregon residential and commercial customers (usually less than 10%) have opted out of the weather normalization mechanism, and 11% of its customers are

located in Washington where it does not have a weather normalization mechanism. These effects could have an adverse effect on NW Holdings' and NW Natural's financial condition, results of operations and cash flows.

CUSTOMER CONSERVATION RISK. Customers' conservation efforts may have a negative impact on NW Holdings' and NW Natural's revenues.

An increasing national focus on energy conservation, including improved building practices and appliance efficiencies may result in increased energy conservation by customers. This can decrease NW Natural's sales of natural gas and

adversely affect NW Holdings' or NW Natural's results of operations because revenues are collected mostly through volumetric rates, based on the amount of gas sold. In Oregon, NW Natural has a conservation tariff which is designed to recover lost utility margin due to declines in residential and small commercial customers' consumption. However, NW Natural does not have a conservation tariff in Washington that provides it this margin protection on sales to customers in that state. Similar conservation risks exist for water utilities. Customers' conservation efforts may have a negative impact on NW Holding's and NW Natural's financial condition, revenues and results of operations.

Risks Related Primarily to NW Holdings' Water Sector Businesses

NEW WATER SECTOR BUSINESS. NW Holdings has entered the water sector through the acquisition of a number of water companies. Water businesses are subject to a number of risks in addition to the risks described above.

Although the water businesses are not currently expected to materially contribute to the results of operations of NW Holdings, these businesses are subject to risks, in addition to those described above that could adversely affect their results of operations, including:

- contamination of water supplies, including water provided to customers;
- interruptions in water supplies and droughts;
- conservation efforts by customers;
- regulatory requirements; and
- weather conditions.

Significant losses, liabilities or impairments arising from these businesses may adversely affect NW Holdings' financial position or results of operations.

ITEM 1B. UNRESOLVED STAFF COMMENTS

We have no unresolved staff comments.

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ITEM 2. PROPERTIES

NW Natural's Natural Gas Distribution Properties

NW Natural's natural gas pipeline system consists of approximately 20,000 miles of distribution and transmission mains located in its service territory in Oregon and Washington. In addition, the pipeline system includes service pipelines, meters and regulators, and gas regulating and metering stations. Natural gas pipeline mains are located in municipal streets or alleys pursuant to franchise or occupation ordinances, in county roads or state highways pursuant to agreements or permits granted pursuant to statute, or on lands of others pursuant to easements obtained from the owners of such lands. NW Natural also holds permits for the crossing of numerous navigable waterways and smaller tributaries throughout our entire service territory.

NW Natural owns service building facilities in Portland, Oregon, as well as various satellite service centers, garages, warehouses, and other buildings necessary and useful in the conduct of its business. Resource centers are maintained on owned or leased premises at convenient points in the distribution system to provide service within NW Natural's service territory. NW Natural also owns LNG storage facilities in Portland and near Newport, Oregon.

NW Natural also leases office space in Portland for its corporate headquarters, which expires on May 31, 2020. In anticipation of the expiration of the current lease, NW Natural executed an extensive search and evaluation process that focused on seismic preparedness, safety, reliability, the least cost to our customers, and a continued commitment to our employees and the communities we serve. In October 2017, NW Natural entered into a 20-year operating lease agreement for a new headquarters in Portland. Payments under the new lease are expected to commence in 2020.

NW Natural's Mortgage and Deed of Trust (Mortgage) is a first mortgage lien on substantially all of the property constituting our natural gas distribution plant balances.

These properties are used in the NGD segment.

NW Natural's Natural Gas Storage Properties

NW Natural holds leases and other property interests in approximately 12,000 net acres of underground natural gas storage in Oregon and easements and other property interests related to pipelines associated with these facilities. NW Natural owns rights to depleted gas reservoirs near Mist, Oregon that are continuing to be developed and operated as underground gas storage facilities. NW Natural also holds all future storage rights in certain other areas of the Mist gas field in Oregon in addition to other leases and property interests.

A portion of these properties are used in the NGD segment.

NWN Water's Distribution Properties

We own and maintain water pipelines and hold related leases and other property interests in Oregon, Washington, and Idaho, associated with water distribution entities that were acquired during 2018. Pipelines are located in

municipal streets or alleys pursuant to franchise or occupation ordinances, in county roads or state highways pursuant to agreements or permits granted pursuant to statute, or on lands of others pursuant to easements obtained from the owners of such lands. These properties are used by entities that are aggregated and reported as other under NW Holdings.

We consider all of our properties currently used in our operations, both owned and leased, to be well maintained, in good operating condition, and, along with planned additions, adequate for our present and foreseeable future needs.

ITEM 3. LEGAL PROCEEDINGS

Other than the proceedings disclosed in Note 17, we have only nonmaterial litigation in the ordinary course of business.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

NW Holdings' common stock is listed and trades on the New York Stock Exchange under the symbol NWN.

There is no established public trading market for NW Natural's common stock.

As of February 22, 2019, there were 4,950 holders of record of NW Holdings' common stock and NW Holdings was the sole holder of NW Natural's common stock.

The following table provides information about purchases of NW Holdings' equity securities that are registered pursuant to Section 12 of the Securities Exchange Act of 1934 during the quarter ended December 31, 2018:

Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased ⁽¹⁾	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs ⁽²⁾	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs ⁽²⁾
Balance forward			2,124,528	\$ 16,732,648
10/01/18-10/31/18	—	\$ —	—	—
11/01/18-11/30/18	1,147	69.02	—	—
12/01/18-12/31/18	—	—	—	—
Total	1,147		2,124,528	\$ 16,732,648

During the quarter ended December 31, 2018, no shares of NW Holdings common stock were purchased on the open market to meet the requirements of our Dividend Reinvestment and Direct Stock Purchase Plan. However, (1) 1,147 shares of NW Holdings common stock were purchased on the open market to meet the requirements of share-based compensation programs. During the quarter ended December 31, 2018, no shares of NW Holdings common stock were accepted as payment for stock option exercises pursuant to the NW Natural Restated Stock Option Plan.

(2) During the quarter ended December 31, 2018, no shares of NW Holdings common stock were repurchased pursuant to the Board-Approved share repurchase program. In October 2018, we received NW Holdings Board Approval to extend the repurchase program through May 2019. For more information on this program, see Note 5.

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ITEM 6. SELECTED FINANCIAL DATA
 NORTHWEST NATURAL HOLDING COMPANY
 SELECTED FINANCIAL DATA

In thousands, except per share data	For the year ended December 31,				
	2018	2017	2016	2015	2014
Operating revenues	\$706,143	\$755,038	\$668,173	\$717,888	\$747,251
Earnings from continuing operations	67,311	72,073	62,419	60,026	66,006
Loss from discontinued operations, net of tax	(2,742)	(127,696)	(3,524)	(6,323)	(7,314)
Net income (loss)	64,569	(55,623)	58,895	53,703	58,692
Earnings from continuing operations per share of common stock:					
Basic	\$2.34	\$2.51	\$2.26	\$2.19	\$2.43
Diluted	2.33	2.51	2.25	2.19	2.42
Loss from discontinued operations per share of common stock:					
Basic	\$(0.10)	\$(4.45)	\$(0.13)	\$(0.23)	\$(0.27)
Diluted	(0.09)	(4.44)	(0.13)	(0.23)	(0.26)
Earnings (Loss) per share of common stock:					
Basic	\$2.24	\$(1.94)	\$2.13	\$1.96	\$2.16
Diluted	2.24	(1.93)	2.12	1.96	2.16
Dividends paid per share of common stock	1.89	1.88	1.87	1.86	1.85
Total assets, end of period	\$3,242,662	\$3,039,746	\$3,079,801	\$3,069,410	\$3,056,326
Total equity	762,634	742,776	850,497	780,972	767,321
Long-term debt ⁽¹⁾	706,247	683,184	679,334	569,445	593,095

⁽¹⁾ Excludes \$20 million of long-term debt in 2014 associated with our discontinued operations.

NORTHWEST NATURAL GAS COMPANY
 SELECTED FINANCIAL DATA

In thousands, except per share data	For the year ended December 31,				
	2018	2017	2016	2015	2014
Operating revenues	\$705,571	\$755,038	\$667,949	\$717,664	\$747,027
Earnings from continuing operations	68,049	71,720	62,835	\$60,511	\$66,504
Loss from discontinued operations, net of tax	(1,723)	(127,343)	(3,940)	\$(6,808)	\$(7,812)
Net income (loss)	66,326	(55,623)	58,895	\$53,703	\$58,692
Total assets, end of period	\$3,192,736	\$3,043,676	\$3,081,470	\$3,072,100	\$3,063,712
Total equity	715,668	742,776	\$850,497	\$780,972	\$767,321
Long-term debt ⁽¹⁾	704,134	683,184	\$679,334	\$569,445	\$593,095

⁽¹⁾ Excludes \$20 million of long-term debt in 2014 associated with Gill Ranch discontinued operations.

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ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

On October 1, 2018, we completed a reorganization into a holding company structure. We believe that our holding company structure is an agile and efficient platform from which to pursue, finance, and oversee new opportunities, such as in the water sector, while also providing legal separation between regulated natural gas distribution operations and other businesses. In this reorganization, shareholders of NW Natural (the predecessor publicly held parent company) became shareholders of NW Holdings, on a one-for-one basis, with the same number of shares and same ownership percentage as they held in NW Natural immediately prior to the reorganization. NW Natural became a wholly-owned subsidiary of NW Holdings. Additionally, certain subsidiaries of NW Natural were transferred to NW Holdings. As required under accounting guidance, these subsidiaries are presented as discontinued operations in the consolidated results of NW Natural within this report.

NW Holdings is a holding company headquartered in Portland, Oregon and owns NW Natural, NWN Water, and other businesses and activities. NW Natural is NW Holdings' largest subsidiary.

NW Natural's natural gas distribution activities are reported in the natural gas distribution (NGD) segment, formerly titled and reported as the utility segment. All other business activities, including certain gas storage activities, water businesses, and other investments and activities are aggregated and reported as other at their respective registrant. References in this discussion to "Notes" are to the Notes to the Consolidated Financial Statements in Item 8 of this report.

In addition, NW Holdings has reported discontinued operations results related to the pending sale of Gill Ranch Storage, LLC (Gill Ranch). NW Natural Gas Storage, LLC (NWN Gas Storage), currently an indirect wholly-owned subsidiary of NW Holdings, entered into a Purchase and Sale Agreement during the second quarter of 2018 that provides for the sale of all membership interests in Gill Ranch. Gill Ranch owns a 75% interest in the natural gas storage facility located near Fresno, California known as the Gill Ranch Gas Storage Facility. Pacific Gas and Electric Company (PG&E) owns the remaining 25% interest in the Gill Ranch Gas Storage Facility. For more information, see "Results of Operations - Pending Sale of Gill Ranch Storage" below.

The following is management's assessment of NW Holdings' and NW Natural's financial condition, including the principal factors that affect results of operations. The discussion covers the years ended December 31, 2018, 2017, and 2016 and refers to the consolidated results of NW Holdings, the substantial majority of which consist of the operating results of NW Natural. When significant activity exists at NW Holdings that does not exist at NW Natural, additional disclosure has been provided.

NW Holdings' direct and indirect wholly-owned subsidiaries include:

- Northwest Natural Gas Company (NW Natural);
- Northwest Energy Corporation (Energy Corp);
- NWN Gas Reserves LLC (NWN Gas Reserves);
- NW Natural Energy, LLC (NWN Energy);
- NW Natural Gas Storage, LLC (NWN Gas Storage);
- Gill Ranch Storage, LLC (Gill Ranch), which is presented as a discontinued operation;
- NNG Financial Corporation (NNG Financial);

KB Pipeline Company (KB);
NW Natural Water Company, LLC (NWN Water);
Falls Water Co., Inc. (Falls Water);
Salmon Valley Water Company;
Cascadia Water, LLC (Cascadia);
NW Natural Water of Oregon, LLC (NWN Water of Oregon);
NW Natural Water of Washington, LLC (NWN Water of Washington);
NW Natural Water of Idaho, LLC (NWN Water of Idaho); and
Gem State Water Company, LLC (Gem State)

The NGD segment includes our NW Natural local gas distribution business, NWN Gas Reserves, which is a wholly-owned subsidiary of Energy Corp, and the NGD-portion of NW Natural's Mist storage facility in Oregon. Other activities aggregated and reported as other at NW Natural include the non-NGD storage activity at Mist as well as asset management services and the appliance retail center operations. Other activities aggregated and reported as other at NW Holdings include NWN Energy's equity investment in Trail West Holding, LLC (TWH), which is pursuing the development of a proposed natural gas pipeline through its wholly-owned subsidiary, Trail West Pipeline, LLC (TWP); NNG Financial's investment in Kelso-Beaver Pipeline (KB Pipeline); and NWN Water, which owns and continues to pursue investments in the water sector. See Note 4 for further discussion of our business segment and other, as well as our direct and indirect wholly-owned subsidiaries.

NON-GAAP FINANCIAL MEASURES. In addition to presenting the results of operations and earnings amounts in total, certain financial measures are expressed in cents per share or exclude the effects of certain items, which are non-GAAP financial measures. We present net income or loss and earnings or loss per share adjusted for certain items along with the U.S. GAAP measures to illustrate their magnitude on ongoing business and operational results. Although the excluded amounts are properly included in the determination of net income or loss and earnings or loss per share under U.S. GAAP, we believe the amount and nature of these items make period to period comparisons of operations difficult or potentially confusing. We use such non-GAAP financial measures to analyze our financial performance because we believe they provide useful information to our investors and creditors in evaluating our financial condition and results of operations. Our non-GAAP financial measures should not be considered a substitute for, or superior to, measures calculated in accordance with U.S. GAAP. Reconciliations of the non-GAAP financial

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measures to their closest U.S. GAAP measure used in subsequent sections of Item 7 are provided below.

NW HOLDINGS NON-GAAP RECONCILIATIONS

In millions, except per share data	2018		2017		2016	
	Amount	Per Share	Amount	Per Share	Amount	Per Share
Net income from continuing operations	\$67.3	\$2.33	\$72.1	\$2.51	\$62.4	\$2.25
Adjustments:						
Regulatory environmental disallowance ⁽¹⁾	—	—	—	—	3.3	0.12
Tax effects of 2017 TCJA remeasurement ⁽²⁾	—	—	(3.4)	(0.12)	—	—
Tax effects of non-GAAP adjustment	—	—	—	—	(1.3)	(0.05)
Adjusted net income from continuing operations	\$67.3	\$2.33	\$68.7	\$2.39	\$64.4	\$2.32
NGD segment net income from continuing operations	\$57.5	\$1.99	\$60.5	\$2.10	\$54.6	\$1.96
Adjustments:						
Regulatory environmental disallowance ⁽¹⁾	—	—	—	—	3.3	0.12
Tax effects of 2017 TCJA remeasurement ⁽²⁾	—	—	1.0	0.03	—	—
Tax effects of non-GAAP adjustment	—	—	—	—	(1.3)	(0.05)
Adjusted NGD segment net income from continuing operations	\$57.5	\$1.99	\$61.5	\$2.13	\$56.6	\$2.03
Other net income from continuing operations	\$9.8	\$0.34	\$11.6	\$0.41	\$7.9	\$0.29
Adjustments:						
Tax effects of 2017 TCJA remeasurement ⁽²⁾	—	—	(4.4)	(0.15)	—	—
Adjusted other net income from continuing operations	\$9.8	\$0.34	\$7.2	\$0.26	\$7.9	\$0.29

NW NATURAL NON-GAAP RECONCILIATIONS

In millions	2018	2017	2016
	Amount	Amount	Amount
Net income from continuing operations	\$ 68.0	\$ 71.7	\$ 62.8
Adjustments:			
Regulatory environmental disallowance ⁽¹⁾	—	—	3.3
Tax effects of 2017 TCJA remeasurement ⁽²⁾	—	(3.0)	—
Tax effects of non-GAAP adjustment	—	—	(1.3)
Adjusted net income from continuing operations	\$ 68.0	\$ 68.7	\$ 64.8
NGD segment net income from continuing operations	\$ 57.5	\$ 60.5	\$ 54.6
Adjustments:			
Regulatory environmental disallowance ⁽¹⁾	—	—	3.3
Tax effects of 2017 TCJA remeasurement ⁽²⁾	—	1.0	—
Tax effects of non-GAAP adjustment	—	—	(1.3)
Adjusted NGD segment net income from continuing operations	\$ 57.5	\$ 61.5	\$ 56.6
Other net income from continuing operations	\$ 10.6	\$ 11.2	\$ 8.3
Adjustments:			
Tax effects of 2017 TCJA remeasurement ⁽²⁾	—	(4.0)	—
Adjusted other net income from continuing operations	\$ 10.6	\$ 7.2	\$ 8.3

Note: Totals may not foot due to rounding.

(1) Regulatory environmental disallowance of \$3.3 million in 2016 includes \$2.8 million recorded in NGD other income (expense), net and \$0.5 million recorded in NGD operations and maintenance expense. The tax effect of the adjustment is calculated using the combined federal and state statutory rate in effect at the time of 39.5%. NW Holdings' EPS amounts for the 2016 adjustment are calculated using diluted shares of 27.8 million, as shown on the NW Holdings Consolidated Statements of Comprehensive Income.

(2) Non-cash TCJA benefit (expense) associated with continuing operations of \$3.4 million was recorded in income tax expense (benefit) in the fourth quarter of 2017 as a result of the federal tax rate changing from 35% to 21% effective December 22, 2017. The majority of this benefit was recorded at NW Natural. NW Holdings EPS amounts are calculated using diluted shares of 28.8 million as shown on the NW Holdings Consolidated Statements of Comprehensive Income. The TCJA impacts in the NGD segment and other may not correlate exactly to the consolidated amount due to rounding. See Note 10 for additional information on the TCJA.

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EXECUTIVE SUMMARY

We manage our business and strategic initiatives with a long-term view of providing service safely and reliably to our customers, working with regulators on key policy initiatives, and remaining focused on growing our businesses. See "2019 Outlook" below for more information. Highlights for the year include:

- added over 12,500 natural gas customers in 2018 for an annual growth rate of 1.7% at December 31, 2018;
- invested \$215 million in NGD distribution systems and facilities for growth and reliability;
 - completed key components of the North Mist Gas Storage Expansion Project and continue to target an in-service date during the spring of 2019;

• NW Natural ranked first in the West in the 2018 J.D. Power Gas Utility Residential Customer Satisfaction Study and Gas Utility Business Customer Satisfaction Study;

• completed key aspects of NW Natural's Oregon general rate case and filed for a general rate increase in Washington for the first time in a decade;

• completed four water distribution acquisitions with several more pending, the largest of which is a water and wastewater business in Sunriver, Oregon. Once pending transactions close, our water business is expected to serve 18,000 connections; and

• delivered increasing dividends for the 63rd consecutive year to shareholders.

Key financial highlights for NW Holdings include:

In millions, except per share data	2018		2017		2016	
	Amount	Per Share	Amount	Per Share	Amount	Per Share
Net income from continuing operations	\$67.3	\$2.33	\$72.1	\$2.51	\$62.4	\$2.25
Loss from discontinued operations, net of tax	(2.7)	(0.09)	(127.7)	(4.44)	(3.5)	(0.13)
Consolidated net income (loss)	\$64.6	\$2.24	\$(55.6)	\$(1.93)	\$58.9	\$2.12
Adjusted net income from continuing operations ⁽¹⁾	\$67.3	\$2.33	\$68.7	\$2.39	\$64.4	\$2.32
Natural gas distribution margin	\$383.7		\$392.6		\$376.6	

Key financial highlights for NW Natural include:

In millions, except per share data	2018	2017	2016
	Amount	Amount	Amount
Net income from continuing operations	\$ 68.0	\$ 71.7	\$ 62.8
Loss from discontinued operations, net of tax	(1.7)	(127.3)	(3.9)
Consolidated net income (loss)	\$ 66.3	\$(55.6)	\$ 58.9
Adjusted net income from continuing operations ⁽¹⁾	\$ 68.0	\$ 68.7	\$ 64.8

⁽¹⁾ See the Non-GAAP Reconciliations table at the beginning of Item 7 for a reconciliation of this non-GAAP financial measure to its closest U.S. GAAP measure.

2018 COMPARED TO 2017. NW Holdings' and NW Natural's net income from continuing operations were \$67.3 million and \$68.0 million, respectively, in 2018 compared to \$72.1 million and \$71.7 million, respectively, in 2017. The decrease was primarily due to the benefit associated with the TCJA deferred income tax remeasurement in 2017.

Excluding the benefit in 2017 associated with the TCJA remeasurement, NW Holdings adjusted net income from continuing operations decreased \$1.4 million. See the Non-GAAP reconciliations at the beginning of Item 7 for additional information. The decrease was primarily due to the following factors, all of which were driven by activity at NW Natural:

- an \$8.9 million decrease in NGD segment margin primarily due to the deferral of excess revenue associated with the federal income tax rate decrease as a result of the TCJA;

- a \$4.3 million increase in operations and maintenance expense driven by general payroll and benefits

increases as well as increases in professional services and contract labor;

- a \$4.1 million increase in depreciation and amortization primarily due to additional capital expenditures; and

- a \$3.3 million decrease in other income (expense), net primarily due to an increase in pension and

- postretirement benefit expense, partially offset by an increase in the equity portion of AFUDC; partially offset by

- a \$20.2 million decrease in income tax expense due to the decrease in the federal income tax rate as a result of the TCJA and lower pretax earnings.

2017 COMPARED TO 2016. NW Holdings' and NW Natural's net income from continuing operations were \$72.1 million and \$71.7 million, respectively, in 2017 compared to \$62.4 million and \$62.8 million, respectively, in 2016. The increase included a \$3.4 million benefit due to the deferred income tax balance remeasurement associated with the TCJA in 2017 and a \$3.3 million pre-tax regulatory environmental disallowance in 2016.

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Excluding the impact of these items, NW Holdings adjusted net income from continuing operations increased \$4.3 million. See the Non-GAAP reconciliations at the beginning of Item 7 for additional information. The increase was primarily due to the following factors, all of which were driven by activity at NW Natural:

- a \$16.0 million increase in NGD segment margin primarily due to customer growth and effects of colder than average weather in 2017 compared to warmer than average weather in 2016; and
- a \$6.9 million increase in other income (expense), net primarily due an increase in the equity portion of AFUDC; partially offset by
- a \$15.7 million increase in operations and maintenance expense driven by higher NGD segment payroll and benefits increases, as well as increased NGD segment safety equipment upgrade costs; and
- a \$1.0 million decrease in revenues from asset management agreements for Mist storage and transportation capacity.

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2019 OUTLOOK

Our 2019 goals leverage our resources and history of innovation to continue meeting the evolving needs of customers, regulators, and shareholders. Our near-term outlook is centered on the following long-term strategic objectives:

Delivering Our Products	Grow Our Businesses
Ensure Safe and Reliable Service	Enable NW Natural Growth
Provide a Superior Customer Experience	Lead in a Low-Carbon Future
Advance Constructive Legislative Policies and Regulation	Integrate and Grow our Water Businesses

SAFETY AND RELIABILITY. Delivering our products safely and reliably to customers is our first priority. During 2019, NW Natural will maintain its vigilant focus on safety and emergency response through hands-on scenario-based training for employees, third-party contractors, and local authorities. To ensure the reliability, resiliency, and safety of NW Natural's infrastructure, we intend to continue to invest in the maintenance and necessary upgrades of our pipeline system, including completing projects to replace end-of-life equipment at our Mist storage facility, renovating several resource centers, and supporting growth and reliability in Oregon and southwest Washington. Safety also includes NW Holdings' and NW Natural's vigilance in maintaining and seeking to strengthen cybersecurity defenses and preparing for large-scale emergency events, such as seismic hazards.

SUPERIOR CUSTOMER EXPERIENCE. NW Natural has a legacy of providing excellent customer service and a long-standing dedication to continuous improvement, which has resulted in consistently high rankings in the J.D. Power and Associates customer satisfaction studies. In 2019, we will strive to enhance our customers' experience to meet their evolving expectations by prioritizing improvements to technology and internal processes which supports our customers' frequent interactions and highest value touchpoints.

POLICIES AND REGULATION. We remain committed to working constructively with policymakers and regulators to provide the best outcomes for both our customers and stakeholders. At NW Natural, we are working closely with the Oregon commission and other stakeholders on several significant items, including the best way to return benefits from the TCJA to NW Natural customers and complete its Oregon general rate case, which we filed in December 2017. With regard to Washington regulation, NW Natural filed a general rate case with Washington in December 2018 and will seek to work productively with parties in an effort to conclude that case in 2019. NW Natural will continue working with the EPA and other stakeholders on an environmentally protective and cost effective clean-up for the Portland Harbor Superfund Site. Finally, we are engaged in policy discussions both in Oregon and Washington at the state and community level to build support for a constructive role for natural gas in a low-carbon future.

NW NATURAL GROWTH. Natural gas is the preferred energy choice in NW Natural's service territory given its efficient, affordable, and reliable qualities. We are focused on leveraging these key attributes to capitalize on our region's strong economic growth. We continue to grow our market share in the single-family residential sector and capture new commercial customers as well as multifamily or mixed-use developments. In addition, one of the largest and most innovative capital projects in the history of NW Natural, the North Mist Gas Storage Expansion, is expected to be completed and begin supporting the integration of renewables into the electric grid in 2019. We will continue to look for opportunities to serve and grow with our communities.

LOW-CARBON PATHWAY. We are deeply committed to a clean energy future. It's why NW Natural launched a low-carbon initiative to reduce emissions in the customers and communities NW Natural serves by leveraging modern pipeline systems in new ways, working closely with customers, policymakers and regulators, and embracing

cutting-edge technology. NW Natural partnered with the City of Portland to bring renewable natural gas (RNG) onto its system. We expect the entire project to be operational in 2019 with several other RNG projects underway for completion this year or in 2020. To further understand the role of natural gas in a low-carbon future, NW Natural engaged a premier environmental consultant to complete a deep decarbonization study. The study outlines how natural gas can help achieve crucial emission reductions of 80% by 2050. We will continue helping our customers reduce and offset their consumption as we support the development of renewable natural gas supply and explore other cutting edge solutions to lower the carbon intensity of natural gas, such as power to gas.

INTEGRATE AND GROW WATER. NW Water began its expansion into the water business more than a year ago with a focus on water sector investments that fit our conservative risk profile and core competencies. In 2019 we plan to close our largest acquisition to date in Sunriver, Oregon that serves approximately 9,400 water and wastewater connections. Once all outstanding transactions are closed, NW Water will serve 18,000 connections and have invested nearly \$70 million in the water sector.

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DIVIDENDS

NW Holdings dividend highlights include:

Per common share	2018	2017	2016
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Dividends paid	\$1.8925	\$1.8825	\$1.8725
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In January 2019, the NW Holdings' Board of Directors declared a quarterly dividend on NW Holdings common stock of \$0.4750 per share, payable on February 15, 2019, to shareholders of record on January 31, 2019, reflecting an indicated annual dividend rate of \$1.90 per share.

See "Financial Condition - Liquidity and Capital Resources" for more information regarding the NW Holdings and NW Natural dividend policies and regulatory conditions on NW Natural dividends to its parent, NW Holdings.

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RESULTS OF OPERATIONS

Regulatory Matters

Regulation and Rates

NATURAL GAS DISTRIBUTION. NW Natural's natural gas distribution business is subject to regulation by the OPUC and WUTC with respect to, among other matters, rates and terms of service, systems of accounts, and issuances of securities by NW Natural. In 2018, approximately 89% of NGD customers were located in Oregon, with the remaining 11% in Washington. Earnings and cash flows from natural gas distribution operations are largely determined by rates set in general rate cases and other proceedings in Oregon and Washington. They are also affected by weather, the local economies in Oregon and Washington, the pace of customer growth in the residential, commercial, and industrial markets, and NW Natural's ability to remain price competitive, control expenses, and obtain reasonable and timely regulatory recovery of its natural gas distribution-related costs, including operating expenses and investment costs in plant and other regulatory assets. See "Most Recent General Rate Cases" below.

MIST INTERSTATE GAS STORAGE. NW Natural's interstate storage activity at Mist is subject to regulation by the OPUC, WUTC, and FERC with respect to, among other matters, rates and terms of service. The OPUC also regulates the intrastate storage services at Mist, while FERC regulates the interstate storage services at Mist. The FERC uses a maximum cost of service model which allows for gas storage prices to be set at or below the cost of service as approved by each agency in their last regulatory filing. The OPUC Schedule 80 rates are tied to the FERC rates, and are updated whenever NW Natural modifies FERC maximum rates.

OTHER. In June 2018, NWN Gas Storage entered into a Purchase and Sale Agreement for the sale of all of its ownership interests in Gill Ranch, a natural gas storage facility located near Fresno, California, which is subject to approval by the CPUC and other customary closing conditions. See Note 18 for more information.

Most Recent General Rate Cases

OREGON. Effective November 1, 2012, through October 31, 2018, the OPUC authorized rates to customers based on an ROE of 9.5%, an overall rate of return of 7.78%, and a capital structure of 50% common equity and 50% long-term debt.

Effective November 1, 2018, the OPUC authorized rates to customers based on an ROE of 9.4%, an overall rate of return of 7.317%, and a capital structure of 50% common equity and 50% long-term debt. For additional information, see "Regulatory Proceeding Updates" below.

WASHINGTON. Effective January 1, 2009, the WUTC authorized rates to customers based on an ROE of 10.1% and an overall rate of return of 8.4% with a capital structure of 51% common equity, 5% short-term debt, and 44% long-term debt.

On December 31, 2018, NW Natural filed a general rate case in Washington requesting an ROE of 10.3%, an overall rate of return of 7.63%, and a capital structure of 49.5% common equity, 49.5% long-term debt, and 1% short-term debt. For additional information, see "Regulatory Proceeding Updates" below.

FERC. NW Natural is required under its Mist interstate storage certificate authority and rate approval orders to file every five years either a petition for rate approval or a cost and revenue study to change or justify maintaining the

existing rates for its interstate storage services. In January 2018, various state parties filed a request with the FERC to adjust the revenue requirements of public utilities to reflect the recent reduction in the federal corporate income tax rate and other impacts resulting from the TCJA. In July 2018, the FERC issued an order finalizing its regulations regarding the effect of the TCJA. The new regulations required NW Natural to file a petition for rate approval or a cost and revenue study to reflect the new federal corporate income tax rate within thirty days of the rate effective date of NW Natural's Oregon rate case. On October 12, 2018, NW Natural filed a rate petition with FERC for revised maximum cost-based rates, which incorporated the new federal corporate income tax rate. The revised rates became effective November 1, 2018.

NW Natural continuously evaluates the need for rate cases in its jurisdictions. For additional information, see "Regulatory Proceeding Updates—Rate Case" below.

Regulatory Proceeding Updates

During 2018, NW Natural was involved in the regulatory activities discussed below.

INTERSTATE STORAGE AND OPTIMIZATION SHARING. NW Natural received an Order from the OPUC in March 2015 on their review of the current revenue sharing arrangement that allocates a portion of the net revenues generated from non-NGD Mist storage services and third-party asset management services to NGD business customers. The Order required a third-party cost study to be performed. In 2017, a third-party consultant completed a cost study and their final report was filed with the OPUC in February 2018. The OPUC concluded on this matter in the Oregon general rate case proceeding. For additional information, see "Oregon General Rate Case" below.

HOLDING COMPANY REORGANIZATION. In February 2017, NW Natural filed applications with the OPUC, WUTC, and CPUC for approval to reorganize under a holding company structure. In 2017, the OPUC and WUTC approved NW Natural's applications subject to certain restrictions or "ring-fencing" provisions applicable to NW Natural, the company that currently engages, and would continue to engage, in NGD business operations. During the second quarter of 2018, NW Natural received approval to reorganize into a holding company structure from the CPUC. On October 1, 2018, we completed the reorganization to a holding company structure. Effective November 1, 2018 there are a number of conditions under the agreement with the OPUC and the WUTC related to the formation of a holding company structure. One of the conditions is that, for three years, NW Natural will be required to provide an annual \$500,000 credit to Oregon customers and a \$55,000 credit

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to Washington customers. The first-year credit to both Oregon and Washington customers was given in conjunction with the PGA filings, with the rate adjustments commencing on November 1, 2018.

TAX REFORM DEFERRAL. In December 2017, NW Natural filed applications with the OPUC and WUTC to defer the overall net benefit associated with the TCJA that was enacted on December 22, 2017. Through the Oregon general rate case, in October 2018 the OPUC issued an order directing NW Natural and the other parties to the rate case to engage in further regulatory proceedings to resolve open issues with respect to the treatment of the 10-month deferral period of benefits associated with the TCJA. On February 4, 2019, NW Natural and the other parties to the rate case agreed upon terms by which the deferred benefits would be returned to customers via a joint stipulation filed with the OPUC. For it to be effective, the OPUC must issue an Order. See "Regulatory Proceeding Updates-Oregon General Rate Case" below for more information.

NW Natural expects to work with the WUTC regarding the Washington deferral for the TCJA as part of the general rate case filed in Washington on December 31, 2018, and is currently deferring all amounts for the benefit of Washington customers.

WATER BUSINESS. Since we initiated our water strategy in December 2017, we have entered into the following agreements which require or required regulator approval:

• **Salmon Valley Water Company** — We received regulatory approval for this Welches, Oregon acquisition in September 2018, and the transaction closed in November 2018.

• **Falls Water Company** — We received regulatory approval for this Idaho Falls, Idaho acquisition in July 2018 from the IPUC and closed the transaction in September 2018.

• **Lehman Enterprises, Inc. and Sea View Water LLC** — We received regulatory approval from the WUTC for these Whidbey Island, Washington acquisitions in October 2018 and closed the transaction in November 2018.

• **Sunriver Water, LLC and Sunriver Environmental, LLC** — We filed an application for regulatory approval from the OPUC for the Sunriver Water, LLC acquisition in October 2018 and anticipate receiving regulatory approval in 2019. Sunriver Environmental, LLC is not under the OPUC's jurisdiction. The transaction is expected to close in the first half of 2019.

• **Spirit Lake East Water Company and Lynnwood Water** - We filed an application for regulatory approval from the IPUC for these Coeur d'Alene, Idaho acquisitions in February 2019.

• **Estates Water Systems Inc. and Monterra Inc** - We filed an application for regulatory approval from the WUTC for these Sequim, Washington acquisitions in February 2019.

The acquisitions described above are expected to, upon the closing of the Sunriver transaction, represent approximately \$70 million of aggregate investment.

OREGON GENERAL RATE CASE. On October 26, 2018, the OPUC issued an order regarding NW Natural's general rate case originally filed in December 2017 and approved the following items:

• Annual revenue requirement increase of \$23.4 million or 3.72% over NW Natural's revenue from existing rates, which includes approximately \$12.1 million that would otherwise be recovered under the conservation tariff deferral;

• Capital structure of 50% debt and 50% equity;

• Return on equity of 9.4%;

• Cost of capital of 7.317%;

• Rate base of \$1.186 billion, or an increase of \$300 million since the last rate case in 2012;

•

Commencing November 1, 2018, ASC 715 pension expenses for the qualified pension plan will be recovered through rates with an increase of \$8.1 million to revenue requirement for a total of \$11.9 million; and
The sharing of asset management revenues related to NGD business pipeline and storage assets will be 90%/10% with 90% being credited to customers. Previously customers received 67% of these revenues.

The rate changes listed above went into effect on November 1, 2018.

In addition to the items above, the OPUC issued an order on October 26, 2018, to freeze NW Natural's pension balancing account as of October 31, 2018. The order directed NW Natural and the other parties to the rate case to engage in further regulatory proceedings extending the general rate case docket to resolve open issues with respect to the recovery of the pension balancing account, and treatment of the 10-month deferral period benefits associated with the TCJA. On February 4, 2019, NW Natural, OPUC Staff, Oregon Citizen's Utility Board (CUB), and the Alliance of Western Energy Customers (AWEC), which comprise all of the parties to the 2018 Oregon rate case, filed with the OPUC a joint stipulation addressing remaining items related to NW Natural's pension balancing account and the return of deferred TCJA benefits to customers (Settlement). The Settlement is subject to the review and approval of the OPUC. For it to be effective, the OPUC must issue an Order, which may approve or deny the terms of the Settlement or be issued under the OPUC's own terms.

Under the Settlement, the stipulating parties agree that NW Natural properly recorded the remeasurement of regulated NGD excess deferred income taxes pursuant to the effects of the TCJA, and agree that all of NW Natural's TCJA-related dockets will be resolved in accordance with the terms of the Settlement. Under the Settlement, NW Natural would return excess deferred income taxes pursuant to the TCJA as follows: (i) an annual credit to base rates of \$3.4 million; (ii) a credit of \$3.0 million per year for five years to sale customers; (iii) a credit to customers' benefit of \$5.44 million of deferred income taxes, and \$7.07 million of TCJA benefits deferred between January 1, 2018 and October 31, 2018, reflected as a reduction to NW Natural's pension balancing account, described below. As a result of these returns and credits, NW Natural's rate base is expected to increase by approximately \$15.38 million, and the revenue requirement is expected to increase approximately \$1.43

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million. If NW Natural files a general rate case within five years of the date of the Order implementing the Settlement, this revenue requirement may be adjusted as part of that general rate case.

As to the future operation and timing of rate recovery of amounts reflected in NW Natural's pension balancing account, under the Settlement, the stipulating parties agree that, effective October 31, 2018, NW Natural would: (i) reduce the amount of the frozen pension balancing account by \$10.5 million, and apply \$12.51 million of the Company's deferred TCJA benefits, for a total reduction of the pension balancing account of approximately \$23.01 million; and (ii) reduce the interest rate on the pension balancing account from NW Natural's authorized rate of return of 7.317 percent to 4.3 percent. NW Natural would then collect the remainder of the pension balancing account balance over ten years in a customer tariff of \$7.3 million per year beginning on the rate effective date. If the Settlement is approved, NW Natural expects to recognize an after-tax charge to earnings of approximately \$6.7 million in the quarter in which an order is issued.

The Settlement is subject to the review and approval of the OPUC with a decision and order expected in March 2019, and new rates expected to be effective April 1, 2019.

WASHINGTON GENERAL RATE CASE. On December 31, 2018, NW Natural filed for a general rate case in the state of Washington. The requested increase, the first in approximately 10 years, is intended to recover operating costs and investments made in the Washington distribution system and is based upon the following assumptions or requests: Capital structure of 49.5% long-term debt, 1.0% short-term debt, and 49.5% common equity; Return on equity of 10.3%; Cost of capital of 7.63%; and Rate base of \$186.5 million, an increase of \$58.7 million since the last rate case.

The filing also includes a proposal to return federal tax reform benefits to customers related to the TCJA. NW Natural estimates the total liability for tax reform benefits allocated to Washington customers to be approximately \$20.2 million, which is comprised of a historical deferred liability of \$18.1 million primarily related to property, plant, and equipment and an expected \$2.1 million associated with interim tax benefits accumulated from January 1, 2018 to November 30, 2019. NW Natural is requesting that the \$18.1 million historical deferral be credited to rates in compliance with the TCJA guidance, which is currently at a rate of approximately \$0.5 million annually for the first five years, and which would be reviewed and adjusted in year five for the next five years. NW Natural is requesting that the interim \$2.1 million tax benefit be returned to customers over two years.

In addition, NW Natural is requesting a decoupling tariff for Washington customers, which is intended to allow the NGD business to continue encouraging customers to conserve energy without adversely affecting earnings due to reductions in sales volumes. The proposed decoupling tariff would also adjust for any deviation from normal usage, including weather.

Finally, NW Natural is requesting that the WUTC review costs allocable to Washington related to environmental remediation expenses and consider a mechanism for recovery of these costs. The requested costs are estimated to be approximately 3.32% of total costs associated with those sites related to serving Washington customers.

NW Natural's filing will be reviewed by the WUTC and other stakeholders. The process is anticipated to take up to 11 months. NW Natural has requested that the new rates take effect December 1, 2019.

INTEGRATED RESOURCE PLAN (IRP). NW Natural files a full IRP biennially for Oregon and Washington with the OPUC and WUTC, respectively. NW Natural filed its 2018 Oregon and Washington IRPs in August 2018, and

received both a letter of compliance from the WUTC and acknowledgment by the OPUC in February 2019. The IRPs included analysis of different growth scenarios and corresponding resource acquisition strategies. This analysis is needed to develop supply and demand resource requirements, consider uncertainties in the planning process, and to establish a plan for providing reliable and low cost natural gas service.

DEPRECIATION STUDY. Under OPUC regulations, NW Natural is required to file a depreciation study every five years to update or justify maintaining the existing depreciation rates. In December 2016, NW Natural filed the required depreciation study with the OPUC. In September 2017, the parties to the docket filed a settlement with the Commission requesting approval of updated depreciation rates. In January 2018, OPUC issued an order adopting the stipulation. A corresponding docket was filed and approved in Washington for the same depreciation rates. FERC also adopted the new depreciation rates which were included in the rate petition described in Regulation and Rates - FERC above. The new depreciation rates were effective and implemented as of November 1, 2018 for Oregon, Washington, and FERC regulated customers. The new depreciation rates did not materially change NW Natural's depreciation rates and did not have a material impact to financial results.

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Rate Mechanisms

During 2018, NW Natural's approved rates and recovery mechanisms for each service area included:

	OR	2018 Rate Case (effective 11/1/2018)	WA 2009 Rate Case
Authorized Rate Structure:			
ROE	9.5%	9.4%	10.1%
ROR	7.8%	7.3%	8.4%
Debt/Equity Ratio	50%/50%	50%/50%	49%/51%
Key Regulatory Mechanisms:			
PGA	X	X	X
Gas Cost Incentive Sharing	X	X	
Decoupling	X	X	
WARM	X	X	
Environmental Cost Deferral	X	X	X
Environmental Cost Recovery (SRRM)	X	X	
Pension Balancing	X		
Interstate Storage and Asset Management Sharing	X	X	X

PURCHASED GAS ADJUSTMENT. Rate changes are established for NW Natural each year under PGA mechanisms in Oregon and Washington to reflect changes in the expected cost of natural gas commodity purchases. The PGA filings and filings coincident with the PGA include gas costs under spot purchases as well as contract supplies, gas costs hedged with financial derivatives, gas costs from the withdrawal of storage inventories, the production of gas reserves, interstate pipeline demand costs, temporary rate adjustments, which amortize balances of deferred regulatory accounts, and the removal of temporary rate adjustments effective for the previous year.

Each year, NW Natural typically hedges gas prices on a portion of NW Natural's annual sales requirement based on normal weather, including both physical and financial hedges. NW Natural entered the 2018-19 gas year with its forecasted sales volumes hedged at 49% in financial swap and option contracts and 26% in physical gas supplies for Oregon and Washington.

As of December 31, 2018, NW Natural is also hedged in future gas years at approximately 17% for the 2019-20 gas year and between 1% and 8% for annual requirements over the subsequent five gas years. Hedge levels are subject to change based on actual load volumes, which depend to a certain extent on weather, economic conditions, and estimated gas reserve production. Also, gas storage inventory levels may increase or decrease with storage expansion, changes in storage contracts with third parties, variations in the heat content of the gas, and/or storage recall by NW Natural.

In September 2018, NW Natural filed its annual PGA and received OPUC and WUTC approval in October 2018. PGA rate changes were effective November 1, 2018. Rates between states can vary due to different rate structures and mechanisms. Oregon residential customers' rates declined 2.1% from the combined effect of the PGA and Oregon rate case and Washington residential customers' rates declined by 7.2%. In addition, as required with the Washington PGA filing, NW Natural provided the WUTC with a full strategy implementation plan to incorporate risk-responsive hedging strategies in its natural gas procurement process. The plan calls for a flexible hedging approach that reacts to

changes in market conditions as those changes occur. NW Natural expects to begin implementing risk-responsive hedging strategies for the 2019-20 PGA for its Washington gas supplies.

Under the current PGA mechanism in Oregon, there is an incentive sharing provision whereby NW Natural is required to select each year an 80% deferral or a 90% deferral of higher or lower actual gas costs compared to estimated PGA prices, such that the impact on NW Natural's current earnings from the incentive sharing is either 20% or 10% of the difference between actual and estimated gas costs, respectively. For the 2017-18 and 2018-19 gas years, NW Natural selected the 90% deferral option. Under the Washington PGA mechanism, NW Natural defers 100% of the higher or lower actual gas costs, and those gas cost differences are passed on to customers through the annual PGA rate adjustment.

EARNINGS TEST REVIEW. NW Natural is subject to an annual earnings review in Oregon to determine if the NGD business is earning above its authorized ROE threshold. If NGD business earnings exceed a specific ROE level, then 33% of the amount above that level is required to be deferred or refunded to customers. Under this provision, if NW Natural selects the 80% deferral gas cost option, then NW Natural retains all earnings up to 150 basis points above the currently authorized ROE. If NW Natural selects the 90% deferral option, then it retains all earnings up to 100 basis points above the currently authorized ROE. For the 2017-18 and 2018-19 gas years, it selected the 90% deferral option. The ROE threshold is subject to adjustment annually based on movements in long-term interest rates. For calendar years 2016, 2017, and 2018, the ROE threshold was 11.06%, 10.66%, and 10.48%, respectively. There were no refunds required for 2016 and 2017. NW Natural does not expect a refund for 2018 based on results, and NW Natural anticipates filing its 2018 earnings test in May 2019.

GAS RESERVES. In 2011, the OPUC approved the Encana gas reserves transaction to provide long-term gas price protection for NGD business customers and determined costs under the agreement would be recovered on an ongoing basis through the annual PGA mechanism. Gas produced from NW Natural's interests is sold at then prevailing market prices, and revenues from such sales, net of associated operating and production costs and amortization, are included in cost of gas. The cost of gas, including a carrying cost for the rate base investment made under the original agreement, is included in NW Natural's annual Oregon PGA filing, which allows NW Natural to recover these costs through customer rates. The net

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investment under the original agreement earns a rate of return.

In 2014, NW Natural amended the original gas reserves agreement in response to Encana's sale of its interest in the Jonah field located in Wyoming to Jonah Energy. Under the amended agreement with Jonah Energy, NW Natural has the option to invest in additional wells on a well-by-well basis with drilling costs and resulting gas volumes shared at the amended proportionate working interest for each well in which NW Natural invests. Volumes produced from the additional wells drilled after the amended agreement are included in NW Natural's Oregon PGA at a fixed rate of \$0.4725 per therm. NW Natural did not have the opportunity to participate in additional wells in 2016, 2017, or 2018.

DECOUPLING. In Oregon, NW Natural has a decoupling mechanism. Decoupling is intended to break the link between earnings and the quantity of gas consumed by customers, removing any financial incentive to discourage customers' efforts to conserve energy.

The Oregon decoupling mechanism was reauthorized and the baseline expected usage per customer was reset in the 2018 Oregon general rate case. This mechanism employs a use-per-customer decoupling calculation, which adjusts margin revenues to account for the difference between actual and expected customer volumes. The margin adjustment resulting from differences between actual and expected volumes under the decoupling component is recorded to a deferral account, which is included in the annual PGA filing. In Washington, customer use is not covered by such a tariff. However, NW Natural's general rate case filed in Washington on December 31, 2018, requests that such a tariff be implemented. See "Regulatory Proceeding Updates—Washington General Rate Case" above.

WARM. In Oregon, NW Natural has an approved weather normalization mechanism, which is applied to residential and commercial customer bills. This mechanism is designed to help stabilize the collection of fixed costs by adjusting residential and commercial customer billings based on temperature variances from average weather, with rate decreases when the weather is colder than average and rate increases when the weather is warmer than average. The mechanism is applied to bills from December through mid-May of each heating season. The mechanism adjusts the margin component of customers' rates to reflect average weather, which uses the 25-year average temperature for each day of the billing period. Daily average temperatures and 25-year average temperatures are based on a set point temperature of 59 degrees Fahrenheit for residential customers and 58 degrees Fahrenheit for commercial customers. The collections of any unbilled WARM amounts due to tariff caps and floors are deferred and earn a carrying charge until collected, or returned, in the PGA the following year. This weather normalization mechanism was reauthorized in the 2012 Oregon general rate case without an expiration date. Residential and commercial customers in Oregon are allowed to opt out of the weather normalization mechanism, and as of December 31, 2018, 8% of eligible customers had opted out. NW Natural does not have a weather normalization mechanism approved for residential and commercial customers in Washington, which account

for about 11% of total customers. See "Business Segments—Natural Gas Distribution" below.

INDUSTRIAL TARIFFS. The OPUC and WUTC have approved tariffs covering NGD service to major industrial customers, which are intended to give NW Natural certainty in the level of gas supplies needed to serve this customer group. The approved terms include, among other things, an annual election period, special pricing provisions for out-of-cycle changes, and a requirement that industrial customers complete the term of their service election under NW Natural's annual PGA tariff.

ENVIRONMENTAL COST DEFERRAL AND SRRM. NW Natural has a SRRM through which it tracks and has the ability to recover past deferred and future prudently incurred environmental remediation costs allocable to Oregon,

subject to an earnings test.

Under the SRRM collection process, there are three types of deferred environmental remediation expense:

Pre-review - This class of costs represents remediation spend that has not yet been deemed prudent by the OPUC.

Carrying costs on these remediation expenses are recorded at NW Natural's authorized cost of capital. NW Natural anticipates the prudence review for annual costs and approval of the earnings test prescribed by the OPUC to occur by the third quarter of the following year.

Post-review - This class of costs represents remediation spend that has been deemed prudent and allowed after applying the earnings test, but is not yet included in amortization. NW Natural earns a carrying cost on these amounts at a rate equal to the five-year treasury rate plus 100 basis points.

Amortization - This class of costs represents amounts included in current customer rates for collection and is generally calculated as one-fifth of the post-review deferred balance. NW Natural earns a carrying cost equal to the amortization rate determined annually by the OPUC, which approximates a short-term borrowing rate. NW Natural included \$6.1 million and \$7.4 million of deferred remediation expense approved by the OPUC for collection during the 2018-19 and 2017-18 PGA years, respectively.

In addition, the SRRM also provides for the annual collection of \$5.0 million from Oregon customers through a tariff rider. As it collects amounts from customers, NW Natural recognizes these collections as revenue and separately amortizes an equal and offsetting amount of the deferred regulatory asset balance through the environmental remediation operating expense line shown separately in the operating expenses section of the Consolidated Statements of Comprehensive Income (Loss). See Note 17 for more information on our environmental matters.

The SRRM earnings test is an annual review of adjusted NGD ROE compared to authorized NGD ROE. For 2018, the first ten months will be weighted at 9.5% and the last two months at 9.4%, reflecting the ROE change from NW Natural's most recent rate case effective November 1, 2018.

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To apply the earnings test NW Natural must first determine what if any costs are subject to the test through the following calculation:

Annual spend

Less: \$5.0 million base rate rider

 Prior year carry-over⁽¹⁾

 \$5.0 million insurance + interest on insurance

Total deferred annual spend subject to earnings test

Less: over-earnings adjustment, if any

Add: deferred interest on annual spend⁽²⁾

Total amount transferred to post-review

⁽¹⁾ Prior year carry-over results when the prior year amount transferred to post-review is negative. The negative amount is carried over to offset annual spend in the following year.

⁽²⁾ Deferred interest is added to annual spend to the extent the spend is recoverable.

To the extent the NGD business earns at or below its authorized ROE, the total amount transferred to post-review is recoverable through the SRRM. To the extent more than authorized ROE is earned in a year, the amount transferred to post-review would be reduced by those earnings that exceed its authorized ROE.

For 2018, NW Natural has performed this test, which is anticipated to be submitted to the OPUC in May 2019, and no earnings test adjustment is expected for 2018.

The WUTC has also previously authorized the deferral of environmental costs, if any, that are appropriately allocated to Washington customers. This Order was effective in January 2011 with cost recovery and carrying charges on amounts deferred for costs associated with services provided to Washington customers to be determined in a future proceeding. Annually, or more often if circumstances warrant, NW Natural reviews all regulatory assets for recoverability. If NW Natural should determine all or a portion of these regulatory assets no longer meet the criteria for continued application of regulatory accounting, then NW Natural would be required to write-off the net unrecoverable balances against earnings in the period such a determination was made.

PENSION COST DEFERRAL AND PENSION BALANCING ACCOUNT. From 2011 through October 2018, the OPUC authorized a regulatory mechanism in which NW Natural deferred annual pension expenses above the amount set in rates, with recovery of these deferred amounts through the implementation of a balancing account, which included the expectation of higher and lower pension expenses in future years. During this period the mechanism permitted for NW Natural to accrue interest on the account balance at the NGD business' authorized rate of return. On October 26, 2018, the OPUC issued an order to freeze NW Natural's pension balancing account as of October 31, 2018. The order directed NW Natural and the other parties to the 2018 Oregon rate case to engage in further regulatory proceedings extending the general rate case docket to resolve open issues with respect to the recovery of the pension balancing account. On February 4, 2019, NW Natural and the other parties to the rate case filed a joint stipulation with the OPUC outlining a resolution to the issue.

See "Regulatory Proceeding Updates-Oregon General Rate Case" above. Pension expense deferrals, excluding interest, were \$10.3 million, \$6.5 million, and \$6.3 million in 2018, 2017 and 2016, respectively.

INTERSTATE STORAGE AND OPTIMIZATION SHARING. On an annual basis, NW Natural credits amounts to Oregon and Washington customers as part of a regulatory incentive sharing mechanism related to net revenues earned from Mist gas storage and asset management activities. Generally, amounts are credited to Oregon customers in June,

while credits are given to customers in Washington as reductions in rates through the annual PGA filing in November.

The following table presents the credits to NGD customers:

In millions	2018	2017	2016
Oregon	\$11.7	\$11.7	\$9.4
Washington	1.0	1.0	1.0

Business Segment - Natural Gas Distribution (NGD)

NGD margin results are primarily affected by customer growth, revenues from rate-base additions, and, to a certain extent, by changes in delivered volumes due to weather and customers' gas usage patterns because a significant portion of NGD margin is derived from natural gas sales to residential and commercial customers. In Oregon, NW Natural has a conservation tariff (also called the decoupling mechanism), which adjusts margin up or down each month through a deferred regulatory accounting adjustment designed to offset changes resulting from increases or decreases in average use by residential and commercial customers. NW Natural also has a weather normalization tariff in Oregon, WARM, which adjusts customer bills up or down to offset changes in margin resulting from above- or below-average temperatures during the winter heating season. Both mechanisms are designed to reduce, but not eliminate, the volatility of customer bills and natural gas distribution earnings. See "Regulatory Matters—Rate Mechanisms" above.

The NGD business is seasonal in nature due to higher gas usage by residential and commercial customers during the cold winter heating months. Other categories of customers experience seasonality in their usage but to a lesser extent. Seasonality affects the comparability of the results of operations of the NGD business across quarters but not across years.

NGD segment highlights include:

Dollars and therms in millions, except EPS data	2018	2017	2016
NGD net income	\$57.5	\$60.5	\$54.6
Adjusted NGD net income ⁽¹⁾	57.5	61.5	56.6
EPS - NGD segment	1.99	2.10	1.96
Adjusted EPS - NGD segment ⁽¹⁾	1.99	2.13	2.03
Gas sold and delivered (in therms)	1,128	1,240	1,085
NGD margin ⁽²⁾	\$383.7	\$392.6	\$376.6

⁽¹⁾ See the Non-GAAP Reconciliations table at the beginning of Item 7 for a reconciliation of this non-GAAP financial measure to its closest U.S. GAAP measure.

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(2) See Natural Gas Distribution Margin Table below for additional detail.

2018 COMPARED TO 2017. NGD net income was \$57.5 million in 2018 compared to \$60.5 million in 2017. NGD net income in 2017 includes a \$1.0 million loss from the remeasurement of deferred income tax balances due to the enactment of the TCJA. Excluding this item, adjusted NGD net income decreased \$4.0 million, or \$0.14 per share. See the NW Holdings non-GAAP reconciliations at the beginning of Item 7 for additional information.

The primary factors contributing to the decrease in adjusted NGD net income were as follows:

- \$8.9 million decrease in natural gas distribution margin primarily due to:
 - a \$7.9 million decrease due to revenues collected and deferred in association with the TCJA; partially offset by a \$4.8 million increase from customer growth; and
 - the majority of the remaining decrease was due to the effects of warmer than average weather in 2018 compared to colder than average weather in 2017, partially offset by higher rates from the 2018 Oregon general rate case effective November 1, 2018.
- a \$6.0 million increase in operations and maintenance expense driven largely from payroll and benefits due to increased headcount, general salary increases, and increased professional services and contract labor expense;
- a \$4.2 million decrease in other income (expense), net, primarily due to increases in pension non-service component costs, partially offset by increases in the equity portion of AFUDC in 2018; and
- a \$4.0 million increase in depreciation expense primarily due to additional capital expenditures; partially offset by a \$20.0 million decrease in income tax expense primarily due to the reduction in the federal statutory tax rate from the TCJA and lower pretax income.

Total natural gas sold and delivered in 2018 decreased 9% over 2017 primarily due to the impact of weather that was 26% warmer than the prior period and 15% warmer than average.

2017 COMPARED TO 2016. NGD net income was \$60.5 million in 2017 compared to \$54.6 million in 2016, which includes the \$1.0 million loss from the remeasurement of deferred income tax balances associated with the TCJA in 2017 and the after-tax \$2.0 million regulatory disallowance in 2016. Excluding these items, adjusted NGD net income increased \$4.9 million, or \$0.10 per share. See the Non-GAAP reconciliations at the beginning of Item 7 for additional information.

The primary factors contributing to this increase in adjusted NGD net income were as follows:

- \$16.0 million increase in NGD margin primarily due to:
 - a \$6.8 million increase from customer growth; partially offset by;
 - a \$2.7 million decrease from gains in gas cost incentive sharing due to actual gas prices being lower than those estimated in the 2016-2017 PGA,

but not by the same magnitude as in the prior period;

- a portion of the remaining increase was due to the effects of colder than average weather in 2017 compared to warmer than average weather in 2016.
- a \$2.2 million increase in other income (expense), net, primarily due to an increase in the equity portion of AFUDC in 2017; partially offset by
- a \$10.4 million increase in operations and maintenance expense driven largely from payroll and benefits due to increased headcount, general salary increases, and increased safety equipment update costs; and
- a \$3.4 million increase in depreciation expense primarily due to additional capital expenditures.

Total natural gas sold and delivered in 2017 increased 14% over 2016 primarily due to the impact of weather that was 48% colder than the prior period and 15% colder than average.

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NATURAL GAS DISTRIBUTION MARGIN TABLE. The following table summarizes the composition of NGD gas volumes, revenues, and cost of sales:

In thousands, except degree day and customer data	2018	2017	2016	Favorable/(Unfavorable)	
				2018 vs. 2017	2017 vs. 2016
NGD volumes (therms):					
Residential and commercial sales	661,163	740,369	609,222	(79,206)	131,147
Industrial sales and transportation	467,040	499,924	475,774	(32,884)	24,150
Total NGD volumes sold and delivered	1,128,203	1,240,293	1,084,996	(112,090)	155,297
NGD operating revenues:					
Residential and commercial sales	\$621,782	\$684,214	\$604,390	\$(62,432)	\$79,824
Industrial sales and transportation	58,713	63,925	59,386	(5,212)	4,539
Other revenues	153	3,872	3,812	(3,719)	60
Less: Revenue taxes ⁽¹⁾	—	19,069	17,111	(19,069)	1,958
Total NGD operating revenues	680,648	732,942	650,477	(52,294)	82,465
Less: Cost of gas	255,743	325,019	260,588	69,276	(64,431)
Less: Environmental remediation expense	11,127	15,291	13,298	4,164	(1,993)
Less: Revenue taxes ⁽¹⁾	30,082	—	—	(30,082)	—
NGD margin	383,696	392,632	376,591	(8,936)	16,041
NGD margin: ⁽²⁾					
Residential and commercial sales	\$352,710	\$355,736	\$338,060	\$(3,026)	\$17,676
Industrial sales and transportation	30,817	31,847	30,989	(1,030)	858
Miscellaneous revenues	5,542	3,865	3,796	1,677	69
Gain from gas cost incentive sharing	(27)	1,237	3,960	(1,264)	(2,723)
Other margin adjustments ⁽³⁾	(5,346)	(53)	(214)	(5,293)	161
NGD margin	\$383,696	\$392,632	\$376,591	\$(8,936)	\$16,041
Degree days ⁽⁴⁾					
Average ⁽⁵⁾	2,714	2,705	2,716	9	(11)
Actual	2,313	3,114	2,098	(26)%	48 %
Percent colder (warmer) than average weather ⁽⁵⁾	(15)%	15 %	(23)%		
NGD Meters - end of period:					
Residential meters	680,134	668,803	656,855	11,331	11,948
Commercial meters	69,259	68,050	67,278	1,209	772
Industrial meters	1,028	1,021	1,013	7	8
Total number of meters	750,421	737,874	725,146	12,547	12,728
NGD Meter growth:					
Residential meters	1.7	% 1.8	%		
Commercial meters	1.8	% 1.1	%		
Industrial meters	0.7	% 0.8	%		
Total meter growth	1.7	% 1.8	%		

The change in presentation of revenue taxes was a result of the adoption of ASU 2014-09 "Revenue From

(1) Contracts with Customers" and all related amendments on January 1, 2018. This change had no impact on NGD margin results. For additional information, see Note 2.

(2) Amounts reported as margin for each category of meters are operating revenues, which are net of revenue taxes, less cost of gas and environmental remediation expense.

(3)

Other margin adjustments include revenue deferrals of \$7.9 million for the year ended December 31, 2018 associated with the decline of the U.S. federal corporate income tax rate.

- (4) Heating degree days are units of measure reflecting temperature-sensitive consumption of natural gas, calculated by subtracting the average of a day's high and low temperatures from 59 degrees Fahrenheit. Average weather represents the 25-year average of heating degree days. Through October 31, 2018, average weather is calculated over the period 1986 - 2010, as determined in NW Natural's 2012 Oregon general rate case, and beginning November 1, 2018, average weather is calculated over the period May 31, 1992 through May 30, 2017, as determined in NW Natural's 2018 Oregon general rate case.

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Residential and Commercial Sales

The primary factors that impact results of operations in the residential and commercial markets are customer growth, seasonal weather patterns, energy prices, competition from other energy sources, and economic conditions in our service areas. The impact of weather on margin is significantly reduced through NW Natural's weather normalization mechanism in Oregon; approximately 81% of NW Natural's total customers are covered under this mechanism. The remaining customers either opt out of the mechanism or are located in Washington, which does not have a similar mechanism in place. For more information on the weather mechanism, see "Regulatory Matters—Rate Mechanisms—Weather Normalization Mechanism" above.

NGD residential and commercial sales highlights include:

In millions	2018	2017	2016
Volumes (therms):			
Residential sales	411.7	465.2	379.2
Commercial sales	249.5	275.2	230.0
Total volumes	661.2	740.4	609.2
Operating revenues:			
Residential sales	\$418.4	\$455.9	\$404.3
Commercial sales	203.3	228.3	200.1
Total operating revenues	\$621.7	\$684.2	\$604.4
NGD margin:			
Residential:			
Sales	\$240.0	\$262.1	\$223.2
Alternative revenues:			
Weather normalization	7.6	(11.9)	12.7
Decoupling	(0.6)	(2.4)	0.8
Amortization of alternative revenue	1.9	—	—
Total residential NGD margin	248.9	247.8	236.7
Commercial:			
Sales	103.7	101.5	87.2
Alternative revenues:			
Weather normalization	2.4	(4.6)	5.0
Decoupling	7.3	11.1	9.2
Amortization of alternative revenue	(9.6)	—	—
Total commercial NGD margin	103.8	108.0	101.4
Total NGD margin	\$352.7	\$355.8	\$338.1

2018 COMPARED TO 2017. The primary factors contributing to changes in the residential and commercial markets were decreases of \$62.5 million in operating revenue and \$3.1 million in NGD margin as a result of sales volume decreases of 79.2 million therms, or 11%, due to warmer than average weather in 2018 compared to colder than average weather in the prior period, partially offset by customer growth.

2017 COMPARED TO 2016. The primary factors contributing to changes in the residential and commercial markets were increases of \$79.8 million in operating revenue and \$17.7

million in natural gas distribution margin as a result of sales volume increases of 131.2 million therms, or 22%, due to customer growth and the effects of colder than average weather in 2017 compared to warmer than average weather in

the prior period.

Industrial Sales and Transportation

Industrial customers have the option of purchasing sales or transportation services. Under the sales service, the customer buys the gas commodity. Under the transportation service, the customer buys the gas commodity directly from a third-party gas marketer or supplier. The NGD gas commodity cost is primarily a pass-through cost to customers; therefore, NGD profit margins are not materially affected by an industrial customer's decision to purchase gas from third parties. Industrial and large commercial customers may also select between firm and interruptible service options, with firm services generally providing higher profit margins compared to interruptible services. To help manage gas supplies, industrial tariffs are designed to provide some certainty regarding industrial customers' volumes by requiring an annual service election which becomes effective November 1, special charges for changes between elections, and in some cases, a minimum or maximum volume requirement before changing options.

NGD industrial sales and transportation highlights include:

In millions	2018	2017	2016
Volumes (therms):			
Industrial - firm sales	35.3	35.7	33.8
Industrial - firm transportation	162.7	167.7	156.9
Industrial - interruptible sales	50.6	55.1	50.4
Industrial - interruptible transportation	218.4	241.4	234.7
Total volumes	467.0	499.9	475.8
NGD margin:			
Industrial - sales and transportation	\$30.8	\$31.8	\$31.0

2018 COMPARED TO 2017. Industrial sales and transportation volumes decreased by 32.9 million therms and NGD margin decreased \$1.0 million due to lower usage from warmer than average weather in 2018 compared to colder than average weather in 2017.

2017 COMPARED TO 2016. Industrial sales and transportation volumes increased by 24.1 million therms and NGD margin increased \$0.8 million due to higher usage from colder than average weather in 2017 compared to warmer than average weather in 2016, and increased usage from higher production load.

Other NGD Revenues

Other NGD revenues include miscellaneous fee income as well as regulatory revenue adjustments, which reflect current period deferrals to and prior year amortizations from regulatory asset and liability accounts, except for gas cost deferrals which flow through cost of gas. Decoupling and other regulatory amortizations from prior year deferrals are included in revenues from residential, commercial, and industrial firm customers.

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Other NGD revenue highlights include:

In millions	2018	2017	2016
Other NGD revenues	\$5.5	\$3.9	\$3.8

Other NGD revenue increased \$1.6 million in 2018 compared to 2017 due to increases in entitlement and curtailment revenue due to system restrictions for certain industrial and commercial customers as a result of a Canadian pipeline event in October 2018 that disrupted gas supply. Other NGD revenues remained flat between 2017 and 2016.

Cost of Gas

Cost of gas as reported by the NGD segment includes gas purchases, gas withdrawn from storage inventory, gains and losses from commodity hedges, pipeline demand costs, seasonal demand cost balancing adjustments, regulatory gas cost deferrals, gas reserves costs, and company gas use. The OPUC and WUTC generally require natural gas commodity costs to be billed to customers at the actual cost incurred, or expected to be incurred. Customer rates are set each year so that if cost estimates were met the NGD business would not earn a profit or incur a loss on gas commodity purchases; however, in Oregon we have the incentive sharing mechanism described under "Regulatory Matters—Rate Mechanisms—Purchased Gas Adjustment" above. In addition to the PGA incentive sharing mechanism, gains and losses from hedge contracts entered into after annual PGA rates are effective for Oregon customers are also required to be shared and therefore may impact net income. Further, NW Natural also has a regulatory agreement whereby it earns a rate of return on its investment in the gas reserves acquired under the original agreement with Encana and includes gas from the amended gas reserves agreement at a fixed rate of \$0.4725 per therm, which are also reflected in NGD margin. See "Application of Critical Accounting Policies and Estimates—Accounting for Derivative Instruments and Hedging Activities" below.

Cost of gas highlights include:

Dollars and therms in millions	2018	2017	2016
Cost of gas	\$255.7	\$325.0	\$260.6
Volumes sold (therms)	747	831	693
Average cost of gas (cents per therm)	\$0.34	\$0.39	\$0.38
Gain from gas cost incentive sharing	—	1.2	4.0

2018 COMPARED TO 2017. Cost of gas decreased \$69.3 million, or 21%, primarily due to the 10% decrease in volumes sold due to warmer than average weather in 2018 compared to colder than average weather in 2017, and lower average cost of gas collected from customers, partially offset by customer growth.

2017 COMPARED TO 2016. Cost of gas increased \$64.4 million, or 25%, primarily due to the 20% increase in volumes sold due to colder than average weather in 2017

compared to warmer than average weather in 2016, and customer growth.

The effect on net income from NW Natural's gas cost incentive sharing mechanism resulted in a slight margin loss in 2018 and margin gains of \$1.2 million and \$4.0 million for 2017 and 2016, respectively. In 2018, actual prices closely aligned with estimated prices included in customer rates. In 2017 and 2016, actual prices were lower than the estimated prices included in customer rates due to warmer than average weather nationally, which resulted in lower national natural gas commodity prices. For a discussion of the gas cost incentive sharing mechanism, see "Regulatory Matters—Rate Mechanisms—Purchased Gas Adjustment" above.

Other

Other activities aggregated and reported as other at NW Natural include the non-NGD storage activity at Mist as well as asset management services and the appliance retail center operations. Other activities aggregated and reported as other at NW Holdings include NWN Energy's equity investment in Trail West Holding, LLC (TWH), which is pursuing the development of a proposed natural gas pipeline through its wholly-owned subsidiary, Trail West Pipeline, LLC (TWP); NNG Financial's investment in Kelso-Beaver Pipeline (KB Pipeline); and NWN Water, which owns and continues to pursue investments in the water sector. See Note 4 for further discussion of our business segment and other, as well as our direct and indirect wholly-owned subsidiaries, and Note 13 for further details on our investment in TWH.

At Mist, NW Natural provides gas storage services to customers in the interstate and intrastate markets using storage capacity that has been developed in advance of NGD customers' requirements. Pre-tax income from gas storage at Mist and asset management services is subject to revenue sharing with NGD customers.

Under this regulatory incentive sharing mechanism, NW Natural retains 80% of pre-tax income from Mist gas storage services and asset management services when the underlying costs of the capacity being used are not included in NGD business rates. The remaining 20% is credited to a deferred regulatory account for credit to NGD customers.

Through October 2018, when the capacity used was included in NGD rates, NW Natural retained 33% of pre-tax income with the remaining 67% credited to a deferred regulatory account for credit to NGD customers. In conjunction with the Oregon rate case, effective November 2018 NW Natural retains 10% of pre-tax income from such storage and asset management services and 90% is credited to NGD business customers. See "Regulatory Matters-Regulatory Proceeding Updates" above for information regarding an open docket related to this incentive sharing mechanism.

The following table presents the results of activities aggregated and reported as other for both NW Holdings and NW Natural:

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In millions, except EPS data	2018	2017	2016
NW Natural other - net income	\$10.6	\$11.2	\$8.3
Other NW Holdings activity	(0.8)	0.4	(0.4)
NW Holdings other - net income	9.8	11.6	7.9
EPS - NW Holdings - other	0.34	0.41	0.29

The significant drivers of changes in other net income discussed below apply to both NW Holdings and NW Natural.

2018 COMPARED TO 2017. Other net income decreased compared to the prior period primarily due to \$4.2 million in higher income tax expense driven by \$4.4 million in income tax benefits recognized in 2017 from the enactment of the TCJA, partially offset by a \$2.8 million increase in revenues from asset management agreements for Mist storage and transportation capacity.

2017 COMPARED TO 2016. Other net income increased primarily due to a gain associated with the TCJA deferred taxes remeasurement, partially offset by a decrease in revenues from asset management agreements for Mist storage and transportation capacity.

Consolidated Operations

Operations and Maintenance

Operations and maintenance highlights include:

In millions	2018	2017	2016
NW Natural	\$155.2	\$152.2	\$136.0
Other NW Holdings operations and maintenance	1.5	0.2	0.7
NW Holdings	\$156.7	\$152.4	\$136.7

The significant drivers of changes in operations and maintenance expenses discussed below apply to both NW Holdings and NW Natural.

2018 COMPARED TO 2017. Operations and maintenance expense increased \$4.3 million and \$3.0 million for NW Holdings and NW Natural, respectively, primarily due to the following factors:

- \$3.4 million increase in NGD payroll and benefits due to increased headcount and general salary increases; and
- \$3.2 million increase in NGD non-payroll costs primarily due to increases in general professional services and contract labor.

2017 COMPARED TO 2016. Operations and maintenance expense increased \$15.7 million and \$16.2 million for NW Holdings and NW Natural, respectively, primarily due to the following factors:

- \$7.3 million increase in NGD payroll and benefits due to increased headcount and general salary increases; and
- \$1.0 million increase in safety equipment upgrade costs.

Delinquent customer receivable balances continue to remain at historically low levels. Bad debt expense as a percent of revenues was 0.1% for 2018, 2017, and 2016.

Depreciation and Amortization

Depreciation and amortization highlights include:

In millions	2018	2017	2016
NW Natural	\$85.0	\$81.0	\$77.6
Other NW Holdings depreciation and amortization	0.2	0.1	—
NW Holdings	\$85.2	\$81.1	\$77.6

The significant drivers of changes in depreciation and amortization discussed below apply to both NW Holdings and NW Natural.

2018 COMPARED TO 2017. Depreciation and amortization expense increased by \$4.1 million and \$4.0 million for NW Holdings and NW Natural, respectively, primarily due to NGD plant additions that included investments in natural gas transmission and distribution systems supporting customer growth, safety, reliability, facility upgrades, and enhanced technology.

2017 COMPARED TO 2016. Depreciation and amortization expense increased by \$3.5 million and \$3.4 million for NW Holdings and NW Natural, respectively, primarily due to NGD plant additions that included investments in natural gas transmission and distribution systems, storage facilities, and technology.

Other Income (Expense), Net

Other income (expense), net highlights include:

In millions	2018	2017	2016
Pension and other postretirement costs other than service costs	\$(9.1)	\$(6.1)	\$(7.0)
Equity portion of AFUDC	4.1	2.7	—
Gains from company-owned life insurance	1.7	2.5	1.7
Net interest income (expense) on deferred regulatory accounts	1.7	2.0	(0.1)
Other non-operating	(2.0)	(1.3)	(1.6)
NW Natural total other income (expense), net	\$(3.6)	\$(0.2)	\$(7.0)
Other NW Holdings activity	—	(0.1)	(0.2)
NW Holdings total other income (expense), net	\$(3.6)	\$(0.3)	\$(7.2)

The significant drivers of changes in Other income (expense) discussed below apply to both NW Holdings and NW Natural.

2018 COMPARED TO 2017. Other income (expense), net, decreased \$3.3 million and \$3.4 million at NW Holdings and NW Natural, respectively, primarily due to a \$3.0 million increase in pension and other postretirement non-service costs and \$0.8 million lower gains from company-owned life insurance, partially offset by a \$1.4 million increase in the equity portion of AFUDC.

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2017 COMPARED TO 2016. Other income (expense), net, increased \$6.9 million and \$6.8 million at NW Holdings and NW Natural, respectively, primarily due to the January 2016 Order from the OPUC, which resulted in a pre-tax \$2.8 million interest disallowance in 2016, an increase of \$2.7 million in the equity portion of AFUDC, and \$0.8 million in higher gains from company-owned life insurance.

In addition to fluctuations in other income (expense), net reported above, from 2011 through October 31, 2018, NW Natural had OPUC approval to defer certain pension costs in excess of what was recovered in customer rates, with the majority of such costs being non-service component costs reflected within other income (expense), net. This pension cost deferral was recorded to a regulatory balancing account, which stabilized the amount of other income (expense), net each year. Total pension cost deferrals, excluding interest, were \$10.3 million, \$6.5 million, and \$6.3 million for the years ended December 31, 2018, 2017 and 2016, respectively. As a result, increased pension costs had a minimal effect on other income (expense), net in 2018, 2017, and 2016, with the increase principally related to the costs allocated to NW Natural's Washington operations, which were not covered by the pension balancing account.

On October 26, 2018, the OPUC issued an order to freeze NW Natural's pension balancing account as of October 31, 2018. The order directed NW Natural and the other parties to the rate case to engage in further regulatory proceedings extending the general rate case docket to resolve open issues with respect to the recovery of the pension balancing account. On February 4, 2019, NW Natural and the other parties to the rate case filed a joint stipulation with the OPUC outlining a resolution to the issue. See Note 9 and "Regulatory Matters—Regulatory Proceeding Updates— Oregon General Rate Case".

Interest Expense, Net

Interest expense, net highlights include:

In millions	2018	2017	2016
NW Natural	\$37.0	\$37.5	\$38.1
Other NW Holdings interest expense	0.1	—	—
NW Holdings	\$37.1	\$37.5	\$38.1

The significant drivers of changes in interest expense, net discussed below apply to both NW Holdings and NW Natural.

2018 COMPARED TO 2017. Interest expense, net of amounts capitalized decreased \$0.4 million and \$0.5 million at NW Holdings and NW Natural, respectively, primarily due to a \$2.3 million increase in the interest-related portion of AFUDC, partially offset by increased commercial paper interest expenses of \$1.6 million.

2017 COMPARED TO 2016. Interest expense, net of amounts capitalized, decreased \$0.6 million at both NW Holdings and NW Natural primarily due to a \$2.1 million increase in the interest-related portion of AFUDC, partially offset by increased interest expense of \$1.5 million due to the issuance of long-term debt in December 2016 and August 2017.

Income Tax Expense

NW Holdings income tax expense highlights include:

In millions	2018	2017	2016
Income tax expense	\$24.2	\$41.0	\$43.0

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Effects of non-GAAP adjustments ⁽¹⁾	—	—	1.3
Effects from the TCJA ⁽¹⁾	—	3.4	—
Adjusted income tax expense	\$24.2	\$44.4	\$44.3

Effective tax rate	26.4 %	36.3 %	40.8 %
Adjusted effective tax rate	26.4 %	39.3 %	40.8 %

⁽¹⁾ See the Non-GAAP Reconciliations table at the beginning of Item 7 for a reconciliation of this non-GAAP financial measure to its closest U.S.GAAP measure.

NW Natural income tax expense highlights include:

In millions	2018	2017	2016
Income tax expense	\$24.5	\$41.5	\$43.3
Effects of non-GAAP adjustments ⁽¹⁾	—	—	1.3
Effects from the TCJA ⁽¹⁾	—	3.0	—
Adjusted income tax expense	\$24.5	\$44.5	\$44.6

Effective tax rate	26.4 %	36.6 %	40.8 %
Adjusted effective tax rate	26.4 %	39.3 %	40.8 %

⁽¹⁾ See the Non-GAAP Reconciliations table at the beginning of Item 7 for a reconciliation of this non-GAAP financial measure to its closest U.S.GAAP measure.

The significant drivers of changes in Income tax expense discussed below apply to both NW Holdings and NW Natural.

2018 COMPARED TO 2017. The effective tax rate decreased by 9.9% and 10.2% at NW Holdings and NW Natural, respectively, primarily due to a decline in the statutory income tax rate from 39.5% to 26.5% as a result of the TCJA enactment in 2017. Income tax expense decreased due to the TCJA and lower pre-tax income, partially offset by a benefit of \$3.4 million recognized in 2017 at NW Holdings and a benefit of \$3.0 million recognized in 2017 at NW Natural from the remeasurement of deferred tax balances upon the TCJA enactment date. Excluding the impact of the 2017 remeasurement benefits of \$3.4 million and \$3.0 million at NW Holdings and NW Natural, respectively, the adjusted effective tax rate decreased 12.9% at both NW Holdings and NW Natural due to the statutory tax rate declining from the TCJA. See the Non-GAAP reconciliations at the beginning of Item 7 for additional information.

2017 COMPARED TO 2016. The effective tax rate decreased by 4.5% and 4.2% at NW Holdings and NW Natural,

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respectively. Excluding the tax benefits associated with the TCJA enactment in 2017 of \$3.4 million and \$3.0 million at NW Holdings and NW Natural, respectively, and the \$1.3 million tax effects of non-GAAP adjustments in 2016 at both NW Holdings and NW Natural, the adjusted effective tax rate decreased 1.5% at both NW Holdings and NW Natural. See the Non-GAAP reconciliations at the beginning of Item 7 for additional information. The adjusted effective tax rate decreased primarily as a result of AFUDC equity income and increased stock-based compensation deductions in 2017.

Pending Sale of Gill Ranch Storage

On June 20, 2018, NWN Gas Storage, a wholly owned subsidiary of NW Holdings, entered into a Purchase and Sale Agreement (the Sale Agreement) that provides for the sale by NWN Gas Storage of all of its membership interests in Gill Ranch. Gill Ranch owns a 75% interest in the natural gas storage facility located near Fresno, California known as the Gill Ranch Gas Storage Facility. PG&E owns the remaining 25% interest in the Gill Ranch Facility.

In the Sale Agreement, NWN Gas Storage makes representations and warranties concerning, among other things, Gill Ranch, the Gill Ranch Facility and Gill Ranch's business and contractual relationships, and agrees to cause Gill Ranch to conduct its business and maintain its properties in the ordinary course, consistent with material agreements and past practice.

The Sale Agreement provides for an initial cash purchase price of \$25.0 million (subject to a working capital adjustment), plus potential additional payments to NWN Gas Storage of up to \$26.5 million in the aggregate if Gill Ranch achieves certain economic performance levels for the first three full gas storage years (April 1 of one year through March 31 of the following year) occurring after the closing and the remaining portion of the gas storage year during which the closing occurs.

The closing of the transaction is subject to approval by the CPUC, other customary closing conditions and covenants, including the requirement that all of the representations and warranties be true and correct as of the closing date except, as would not, in the case of certain representations and warranties, be reasonably expected to have a material adverse effect on Gill Ranch. The agreement is subject to termination by either party if the transaction has not closed by June 20, 2019, subject to automatic extension for six months if the CPUC has not issued an order approving the transaction by that date.

In July 2018, Gill Ranch filed an application with the CPUC for approval of this transaction. On February 14, 2019, the active parties to the CPUC proceeding filed a settlement agreement with the CPUC. The CPUC is expected to rule on the settlement agreement within 90 days of its filing, but may grant further time for public comment. We expect an order on this matter by the end of June.

On January 29, 2019, PG&E filed voluntary petitions for relief under chapter 11 bankruptcy. Although we do not currently anticipate that the PG&E filing will affect the sale of Gill Ranch, we cannot fully predict the course of the bankruptcy proceedings or the impact on the sale and will

continue to monitor the situation closely. We will continue to seek to close the transaction in the first half of 2019. The results of Gill Ranch Storage have been determined to be discontinued operations and are presented separately, net of tax, from the results of continuing operations of NW Holdings for all periods presented. See Note 18 for more information on the Sale Agreement and the results of our discontinued operations.

The CPUC regulates Gill Ranch under a market-based rate model which allows for the price of storage services to be set by the marketplace. The CPUC also regulates the issuance of securities, system of accounts, and regulates intrastate storage services. The California Department of Oil Gas and Geothermal Resources (DOGGR) regulations for gas storage wells were finalized in June 2018, and the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) proposed new federal regulations for underground natural gas storage facilities, which are expected to be finalized during 2019 and increase costs for all storage providers. NW Holdings

will continue to monitor and assess the new regulations until the sale is complete, which is expected in 2019. Short-term liquidity for Gill Ranch is supported by cash balances, internal cash flow from operations, equity contributions from its parent company, and, if necessary, additional external financing.

FINANCIAL CONDITION

Capital Structure

One of our long-term goals is to maintain a strong and balanced consolidated capital structure, while maintaining a long-term target capital structure at NW Natural of 50% common stock and 50% long-term debt to align to allocations prescribed by NW Natural's regulators. When additional capital is required, debt or equity securities are issued depending on both the target capital structure and market conditions. These sources of capital are also used to fund long-term debt retirements and short-term commercial paper maturities. See "Liquidity and Capital Resources" below and Note 8.

Achieving our target capital structure and maintaining sufficient liquidity to meet operating requirements are necessary to maintain attractive credit ratings and provide access to capital markets at reasonable costs.

NW Holdings' consolidated capital structure was as follows:

	December 31,	
	2018	2017
Common stock equity	44.4 %	47.1 %
Long-term debt	41.1	43.3
Short-term debt, including current maturities of long-term debt	14.5	9.6
Total	100.0%	100.0%

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NW Natural's consolidated capital structure was as follows:

	December 31,	
	2018	2017
Common stock equity	42.9 %	47.1 %
Long-term debt	42.2	43.3
Short-term debt, including current maturities of long-term debt	14.9	9.6
Total	100.0%	100.0%

During 2018, changes to NW Holdings' and NW Natural's capital structures were primarily due to increases in short term debt at NW Natural partially offset by lower net proceeds from long-term debt activity at NW Natural. See further discussion below in "Cash Flows — Financing Activities".

Liquidity and Capital Resources

At December 31, 2018 and December 31, 2017, NW Holdings had approximately \$12.6 million and \$3.5 million, and NW Natural had approximately \$7.9 million and \$3.1 million of cash and cash equivalents, respectively. In order to maintain sufficient liquidity during periods when capital markets are volatile, NW Holdings and NW Natural may elect to maintain higher cash balances and add short term borrowing capacity. NW Holdings and NW Natural may also pre-fund their respective capital expenditures when long-term fixed rate environments are attractive.

NW Holdings

For NW Holdings, short-term liquidity is primarily provided by cash balances, dividends from its operating subsidiaries, in particular NW Natural, available cash from a multi-year credit facility, and short-term credit facilities. NW Holdings also has a universal shelf registration statement filed with the SEC for the issuance of debt and equity securities. NW Holdings long-term debt, if any, and equity issuances are primarily used to provide equity contributions to NW Holdings' operating subsidiaries for operating and capital expenditures and other corporate purposes. NW Holdings' issuance of securities is not subject to regulation by state public utility commissions, but the dividends from NW Natural to NW Holdings are subject to regulatory ring-fencing provisions.

As part of the ring-fencing conditions agreed upon with the OPUC and WUTC in connection with the holding company reorganization, NW Natural may not pay dividends or make distributions to NW Holdings if NW Natural's credit ratings and common equity ratio fall below specified levels. If NW Natural's long term secured credit ratings are below A- for S&P and A3 for Moody's, dividends may be issued so long as NW Natural's common equity ratio is 45% or more. If NW Natural's long term secured credit ratings are below BBB for S&P and Baa2 for Moody's, dividends may be issued so long as NW Natural's common equity ratio is 46% or more. Dividends may not be issued if NW Natural's long-term secured credit ratings are BB+ or below for S&P or Ba1 or below for Moody's, or if NW Natural's common equity ratio is below 44%. In each case, common equity ratios are determined based on a preceding or projected 13-month average. In addition, there are certain OPUC notice

requirements for dividends in excess of 5% of NW Natural's retained earnings.

Additionally, if NW Natural's common equity (excluding goodwill and equity associated with non-regulated assets), on a preceding or projected 13-month average basis, is less than 46% of NW Natural's capital structure (common equity and long-term debt excluding imputed debt or debt-like lease obligations), NW Natural is required to notify the OPUC, and if the common equity ratio falls below 44%, file a plan with the OPUC to restore its equity ratio to 44%. This condition is designed to ensure NW Natural continues to be adequately capitalized under the holding company structure. Under the WUTC order, the average common equity ratio must not exceed 56%.

At December 31, 2018, NW Natural satisfied the ring-fencing provisions described above.

NW HOLDINGS DIVIDEND POLICY. Quarterly dividends have been paid on common stock each year since NW Holdings' predecessor's stock was first issued to the public in 1951. Annual common stock dividend payments per share, adjusted for stock splits, have increased each year since 1956. The declarations and amount of future dividends to shareholders will depend upon earnings, cash flows, financial condition, NW Natural's ability to pay dividends to NW Holdings and other factors. The amount and timing of dividends payable on common stock is at the sole discretion of the NW Holdings Board of Directors.

Based on several factors, including current cash reserves, committed credit facilities, its ability to receive dividends from its operating subsidiaries, in particular NW Natural, and an expected ability to issue long-term debt and equity securities in the capital markets, NW Holdings believes its liquidity is sufficient to meet anticipated near-term cash requirements, including all contractual obligations, investing, and financing activities as discussed in "Contractual Obligations and Cash Flows" below.

Natural Gas Distribution Segment

For the NGD business segment, short-term borrowing requirements typically peak during colder winter months when the NGD business borrows money to cover the lag between natural gas purchases and bill collections from customers. Short-term liquidity for the NGD business is primarily provided by cash balances, internal cash flow from operations, proceeds from the sale of commercial paper notes, as well as available cash from multi-year credit facilities, short-term credit facilities, company-owned life insurance policies, the sale of long-term debt, and equity contributions from NW Holdings. NW Natural's long-term debt and contributions from NW Holdings are primarily used to finance NGD capital expenditures, refinance maturing debt, and provide temporary funding for other general corporate purposes of the NGD business.

Based on NW Natural's current debt ratings (see "Credit Ratings" below), it has been able to issue commercial paper and long-term debt at attractive rates and has not needed to borrow or issue letters of credit from its back-up credit facility. In the event NW Natural is not able to issue new debt due to adverse market conditions or other reasons, NW Natural expects that near-term liquidity needs can be met

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using internal cash flows, issuing commercial paper, receiving equity contributions from NW Holdings, or, for the NGD segment, drawing upon a committed credit facility. NW Natural also has a universal shelf registration statement filed with the SEC for the issuance of secured and unsecured debt securities. As of December 31, 2018, NW Natural has Board authorization to issue up to \$325 million of additional FMBs and OPUC approval to issue up to \$25 million of additional long-term debt for approved purposes.

In the event senior unsecured long-term debt ratings are downgraded, or outstanding derivative positions exceed a certain credit threshold, counterparties under derivative contracts could require NW Natural to post cash, a letter of credit, or other forms of collateral, which could expose NW Natural to additional cash requirements and may trigger increases in short-term borrowings while in a net loss position. NW Natural was not required to post collateral at December 31, 2018. However, if the credit risk-related contingent features underlying these contracts were triggered on December 31, 2018, assuming long-term debt ratings dropped to non-investment grade levels, NW Natural could have been required to post \$4.5 million in collateral with our counterparties. See "Credit Ratings" below and Note 15.

Other items that may have a significant impact on NW Natural's liquidity and capital resources include NW Natural's pension contribution requirements and environmental expenditures.

PENSION CONTRIBUTION. NW Natural expects to make contributions to its company-sponsored defined benefit plan, which is closed to new employees, over the next several years until the plan is fully funded under the Pension Protection Act rules, including the rules issued under the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Highway and Transportation Funding Act of 2014 (HATFA). See "Application of Critical Accounting Policies—Accounting for Pensions and Postretirement Benefits" below.

BONUS DEPRECIATION. Fifty percent bonus depreciation was available for a large portion of our capital expenditures in 2016 and 2017 for both federal and Oregon taxes. This reduced taxable income and provided cash flow benefits. However, due to the enactment of the TCJA on December 22, 2017, bonus depreciation is eliminated for regulated NGD-business property acquired after December 31, 2017. Accordingly, we do not anticipate similar cash flow benefits related to bonus depreciation in the future.

ENVIRONMENTAL EXPENDITURES. NW Natural expects to continue using cash resources to fund environmental liabilities. In 2015, NW Natural received an Order from the OPUC regarding the SRRM mechanism and began recovering amounts through NGD business rates in November 2015. In addition, the OPUC issued a subsequent Order regarding SRRM implementation in

January 2016. See Note 17, and "Results of Operations—Regulatory Matters—Environmental Costs" above.

Based on several factors, including current credit ratings, NW Natural's commercial paper program, current cash reserves, committed credit facilities, and an expected ability to issue long-term debt and receive equity contributions from NW Holdings, NW Natural believes its liquidity is sufficient to meet anticipated near-term cash requirements, including all contractual obligations, investing, and financing activities as discussed in "Contractual Obligations" and "Cash Flows" below.

NW NATURAL DIVIDEND POLICY. The declarations and amount of future dividends to NW Holdings will depend upon earnings, cash flows, financial condition, the satisfaction of OPUC and WUTC regulatory ring-fencing restrictions, and other factors. The amount and timing of dividends payable on common stock is subject to approval of the NW Natural Board of Directors.

OFF-BALANCE SHEET ARRANGEMENTS. Except for certain lease and purchase commitments, NW Holdings and NW Natural have no material off-balance sheet financing arrangements. See "Contractual Obligations" below.

In October 2017, NW Natural entered into a 20-year operating lease agreement for a new headquarters location in Portland, Oregon. The existing headquarters lease expires in 2020 and after an extensive search and evaluation process with a focus on seismic preparedness, safety, reliability, least cost to customers and a continued commitment to NW Natural's employees and the communities NW Natural serves, NW Natural executed a new lease for suitable commercial office space in Portland, Oregon. Payments under the lease are expected to commence in 2020 and total estimated base rent payments over the life of the lease are approximately \$160 million. NW Natural has the option to extend the term of the lease for two additional seven-year periods.

Additionally, the lease was analyzed in consideration of build-to-suit lease accounting guidance with the conclusion that NW Natural is the accounting owner of the asset during construction. As a result, NW Natural recognized \$25.5 million and \$0.5 million during 2018 and 2017, respectively, in property, plant and equipment and an obligation in other non-current liabilities for the same amount on its consolidated balance sheet. These accounting transactions are non-cash in nature, and as such, are not included in the cash flow analysis and capital expenditures forecasts below, and have no impact on short-term liquidity. When the new lease accounting standard became effective for NW Holdings and NW Natural in 2019, the associated build-to-suit asset and liability were de-recognized in accordance with the new standard. See Note 2 for more information on the impacts of the new lease standard.

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Contractual Obligations

The following table shows contractual obligations from continuing operations at December 31, 2018 by maturity and type of obligation:

In millions	Payments Due in Years Ending						Total
	December 31, 2019	2020	2021	2022	2023	Thereafter	
NW Natural							
Short-term debt maturities	\$217.5	\$—	\$—	\$—	\$—	\$—	\$217.5
Long-term debt maturities	30.0	75.0	60.0	—	90.0	484.7	739.7
Interest on long-term debt	36.7	31.0	29.9	28.2	27.3	275.8	428.9
Postretirement benefit payments ⁽¹⁾	25.1	26.1	27.0	27.8	28.7	159.4	294.1
Operating leases	5.4	4.8	7.1	7.2	7.3	149.9	181.7
Gas purchases ⁽²⁾	144.5	2.8	2.3	—	—	—	149.6
Gas pipeline capacity commitments	82.7	80.2	66.7	61.1	60.6	580.0	931.3
Other purchase commitments ⁽³⁾	—	2.1	0.6	0.1	—	—	2.8
Other long-term liabilities ⁽⁴⁾	17.3	—	—	—	—	—	17.3
NW Natural Total	559.2	222.0	193.6	124.4	213.9	1,649.8	2,962.9
NW Holdings							
Short- and long-term obligations ⁽⁵⁾	0.4	0.3	0.3	0.3	0.3	1.4	3.0
NW Holdings Total	\$559.6	\$222.3	\$193.9	\$124.7	\$214.2	\$1,651.2	\$2,965.9

Postretirement benefit payments primarily consists of two NW Natural items: (1) estimated pension and other postretirement plan payments, which are funded by plan assets and future cash contributions, and (2) required payments to the Western States multiemployer pension plan due to our withdrawal from the plan in December 2013. See Note 9.

Gas purchases include contracts which use price formulas tied to monthly index prices. The commitment amounts presented incorporate the December 2018 first of month index price for each supply basin from which gas is purchased. For a summary of gas purchase and gas pipeline capacity commitments, see Note 16.

Other purchase commitments primarily consist of remaining balances under existing purchase orders.

Other long-term liabilities includes accrued vacation liabilities for management employees and deferred

compensation plan liabilities for executives and directors. The timing of these payments are uncertain; however, these payments are unlikely to all occur in the next 12 months.

Short- and long-term obligations include short- and long-term debt obligations and other immaterial liabilities.

In addition to known contractual obligations listed in the above table, NW Natural has also recognized liabilities for future environmental remediation or action. The exact timing of payments beyond 12 months with respect to those liabilities cannot be reasonably estimated due to numerous uncertainties surrounding the course of environmental remediation and the preliminary nature of site investigations. See Note 17 for a further discussion of environmental remediation cost liabilities.

At December 31, 2018, 635 of NW Natural's natural gas distribution employees were members of the Office and Professional Employees International Union (OPEIU) Local No. 11. In May 2014, our union employees ratified a new labor agreement (Joint Accord) that expires on November 30, 2019, and thereafter from year to year unless either party serves notice of its intent to negotiate modifications to the collective bargaining agreement. The remaining terms of Joint Accord include the following items: a scheduled 3% wage increase effective December 1 each year with the

potential for up to an additional 3% per year based on wage inflation at or above 4%. The Joint Accord also maintains competitive health benefits, including a 15% to 20% premium cost sharing by employees, a 401(k) contribution of 4% for employees hired after our pension plan was closed on December 31, 2009, and a 401(k) match of 50% of the first 6% of savings, and other flexibility provisions benefiting the Company.

Short-Term Debt

The primary source of short-term liquidity for NW Holdings is cash balances, dividends from its operating subsidiaries, in particular NW Natural, available cash from a multi-year credit facility, and short-term credit facilities it may enter into from time to time.

The primary source of short-term liquidity for NW Natural is from the sale of commercial paper and bank loans. NW Holdings and NW Natural have separate commercial paper programs and separate bank facilities. In addition to issuing commercial paper or bank loans to meet working capital requirements, including seasonal requirements to finance gas purchases and accounts receivable, short-term debt may also be used to temporarily fund capital requirements. For NW Natural, commercial paper and bank loans are periodically refinanced through the sale of long-term debt or equity contributions from NW Holdings. Commercial paper, when outstanding, is sold through two commercial banks under an issuing and paying agency agreement and is supported by one or more unsecured revolving credit facilities. See "Credit Agreements" below.

At December 31, 2018 and 2017, NW Holdings had short-term debt outstanding of \$217.6 million and \$54.2 million, respectively, and NW Natural had short-term debt outstanding of \$217.5 million and \$54.2 million, respectively. The weighted average interest rate on commercial paper

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outstanding at December 31, 2018 and 2017 was 3.0% and 1.9%, respectively.

Credit Agreements

NW Holdings

In October 2018, NW Holdings entered into a \$100 million credit agreement, with a feature that allows it to request increases in the total commitment amount, up to a maximum of \$150 million. The maturity date of the agreement is October 2, 2023, with available extension of commitments for two additional one-year periods, subject to lender approval.

All lenders under the NW Holdings credit agreement are major financial institutions with committed balances and investment grade credit ratings as of December 31, 2018 as follows:

In millions

Lender rating, by category	Loan Commitment
AA/Aa	\$ 100
A/A1	—
Total	\$ 100

Based on credit market conditions, it is possible one or more lending commitments could be unavailable to NW Holdings if the lender defaulted due to lack of funds or insolvency; however, NW Holdings does not believe this risk to be imminent due to the lenders' strong investment-grade credit ratings.

The NW Holdings credit agreement permits the issuance of letters of credit in an aggregate amount of up to \$40 million. The principal amount of borrowings under the credit agreement is due and payable on the maturity date. The credit agreement requires NW Holdings to maintain a consolidated indebtedness to total capitalization ratio of 70% or less. Failure to comply with this covenant would entitle the lenders to terminate their lending commitments and accelerate the maturity of all amounts outstanding. NW Holdings was in compliance with this covenant at December 31, 2018, with a consolidated indebtedness to total capitalization ratio of 55.6%.

The agreement also requires NW Holdings to maintain debt ratings (which are defined by a formula using NW Natural's credit ratings in the event NW Holdings does not have a credit rating) with Standard & Poor's (S&P) and Moody's Investors Service, Inc. (Moody's) and notify the lenders of any change in its senior unsecured debt ratings or senior secured debt ratings, as applicable, by such rating agencies. A change in NW Holdings' debt ratings by S&P or Moody's is not an event of default, nor is the maintenance of a specific minimum level of debt rating a condition of drawing upon the credit agreement. Rather, interest rates on any loans outstanding under the credit agreements are tied to debt ratings and therefore, a change in the debt rating would increase or decrease the cost of any loans under the credit agreements when ratings are changed. NW Holdings does not currently maintain ratings with S&P or Moody's.

NW Holdings had \$2.8 million of letters of credit issued and outstanding, separate from the aforementioned credit agreement, at December 31, 2018.

NW Natural

In October 2018, NW Natural entered into a new multi-year credit agreement for unsecured revolving loans totaling \$300 million, with a feature that allows NW Natural to request increases in the total commitment amount, up to a

maximum of \$450 million. The maturity date of the agreement is October 2, 2023 with an available extension of commitments for two additional one-year periods, subject to lender approval. NW Natural concurrently terminated its prior credit agreement upon the closing of the new agreement.

All lenders under the NW Natural credit agreement are major financial institutions with committed balances and investment grade credit ratings as of December 31, 2018 as follows:

In millions

Lender rating, by category	Loan Commitment
AA/Aa	\$ 300
A/A1	—
Total	\$ 300

Based on credit market conditions, it is possible one or more lending commitments could be unavailable to NW Natural if the lender defaulted due to lack of funds or insolvency; however, NW Natural does not believe this risk to be imminent due to the lenders' strong investment-grade credit ratings.

The NW Natural credit agreement permits the issuance of letters of credit in an aggregate amount of up to \$60 million. The principal amount of borrowings under the credit agreement is due and payable on the maturity date. There were no outstanding balances under this credit agreement or the prior credit agreement at December 31, 2018 or 2017. The credit agreement requires NW Natural to maintain a consolidated indebtedness to total capitalization ratio of 70% or less. Failure to comply with this covenant would entitle the lenders to terminate their lending commitments and accelerate the maturity of all amounts outstanding. NW Natural was in compliance with this covenant at December 31, 2018 and 2017, with consolidated indebtedness to total capitalization ratios of 57.1% and 52.9%, respectively.

The agreement also requires NW Natural to maintain credit ratings with S&P and Moody's and notify the lenders of any change in NW Natural's senior unsecured debt ratings or senior secured debt ratings, as applicable, by such rating agencies. A change in NW Natural's debt ratings by S&P or Moody's is not an event of default, nor is the maintenance of a specific minimum level of debt rating a condition of drawing upon the credit agreement. Rather, interest rates on any loans outstanding under the agreement are tied to debt ratings and therefore, a change in the debt rating would increase or decrease the cost of any loans under the credit agreement when ratings are changed. See "Credit Ratings" below.

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Credit Ratings

NW Holdings does not currently maintain ratings with S&P or Moody's. NW Natural's credit ratings are a factor of liquidity, potentially affecting access to the capital markets including the commercial paper market. NW Natural's credit ratings also have an impact on the cost of funds and the need to post collateral under derivative contracts. The following table summarizes NW Natural's current credit ratings:

	S&P	Moody's
Commercial paper (short-term debt)	A-1	P-2
Senior secured (long-term debt)	AA-	A1
Senior unsecured (long-term debt)	n/a	A3
Corporate credit rating	A+	n/a
Ratings outlook	Stable	Negative

The above credit ratings and ratings outlook are dependent upon a number of factors, both qualitative and quantitative, and are subject to change at any time. The disclosure of or reference to these credit ratings is not a recommendation to buy, sell or hold NW Holdings or NW Natural securities. Each rating should be evaluated independently of any other rating.

As part of the ring-fencing conditions agreed upon with the OPUC and WUTC in connection with the holding company reorganization, NW Holdings and NW Natural are required to maintain separate credit ratings, long-term debt ratings, and preferred stock ratings, if any.

Long-Term Debt

The following NW Natural debentures were retired in the periods indicated:

In millions	Years Ended		
	December 31,		
	2018	2017	2016
NW Natural First Mortgage Bonds			
Series 5.15% due 2016	\$—	\$—	\$ 25
Series 7.00% due 2017	—	40	—
Series 6.60% due 2018	22	—	—
Series 1.55% due 2018	75	—	—
Total	\$97	\$ 40	\$ 25

Bankruptcy Ring-fencing Restrictions

As part of the ring-fencing conditions agreed upon with the OPUC and WUTC in connection with the holding company reorganization, NW Natural is required to have one director who is independent from NW Natural management and from NW Holdings and to issue one share of NW Natural preferred stock to an independent third party. NW Natural was in compliance with both of these ring-fencing provisions as of December 31, 2018. NW Natural may file a voluntary petition for bankruptcy only if approved unanimously by the Board of Directors of NW Natural, including the independent director, and by the holder of the preferred share.

Cash Flows

Operating Activities

Changes in our operating cash flows are primarily affected by net income or loss, changes in working capital requirements, and other cash and non-cash adjustments to operating results.

Operating activity highlights include:

NW Holdings

In millions	2018	2017	2016
Cash provided by operating activities	\$168.8	\$206.7	\$222.1

NW Natural

In millions	2018	2017	2016
Cash provided by operating activities	\$173.5	\$206.5	\$222.2

The significant drivers of changes in cash provided by operating activities discussed below apply to both NW Holdings and NW Natural.

2018 COMPARED TO 2017. The significant factors contributing to the \$37.9 million and \$33.0 million decreases in NW Holdings and NW Natural cash flow provided by operating activities, respectively, were as follows:

- a decrease of \$31.5 million in cash flow benefits from changes in deferred gas cost balances primarily due to higher gas prices in the fourth quarter of 2018 and lower current year PGA rates reflecting over-collections of certain fixed costs from customers in the prior year when weather was colder than average;

- a decrease of \$12.6 million due to \$27.4 million income taxes paid in 2018 due to the elimination of bonus depreciation as a result of the TCJA, compared to income taxes paid of \$14.8 million in 2017; partially offset by

- a net increase of \$10.2 million from changes in working capital related to receivables, inventories, and accounts payable reflecting warmer than average weather in 2018 compared to the prior period; and

- an increase of \$3.9 million due to a decrease in contributions paid to qualified defined benefit pension plans

2017 COMPARED TO 2016. The significant factors contributing to the \$15.4 million and \$15.7 million decreases in NW Holdings and NW Natural cash flows provided by operating activities, respectively, were as follows:

- a decrease of \$21.9 million due to \$14.8 million income taxes paid in 2017 compared to a refund of \$7.2 million in 2016 as a result of the enactment of bonus depreciation in December 2015;

- a decrease of \$5.0 million due to an increase in contributions paid to qualified defined benefit pension plans; and

- a net decrease of \$12.2 million from changes in working capital related to receivables, inventories, and accounts payable reflecting colder than average weather in 2017 compared to the prior period; partially offset by

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an increase of \$27.3 million in cash flow benefits from changes in deferred gas cost balances primarily due to the \$19.4 million gas cost savings credited to customers in 2016 that did not occur in 2017.

During the year ended December 31, 2018, NW Natural contributed \$15.5 million to its qualified defined benefit pension plan, compared to \$19.4 million for 2017 and \$14.5 million for 2016. The amount and timing of future contributions will depend on market interest rates and investment returns on the plans' assets. See Note 9.

Bonus depreciation of 50% was available for a large portion of capital expenditures for federal and Oregon purposes in 2016 and 2017. This reduced our taxable income and provided cash flow benefits. Bonus depreciation for 2015 was not enacted until December 18, 2015, and was extended retroactively back to January 1, 2015 of the respective year. As a result, estimated income tax payments were made throughout 2015 without the benefit of bonus depreciation for the year. This delayed the cash flow benefit of bonus depreciation until refunds could be requested and received. We received refunds of federal income tax overpayments of \$7.9 million during 2016. As a result of the enactment of the TCJA on December 22, 2017, bonus depreciation was eliminated for NGD business property acquired after December 31, 2017. Accordingly, we do not anticipate similar cash flow benefits related to bonus depreciation in the future.

We have lease and purchase commitments relating to our operating activities that are financed with cash flows from operations. For information on cash flow requirements related to leases and other purchase commitments, see "Financial Condition—Contractual Obligations" above and Note 16.

Investing Activities

Investing activity highlights include:

NW Holdings

In millions	2018	2017	2016
Total cash used in investing activities	\$(217.5)	\$(214.2)	\$(136.6)
Capital expenditures	(214.6)	(213.3)	(138.4)

NW Natural

In millions	2018	2017	2016
Total cash used in investing activities	\$(238.5)	\$(214.2)	\$(136.6)
Capital expenditures	(214.3)	(213.3)	(138.4)

NW HOLDINGS

2018 COMPARED TO 2017. The \$3.3 million increase in cash used in investing activities was primarily due to continued capital expenditures primarily related to NW Natural's North Mist Gas Storage Expansion Project as well as customer growth, system reinforcement, technology, and facilities.

2017 COMPARED TO 2016. The \$77.6 million increase in cash used in investing activities was primarily due to higher capital expenditures primarily related to NW Natural's North

Mist Gas Storage Expansion Project as well as customer growth, system reinforcement, technology, and facilities.

NW NATURAL

2018 COMPARED TO 2017. The \$24.3 million increase in cash used in investing activities was primarily due to NW Natural's initial cash contribution of \$20 million to its then subsidiary, and now parent, NW Holdings, in addition to continued capital expenditures primarily related to NW Natural's North Mist Gas Storage Expansion Project as well as customer growth, system reinforcement, technology, and facilities.

2017 COMPARED TO 2016. The \$77.6 million increase in cash used in investing activities was primarily due to higher capital expenditures primarily related to NW Natural's North Mist Gas Storage Expansion Project as well as customer growth, system reinforcement, technology, and facilities.

The operating subsidiaries of NW Holdings invest in capital expenditures to maintain and enhance the safety and integrity of their distribution systems, to expand the reach or capacity of those assets, and improve the efficiency of operations.

CAPITAL EXPENDITURES. NW Holdings' largest subsidiary, NW Natural, expects to make a significant level of investments in its NGD segment in 2019 and through 2023. Over the five-year period from 2019 to 2023, the NGD segment is expected to invest \$820 to \$910 million in capital expenditures to support system reliability, customer growth, and operate effective technology for the business. In 2019, NW Natural anticipates several significant projects for the NGD segment, including completing the replacement of end of life equipment at the Mist gas storage facility, and renovating several resource facilities across NW Natural's service territory. Projects in 2019 also include leasehold improvements and technology for the new headquarters in Portland, Oregon and the completion of the North Mist gas storage expansion project.

NW Holdings' wholly-owned water subsidiaries expect to invest in their facilities to support growth and upgrade their systems with \$30 to \$40 million expected to be invested from 2019 to 2023. NW Holdings expects an immaterial amount of non-NGD capital investments for Gill Ranch and other activities in 2019 and through 2023.

Investments in our infrastructure during and after 2019 beyond the amounts provided below will depend largely on additional regulations, growth, and expansion opportunities.

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For 2019, capital expenditures are estimated, on an accrual basis, to be as follows:

In millions	One-Year Outlook 2019	
	Low	High
NGD		
Core capital expenditures	\$ 150	\$ 165
Significant projects:		
Growth & reliability	15	25
Facilities & technology	42	57
North Mist expansion	18	18
Total projects	75	100
Total NGD	225	265
Other	5	5
Total	\$230	\$270

Required funds for the investments are expected to be internally generated and/or financed with long-term debt or equity, as appropriate.

Financing Activities

Financing activity highlights include:

NW Holdings

In millions	2018	2017	2016
Total cash provided by (used in) financing activities	\$57.8	\$7.4	\$(86.2)
Change in short-term debt	163.3	0.9	(216.7)
Change in long-term debt	(47.0)	60.0	125.0
Change in common stock issued, net	—	—	52.8

NW Natural

In millions	2018	2017	2016
Total cash provided by (used in) financing activities	\$69.8	\$7.4	\$(86.2)
Change in short-term debt	163.3	0.9	(216.7)
Change in long-term debt	(47.0)	60.0	125.0
Change in common stock issued, net	—	—	52.8

NW HOLDINGS

2018 COMPARED TO 2017. The \$50.4 million increase in cash provided by financing activities was primarily due to \$162.4 million higher short-term debt issuances, partially offset by \$107.0 million lower net proceeds from long-term debt activity in 2018.

2017 COMPARED TO 2016. The \$93.6 million increase in cash provided by financing activities was primarily due to \$217.6 million lower repayments of short-term debt compared to the prior period, partially offset by \$65.0 million lower net

proceeds from long-term debt activity in 2017 and \$52.8 million of common stock proceeds in 2016.

NW NATURAL

2018 COMPARED TO 2017. The \$62.4 million increase in cash provided by financing activities was primarily due to increases in short term debt issuances of \$162.4 million, partially offset by \$107.0 million lower net proceeds from long-term debt activity in 2018. NW Natural cash provided by financing activities was \$12.0 million higher in comparison to NW Holdings primarily due to the payment of the November 15, 2018 dividend to NW Holdings shareholders using NW Holdings funds.

2017 COMPARED TO 2016. The \$93.6 million increase in cash provided by financing activities was primarily due to \$217.6 million lower repayments of short-term debt compared to the prior period, partially offset by \$65 million lower net proceeds from long-term debt activity in 2017 and \$52.8 million of common stock proceeds in 2016.

Pension Cost and Funding Status of Qualified Retirement Plans

NW Natural's pension costs are determined in accordance with accounting standards for compensation and retirement benefits. See "Application of Critical Accounting Policies and Estimates – Accounting for Pensions and Postretirement Benefits" below. Pension expense for NW Natural's qualified defined benefit plan, which is allocated between operations and maintenance expenses, capital expenditures, and through October 31, 2018, the deferred regulatory balancing account, totaled \$20.7 million in 2018, an increase of \$2.6 million from 2017. The fair market value of pension assets in this plan decreased to \$257.8 million at December 31, 2018 from \$287.9 million at December 31, 2017. The decrease was due to a loss on plan assets of \$25.9 million and benefit payments of \$19.7 million, offset by \$15.5 million in employer contributions.

Contributions made to NW Natural's company-sponsored qualified defined benefit pension plan are based on actuarial assumptions and estimates, tax regulations, and funding requirements under federal law. The qualified defined benefit pension plan was underfunded by \$162.4 million at December 31, 2018. NW Natural plans to make contributions during 2019 of \$11.0 million. See Note 9 for further pension disclosures.

Contingent Liabilities

Loss contingencies are recorded as liabilities when it is probable that a liability has been incurred and the amount of the loss is reasonably estimable in accordance with accounting standards for contingencies. See "Application of Critical Accounting Policies and Estimates" below. At December 31, 2018, NW Natural's total estimated liability related to environmental sites was \$128.7 million. See Note 17 and "Results of Operations—Regulatory Matters—Rate Mechanisms—Environmental Costs" above.

NW Holdings is not currently party to any direct claims or litigation, though in the future it may be subject to claims and litigation arising in the ordinary course of business.

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New Accounting Pronouncements

For a description of recent accounting pronouncements that may have an impact on our financial condition, results of operations, or cash flows, see Note 2.

APPLICATION OF CRITICAL ACCOUNTING POLICIES AND ESTIMATES

In preparing financial statements in accordance with U.S. GAAP, management exercises judgment in the selection and application of accounting principles, including making estimates and assumptions that affect reported amounts of assets, liabilities, revenues, expenses, and related disclosures in the financial statements. Management considers critical accounting policies to be those which are most important to the representation of financial condition and results of operations and which require management's most difficult and subjective or complex judgments, including accounting estimates that could result in materially different amounts if reported under different conditions or used different assumptions. Our most critical estimates and judgments for both NW Holdings and NW Natural include accounting for:

- regulatory accounting;
- revenue recognition;
- derivative instruments and hedging activities;
- pensions and postretirement benefits;
- income taxes;
- environmental contingencies; and
- impairment of long-lived assets and goodwill.

Management has discussed its current estimates and judgments used in the application of critical accounting policies with the Audit Committees of the Boards of NW Holdings and NW Natural. Within the context of critical accounting policies and estimates, management is not aware of any reasonably likely events or circumstances that would result in materially different amounts being reported.

Regulatory Accounting

The NGD segment is regulated by the OPUC and WUTC, which establish the rates and rules governing services provided to customers, and, to a certain extent, set forth special accounting treatment for certain regulatory transactions. In general, the same accounting principles as non-regulated companies reporting under U.S. GAAP are used. However, authoritative guidance for regulated operations (regulatory accounting) requires different accounting treatment for regulated companies to show the effects of such regulation. For example, NW Natural accounts for the cost of gas using a PGA deferral and cost recovery mechanism, which is submitted for approval annually to the OPUC and WUTC. See "Results of Operations—Regulatory Matters—Rate Mechanisms—Purchased Gas Adjustment" above. There are other expenses and revenues that the OPUC or WUTC may require NW Natural to defer for recovery or refund in future periods. Regulatory accounting requires NW Natural to account for these types of deferred expenses (or deferred revenues) as regulatory assets (or regulatory liabilities) on the balance sheet. When the recovery of these regulatory assets from, or refund of regulatory liabilities to, customers is approved, NW Natural recognizes the expense or revenue on the income statement at the same time the

adjustment to amounts included in rates charged to customers.

The conditions that must be satisfied to adopt the accounting policies and practices of regulatory accounting include:

- an independent regulator sets rates;
- the regulator sets the rates to cover specific costs of delivering service; and

- the service territory lacks competitive pressures to reduce rates below the rates set by the regulator.

Because NW Natural's NGD operations satisfy all three conditions, NW Natural continues to apply regulatory accounting to NGD operations. Future accounting changes, regulatory changes, or changes in the competitive environment could require NW Natural to discontinue the application of regulatory accounting for some or all of our regulated businesses. This would require the write-off of those regulatory assets and liabilities that would no longer be probable of recovery from or refund to customers.

Based on current accounting and regulatory competitive conditions, NW Natural believes it is reasonable to expect continued application of regulatory accounting for NGD activities. Further, it is reasonable to expect the recovery or refund of NW Natural's regulatory assets and liabilities at December 31, 2018 through future customer rates. If it is determined that all or a portion of these regulatory assets or liabilities no longer meet the criteria for continued application of regulatory accounting, then NW Natural would be required to write-off the net unrecoverable balances against earnings in the period such determination is made. The net balance in regulatory asset and liability accounts was a net liability of \$245.3 million and a net liability of \$217.7 million as of December 31, 2018 and 2017, respectively. See Note 2 for more detail on regulatory balances.

Revenue Recognition

Revenues, which are derived primarily from the sale, transportation, and storage of natural gas, are recognized upon the delivery of gas commodity or services rendered to customers.

Accrued Unbilled Revenue

For a description of the policy regarding accrued unbilled revenue, most of which relates to the NGD business at NW Natural, see Note 2. The following table presents changes in key metrics if the estimated percentage of unbilled volume at December 31 was adjusted up or down by 1%:

In millions	2018	
	Up	Down
	1%	1%
Unbilled revenue increase (decrease) ⁽¹⁾	\$0.8	\$(0.8)
Margin increase (decrease) ⁽¹⁾	0.1	(0.1)
Net income before tax increase (decrease) ⁽¹⁾	0.1	(0.1)

⁽¹⁾ Includes impact of regulatory mechanisms including decoupling mechanism and excludes the impact of unbilled revenue from water services.

Derivative Instruments and Hedging Activities

NW Natural's gas acquisition and hedging policies set forth guidelines for using financial derivative instruments to

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support prudent risk management strategies. These policies specifically prohibit the use of derivatives for trading or speculative purposes. Financial derivative contracts are utilized to hedge a portion of natural gas sale requirements. These contracts include swaps, options, and combinations of option contracts. NW Natural primarily uses these derivative financial instruments to manage commodity price variability. A small portion of NW Natural's derivative hedging strategy involves foreign currency exchange contracts.

Derivative instruments are recorded on the balance sheet at fair value. If certain regulatory conditions are met, then the derivative instrument fair value is recorded together with an offsetting entry to a regulatory asset or liability account pursuant to regulatory accounting, and no unrealized gain or loss is recognized in current income or loss. See "Regulatory Accounting" above for additional information. The gain or loss from the fair value of a derivative instrument subject to regulatory deferral is included in the recovery from, or refund to, NGD business customers in future periods. If a derivative contract is not subject to regulatory deferral, then the accounting treatment for unrealized gains and losses is recorded in accordance with accounting standards for derivatives and hedging which is either in current income or loss or in accumulated other comprehensive income or loss (AOCI or AOCL). Derivative contracts outstanding at December 31, 2018, 2017 and 2016 were measured at fair value using models or other market accepted valuation methodologies derived from observable market data. Estimates of fair value may change significantly from period-to-period depending on market conditions and prices. These changes may have an impact on results of operations, but the impact would largely be mitigated due to the majority of derivative activities being subject to regulatory deferral treatment. For more information on derivative activity and associated regulatory treatment, see Note 2 and Note 15.

The following table summarizes the amount of losses realized from commodity price transactions for the last three years:

In millions	2018	2017	2016
NGD business net loss on:			
Commodity Swaps	\$7.4	\$7.8	\$26.9

Realized losses from commodity hedges shown above were recorded as increases to cost of gas and were, or will be, included in annual PGA rates.

Pensions and Postretirement Benefits

NW Natural maintains a qualified non-contributory defined benefit pension plan, non-qualified supplemental pension plans for eligible executive officers and certain key employees, and other postretirement employee benefit plans covering certain non-union employees. NW Natural also has a qualified defined contribution plan (Retirement K Savings Plan) for all eligible employees. Only the qualified defined benefit pension plan and Retirement K Savings Plan have plan assets, which are held in qualified trusts to fund the respective retirement benefits. The qualified defined benefit retirement plan for union and non-union employees was closed to new participants several years ago. Non-

union and union employees hired or re-hired after December 31, 2006 and 2009, respectively, and employees of certain NW Holdings subsidiaries are provided an enhanced Retirement K Savings Plan benefit. The postretirement Welfare Benefit Plan for non-union employees was also closed to new participants several years ago.

Net periodic pension and postretirement benefit costs (retirement benefit costs) and projected benefit obligations (benefit obligations) are determined using a number of key assumptions including discount rates, rate of compensation increases, retirement ages, mortality rates and an expected long-term return on plan assets. See Note 9.

Accounting standards also require balance sheet recognition of unamortized actuarial gains and losses and prior service costs in AOCI or AOCL, net of tax. However, the retirement benefit costs related to qualified defined benefit pension and postretirement benefit plans are generally recovered in rates charged to NGD customers, which are set based on accounting standards for pensions and postretirement benefit expenses. As such, NW Natural received approval from the OPUC to recognize the unamortized actuarial gains and losses and prior service costs as a regulatory asset or regulatory liability based on expected rate recovery, rather than including it as AOCI or AOCL under common equity. See "Regulatory Accounting" above and Note 2, "Industry Regulation".

In 2011, NW Natural received regulatory approval from the OPUC and began deferring a portion of pension expense above or below the amount set in rates to a regulatory balancing account on the balance sheet. On October 26, 2018, the OPUC issued an order to freeze NW Natural's pension balancing account as of October 31, 2018. The order directed NW Natural and the other parties to the rate case to engage in further regulatory proceedings extending the general rate case docket to resolve open issues with respect to the recovery of the pension balancing account. On February 4, 2019, NW Natural and the other parties to the rate case filed a joint stipulation with the OPUC outlining a resolution to the issue. See "Regulatory Matters-Regulatory Proceeding Updates-Oregon General Rate Case" for more information. At December 31, 2018, the cumulative amount deferred for future pension cost recovery was \$74.2 million, including accrued interest. The regulatory balancing account includes the recognition of accrued interest on the account balance at NW Natural's authorized rate of return, with the equity portion of this interest deferred until amounts are collected in rates.

A number of factors, as discussed above, are considered in developing pension and postretirement benefit assumptions. For the December 31, 2018 measurement date, NW Natural reviewed and updated: the weighted-average discount rate assumptions for pensions increased from 3.52% for 2017 to 4.20% for 2018, and our weighted-average discount rate assumptions for other postretirement benefits increased from 3.44% for 2017 to 4.13% for 2018. The new rate assumptions were determined for each plan based on a matching of benchmark interest rates to the estimated cash flows, which reflect the timing and amount of future benefit payments. Benchmark interest rates are

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drawn from the FTSE Above Median Curve, which consists of high quality bonds rated AA- or higher by S&P or Aa3 or higher by Moody's;

- the expected annual rate of future compensation increases, which was updated to a range of 3.25% to 3.5% at December 31, 2018;
- the expected long-term return on qualified defined benefit plan assets, which remained unchanged at a rate of 7.50%;
- the mortality rate assumptions were updated from RP-2006 mortality tables for employees and healthy annuitants with a fully generational projection using scale MP-2017 to RP-2014 mortality tables using scale MP-2018, which contributed to the decrease of our projected benefit obligation; and
- other key assumptions, which were based on actual plan experience and actuarial recommendations.

At December 31, 2018, the net pension liability (benefit obligations less market value of plan assets) for NW Natural's qualified defined benefit plan increased \$0.7 million compared to 2017. The increase in the net pension liability is primarily due to the \$30.1 million decrease in plan assets, partially offset by a \$29.5 million decrease in the pension benefit obligation. The liability for non-qualified plans decreased \$1.3 million, and the liability for other postretirement benefits decreased \$0.8 million in 2018.

The expected long-term rate of return on plan assets is determined by averaging the expected earnings for the target asset portfolio. In developing expected return, historical actual performance and long-term return projections are analyzed, which gives consideration to the current asset mix and target asset allocation.

NW Natural believes its pension assumptions are appropriate based on plan design and an assessment of market conditions. The following shows the sensitivity of retirement benefit costs and benefit obligations to changes in certain actuarial assumptions:

Dollars in millions	Change in Assumption	Impact on 2018 Retirement Benefit Costs	Impact on Retirement Benefit Obligations at Dec. 31, 2018
Discount rate:	(0.25)%		
Qualified defined benefit plans		\$ 1.5	\$ 13.4
Non-qualified plans		0.1	0.8
Other postretirement benefits		—	0.8
Expected long-term return on plan assets:	(0.25)%		
Qualified defined benefit plans		0.7	N/A

In July 2012, President Obama signed MAP-21 into law. This legislation changed several provisions affecting pension plans, including temporary funding relief and Pension Benefit Guaranty Corporation (PBGC) premium increases, which reduces the level of minimum required contributions in the near-term but generally increases contributions in the long-run as well as increasing the

operational costs of running a pension plan. Prior to MAP-21, interest rates based on a 24-month average yield of investment grade corporate bonds (also referred to as "segment rate") were used to calculate minimum contribution requirements. MAP-21 established a new minimum and maximum corridor for segment rates based on a 25-year average of bond yields, which resulted in lower minimum contributions requirements than those under previous regulations. In August 2014, HATFA was signed and extended funding relief for an additional five years.

Income Taxes

Valuation Allowances

Deferred tax assets are recognized to the extent that these assets are believed to be more likely than not to be realized. In making such a determination, available positive and negative evidence is considered, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations. NW Holdings and NW Natural have determined that all recorded deferred tax assets are more likely than not to be realized as of December 31, 2018. See Note 10.

Uncertain Tax Benefits

The calculation of tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in the jurisdictions in which we operate. A tax benefit from a material uncertain tax position will only be recognized when it is more likely than not that the position, or some portion thereof, will be sustained upon examination, including resolution of any related appeals or litigation processes, on the basis of the technical merits. NW Holdings and NW Natural participate in the Compliance Assurance Process (CAP) with the Internal Revenue Service (IRS). Under the CAP program companies work with the IRS to identify and resolve material tax matters before the federal income tax return is filed each year. No reserves for uncertain tax benefits were recorded during 2018, 2017, or 2016. See Note 10.

Tax Legislation

When significant proposed or enacted changes in income tax rules occur we consider whether there may be a material impact to our financial position, results of operations, cash flows, or whether the changes could materially affect existing assumptions used in making estimates of tax related balances.

On December 22, 2017, H.R.1 - An Act to provide for reconciliation pursuant to titles II and V of the concurrent resolution on the budget for fiscal year 2018, also known as the Tax Cuts and Jobs Act (TCJA), was enacted. The TCJA lowers the U.S. federal corporate income tax rate to 21% from the existing maximum rate of 35%, effective for our tax year beginning January 1, 2018. The TCJA includes specific provisions related to regulated public utilities that generally provide for the continued deductibility of interest expense and the elimination of bonus depreciation. Certain rate normalization requirements for accelerated cost recovery benefits related to regulated plant balances also continue. See Note 10 for more information on how we are impacted by the TCJA.

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The reduced U.S. corporate income tax rate had a material impact on our financial statements in 2017. As a result of the reduction of the U.S. corporate income tax rate to 21%, U.S. GAAP requires deferred tax assets and liabilities be revalued as of the date of enactment, with resulting tax effects accounted for in the reporting period of enactment. We recorded a net revaluation of deferred tax asset and liability balances of \$196.4 million as of December 31, 2017, utilizing the reduced federal rate of 21% expected to apply when these temporary differences are realized or settled, based upon balances in existence at the date of enactment. This revaluation had no impact on our 2017 cash flows. With respect to other tax legislation, the final tangible property regulations applicable to all taxpayers were issued on September 13, 2013 and were generally effective for taxable years beginning on or after January 1, 2014. In addition, procedural guidance related to the regulations was issued under which taxpayers may make accounting method changes to comply with the regulations. We have evaluated the regulations and do not anticipate any material impact. However, unit-of-property guidance applicable to natural gas distribution networks has not yet been issued and is expected in the near future. We will further evaluate the effect of these regulations after this guidance is issued, but believe the current method is materially consistent with the new regulations and do not expect this additional guidance to have a material effect on our financial statements.

Regulatory Matters

Regulatory tax assets and liabilities are recorded to the extent it is probable they will be recoverable from, or refunded to, customers in the future. At December 31, 2018 and 2017, NW Natural had net regulatory income tax assets of \$21.4 million and \$22.2 million, respectively, representing future rate recovery of deferred tax liabilities resulting from differences in NGD plant financial statement and tax bases and NGD plant removal costs. These regulatory assets are currently being recovered through customer rates. In 2017, the regulatory asset balance, and its associated deferred tax liability, were both reduced by \$17.4 million as a result of the TCJA revaluation to reflect the lower corporate income tax rate. At December 31, 2018 and 2017, regulatory income tax assets of \$2.3 million and \$0.9 million, respectively, were recorded by NW Natural, representing probable future rate recovery of deferred tax liabilities resulting from the equity portion of AFUDC. In 2017, the regulatory asset balance, and its associated deferred tax liability, were both reduced by \$0.8 million as a result of the TCJA revaluation to reflect the lower corporate income tax rate.

On December 29, 2017, NW Natural filed applications with the OPUC and WUTC seeking authorization to defer the overall net benefits of NGD resulting from the TCJA. On the same day, Staff of the OPUC filed an application seeking deferral of changes in NW Natural's federal tax obligations resulting from the TCJA. On January 8, 2018, the WUTC issued a statement acknowledging receipt of NW Natural's application and indicating their intention to incorporate the impact into future rate case proceedings.

At December 31, 2018 and 2017, regulatory liability balances, representing the estimated net benefit to NGD

customers resulting from the change in deferred taxes as a result of the TCJA, of \$217.1 million and \$213.3 million, respectively, were recorded by NW Natural. These balances include a gross up for income taxes of \$57.5 and \$56.5 million, respectively.

The TCJA includes specific guidance for determining the shortest time period over which the portion of this regulatory liability resulting from accelerated cost recovery of NGD plant may accrue to the benefit of customers to avoid incurring federal normalization penalties. However, it is anticipated that until such time that customers receive the direct benefit of this regulatory liability, the balance, net of the additional gross up for income taxes, will continue to provide an indirect benefit to customers by reducing the NGD rate base which determines customer rates for service. It is not possible at this time to determine when the final resolution of these regulatory proceedings will occur,

and as result, this regulatory liability is classified as non-current. On February 4, 2019, NW Natural and the parties to the 2018 Oregon rate case filed a joint stipulation addressing the return of net tax benefits to customers. See "Regulatory Matters-Regulatory Proceeding Updates-Oregon General Rate Case" for more information.

NGD rates in effect for Oregon through October 31, 2018 and for Washington through December 31, 2018 included an allowance to provide for the recovery of the anticipated provision for income taxes incurred as a result of providing regulated services. The provision for income taxes during these periods included an allowance for federal income taxes determined by utilizing the pre-TCJA federal corporate income tax rate of 35 percent. NW Natural recorded an additional regulatory liability representing the deferral of NGD's net benefit from a lower provision for income taxes due to the newly enacted 21 percent federal corporate income tax rate, including a gross up for income taxes. As of December 31, 2018, a regulatory liability of \$8.2 million, including accrued interest, was recorded to reflect this revenue deferral.

Environmental Contingencies

Environmental liabilities are accounted for in accordance with accounting standards under the loss contingency guidance when it is probable that a liability has been incurred and the amount of the loss is reasonably estimable. Amounts recorded for environmental contingencies take numerous factors into consideration, including, among other variables, changes in enacted laws, regulatory orders, estimated remediation costs, interest rates, insurance proceeds, participation by other parties, timing of payments, and the input of legal counsel and third-party experts. Accordingly, changes in any of these variables or other factual circumstances could have a material impact on the amounts recorded for our environmental liabilities. For a complete discussion of environmental accounting policies refer to Note 2. For a discussion of current environmental sites and liabilities refer to Note 17. In addition, for information regarding the regulatory treatment of these costs and NW Natural's regulatory recovery mechanism, see "Results of Operations—Regulatory Matters—Rate Mechanisms—Environmental Costs" above.

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Impairment of Long-Lived Assets and Goodwill

Long-lived assets

We review the carrying value of long-lived assets whenever events or changes in circumstances indicate the carrying amount of the assets might not be recoverable. Factors that would necessitate an impairment assessment of long-lived assets include a significant adverse change in the extent or manner in which the asset is used, a significant adverse change in legal factors or business climate that could affect the value of the asset, or a significant decline in the observable market value or expected future cash flows of the asset, among others.

When such factors are present, we assess the recoverability by determining whether the carrying value of the asset will be recovered through expected future cash flows. An asset is determined to be impaired when the carrying value of the asset exceeds the expected undiscounted future cash flows from the use and eventual disposition of the asset. If an impairment is indicated, we record an impairment loss for the difference between the carrying value and the fair value of the long-lived assets. Fair value is estimated using appropriate valuation methodologies, which may include an estimate of discounted cash flows.

In the fourth quarter of 2017, we recognized a non-cash pre-tax impairment of long-lived assets at the Gill Ranch Facility of \$192.5 million. We determined circumstances existed that indicated the carrying value of the assets may not be recoverable. Those circumstances included the completion of a comprehensive strategic review process that evaluated various alternatives including a potential sale, as well as contracting for available storage at lower than anticipated values for the coming storage year. Given these considerations, management was required to re-evaluate the estimated cash flows from our interests in the Gill Ranch Facility, and determined that those estimated cash flows were no longer sufficient to cover the carrying value of the assets.

We used the income approach to estimate fair value, using the estimated future net cash flows. We also compared the results of the income approach to our own recent sale experience and recent market comparable transactions in order to estimate fair value. Many factors and assumptions impact the net cash flows used. The most significant and uncertain estimates included our forecast of gas storage pricing, our ability to successfully identify and contract with higher-value customers in and/or near the northern California market that Gill Ranch serves, and exploring the possibility of providing energy storage services such as compressed gas energy storage (CGES). After completing the strategic evaluation, which included a potential sale in the fourth quarter of 2017, we lowered our views of a near-term market recovery and decreased the likelihood associated with contracting with higher-value customers. These changes were the most significant estimates that caused our cash flow projections to decrease to a point where they were no longer sufficient to cover the carrying value of the asset.

On June 20, 2018, NWN Gas Storage, NW Holdings' wholly-owned subsidiary, entered into a Purchase and Sale Agreement that provides for the sale by NWN Gas Storage of all of the membership interests in Gill Ranch. As a result

of our strategic shift away from California gas storage operations and the significance of Gill Ranch's financial results in 2017, we concluded that the pending sale of Gill Ranch qualifies as assets and liabilities held for sale and discontinued operations. As such, the assets and liabilities associated with Gill Ranch have been classified as discontinued operations assets and discontinued operations liabilities, respectively, and, the results of Gill Ranch are presented separately from the results of continuing operations, net of tax, as discontinued operations for the consolidated results of NW Holdings in all periods presented. The expenses included in the results of discontinued operations within the consolidated results of NW Holdings are the direct operating expenses incurred by Gill Ranch that may be reasonably segregated from the costs of our continuing operations. See "Results of Operations - Pending Sale of Gill Ranch Storage" above, Note 4, and Note 18 for additional information.

Goodwill

In a business combination, goodwill is initially measured as any excess of the acquisition-date fair value of the consideration transferred over the acquisition-date fair value of the net identifiable assets acquired.

The carrying value of goodwill is reviewed annually during the fourth quarter using balances as of October 1, or whenever events or changes in circumstance indicate that such carrying values may not be recoverable.

NW Holdings and NW Natural early-adopted ASU 2017-04, "Simplifying the Test for Goodwill Impairment" in the third quarter of 2018. The ASU removes Step 2 from the goodwill impairment test and under the amended guidance an entity should perform its annual goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and recognize an impairment charge for the amount in which the carrying amounts exceed the fair value of the reporting unit. In accordance with the updated guidance per ASU 2017-04, NW Holdings' and NW Natural's policy for goodwill assessments begins with a qualitative analysis in which events and circumstances are evaluated, including macroeconomic conditions, industry and market conditions, regulatory environments, and the overall financial performance of the reporting unit. If the qualitative assessment indicates that the carrying value may be at risk of recoverability, a quantitative evaluation is performed to measure the carrying value against the fair value of the reporting unit. This evaluation may involve the assessment of future cash flows and other subjective factors for which uncertainty exists and could impact the estimation of future cash flows. These factors include, but are not limited to, the amount and timing of future cash flows, future growth rates, and the discount rate. Unforeseen events and changes in circumstances or market conditions could adversely affect these estimates, which could result in an impairment charge. A qualitative assessment was performed during the fourth quarter of 2018 which indicated a quantitative assessment was not required; thus, no goodwill impairment was recorded. See Note 2 and Note 14 for additional information.

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ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

NW Holdings and NW Natural are exposed to various forms of market risk including commodity supply risk, commodity price risk, interest rate risk, foreign currency risk, credit risk and weather risk. The following describes NW Holdings' and NW Natural's exposure to these risks, as applicable.

Commodity Supply Risk

NW Natural enters into spot, short-term, and long-term natural gas supply contracts, along with associated pipeline transportation contracts, to manage commodity supply risk. Historically, NW Natural has arranged for physical delivery of an adequate supply of gas, including gas in Mist storage and off-system storage facilities, to meet expected requirements of core NGD customers. NW Natural's long-term gas supply contracts are primarily index-based and subject to monthly re-pricing, a strategy that is intended to substantially mitigate credit exposure to physical gas counterparties. Absolute notional amounts under physical gas contracts related to open positions on derivative instruments were 472.3 million therms and 520.3 million therms as of December 31, 2018 and 2017, respectively.

Commodity Price Risk

Natural gas commodity prices are subject to market fluctuations due to unpredictable factors including weather, pipeline transportation congestion, drilling technologies, market speculation, and other factors that affect supply and demand. Commodity price risk is managed with financial swaps and physical gas reserves from a long-term investment in working interests in gas leases operated by Jonah Energy. These financial hedge contracts and gas reserves volumes are generally included in NW Natural's annual PGA filing for recovery, subject to a regulatory prudence review. Notional amounts under financial derivative contracts were \$77.7 million and \$108.1 million as of December 31, 2018 and 2017, respectively. The fair value of financial swaps as of December 31, 2018 was an unrealized loss of \$7.8 million with future cash outflows of \$2.8 million in 2019, \$2.5 million in 2020, and \$2.5 million in 2021.

Interest Rate Risk

NW Holdings and NW Natural are exposed to interest rate risk primarily associated with new debt financing needed to fund capital requirements, including future contractual obligations and maturities of long-term and short-term debt. Interest rate risk is primarily managed through the issuance of fixed-rate debt with varying maturities. NW Holdings and NW Natural may also enter into financial derivative instruments, including interest rate swaps, options and other hedging instruments, to manage and mitigate interest rate exposure. NW Holdings and NW Natural did not have any interest rate swaps outstanding as of December 31, 2018 or 2017.

Foreign Currency Risk

The costs of certain pipeline and off-system storage services purchased from Canadian suppliers are subject to changes in the value of the Canadian currency in relation to the U.S. currency. Foreign currency forward contracts are used to hedge against fluctuations in exchange rates for NW

Natural's commodity-related demand and reservation charges paid in Canadian dollars. Notional amounts under foreign currency forward contracts were \$6.9 million and \$7.7 million as of December 31, 2018 and 2017, respectively. If all of the foreign currency forward contracts had been settled on December 31, 2018, a loss of \$0.3 million would have been realized. See Note 15.

Credit Risk

Credit Exposure to Natural Gas Suppliers

Certain gas suppliers have either relatively low credit ratings or are not rated by major credit rating agencies. To manage this supply risk, NW Natural purchases gas from a number of different suppliers at liquid exchange points. NW Natural evaluates and monitors suppliers' creditworthiness and maintains the ability to require additional financial assurances, including deposits, letters of credit, or surety bonds, in case a supplier defaults. In the event of a supplier's failure to deliver contracted volumes of gas, the NGD business would need to replace those volumes at prevailing market prices, which may be higher or lower than the original transaction prices. NW Natural expects these costs would be subject to its PGA sharing mechanism discussed above. Since most of NW Natural's commodity supply contracts are priced at the daily or monthly market index price tied to liquid exchange points, and NW Natural has adequate storage flexibility, NW Natural believes it is unlikely a supplier default would have a material adverse effect on its financial condition or results of operations.

Credit Exposure to Financial Derivative Counterparties Based on estimated fair value at December 31, 2018, NW Natural's overall credit exposure relating to commodity contracts is considered immaterial as it reflects amounts owed to financial derivative counterparties (see table below). However, changes in natural gas prices could result in counterparties owing NW Natural money. Therefore, NW Natural's financial derivatives policy requires counterparties to have at least an investment-grade credit rating at the time the derivative instrument is entered into and specific limits on the contract amount and duration based on each counterparty's credit rating. Due to potential changes in market conditions and credit concerns, NW Natural continues to enforce strong credit requirements. NW Natural actively monitors and manages derivative credit exposure and places counterparties on hold for trading purposes or requires cash collateral, letters of credit, or guarantees as circumstances warrant.

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The following table summarizes NW Natural's overall financial swap and option credit exposure, based on estimated fair value, and the corresponding counterparty credit ratings. The table uses credit ratings from S&P and Moody's, reflecting the higher of the S&P or Moody's rating or a middle rating if the entity is split-rated with more than one rating level difference:

	Financial Derivative Position by Credit Rating Unrealized Fair Value Gain (Loss)	
In millions	2018	2017
AAA/Aaa	\$—	\$—
AA/Aa	\$(6.3)	\$(9.0)
A/A	(1.5)	(13.3)
BBB/Baa	—	—
Total	\$(7.8)	\$(22.3)

In most cases, NW Natural also mitigates the credit risk of financial derivatives by having master netting arrangements with counterparties which provide for making or receiving net cash settlements. Generally, transactions of the same type in the same currency that have settlement on the same day with a single counterparty are netted and a single payment is delivered or received depending on which party is due funds.

Additionally, NW Natural has master contracts in place with each derivative counterparty that include provisions for posting or calling for collateral. Generally, NW Natural can obtain cash or marketable securities as collateral with one day's notice. Various collateral management strategies are used to reduce liquidity risk. The collateral provisions vary by counterparty but are not expected to result in the significant posting of collateral, if any. NW Natural has performed stress tests on the portfolio and concluded the liquidity risk from collateral calls is not material. Derivative credit exposure is primarily with investment grade counterparties rated AA-/Aa3 or higher. Contracts are diversified across counterparties to reduce credit and liquidity risk.

At December 31, 2018, financial derivative credit risk on a volumetric basis was geographically concentrated 33% in the United States and 67% in Canada, based on counterparties' location. At December 31, 2017, financial derivative credit risk on a volumetric basis was geographically concentrated 36% in the United States and 64% in Canada with our counterparties.

Credit Exposure to Insurance Companies

Credit exposure to insurance companies for loss or damage claims could be material. NW Holdings and NW Natural regularly monitor the financial condition of insurance companies who provide general liability insurance policy coverage to NW Holdings, NW Natural, their predecessors, and their subsidiaries.

Weather Risk

NW Natural has a weather normalization mechanism in Oregon; however, it is exposed to weather risk primarily from NGD business operations. A large percentage of NGD margin is volume driven, and current rates are based on an assumption of average weather. NW Natural's weather normalization mechanism in Oregon is for residential and

commercial customers, which is intended to stabilize the recovery of NGD business fixed costs and reduce fluctuations in customers' bills due to colder or warmer than average weather. Customers in Oregon are allowed to opt out of the weather normalization mechanism. As of December 31, 2018, approximately 8% of Oregon customers had opted out. In addition to the Oregon customers opting out, Washington residential and commercial customers account for approximately 11% of our total customer base and are not covered by weather normalization. The combination of Oregon and Washington customers not covered by a weather normalization mechanism is 19% of all residential and commercial customers. See "Results of Operations—Regulatory Matters—Rate Mechanisms—WARM" above.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Supplemental Schedules Omitted

All other schedules are omitted because of the absence of the conditions under which they are required or because the required information is included elsewhere in the financial statements.

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NW HOLDINGS MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

NW Holdings management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) or 15d-15(f) under the Securities Exchange Act of 1934, as amended. NW Holdings' internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States of America (GAAP). NW Holdings' internal control over financial reporting includes those policies and procedures that:

- (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions involving company assets;
- (ii) provide reasonable assurance that transactions are recorded as necessary to permit the preparation of financial statements in accordance with GAAP, and that receipts and expenditures are being made only in accordance with authorizations of management and the NW Holdings Board of Directors; and
- (iii) provide reasonable assurance regarding prevention or timely detection of the unauthorized acquisition, use, or disposition of NW Holdings' assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements or fraud. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

NW Holdings management assessed the effectiveness of NW Holdings' internal control over financial reporting as of December 31, 2018. In making this assessment, NW Holdings management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013).

Based on NW Holdings management's assessment and those criteria, NW Holdings management has concluded that it maintained effective internal control over financial reporting as of December 31, 2018.

The effectiveness of internal control over financial reporting as of December 31, 2018 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears in this annual report.

/s/ David H. Anderson
David H. Anderson
President and Chief Executive Officer

/s/ Frank H. Burkhartsmeier
Frank H. Burkhartsmeier
Senior Vice President and Chief Financial Officer

March 1, 2019

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NW NATURAL MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

NW Natural management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) or 15d-15(f) under the Securities Exchange Act of 1934, as amended. NW Natural's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States of America (GAAP). NW Natural's internal control over financial reporting includes those policies and procedures that:

- (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions involving company assets;
- (ii) provide reasonable assurance that transactions are recorded as necessary to permit the preparation of financial statements in accordance with GAAP, and that receipts and expenditures are being made only in accordance with authorizations of management and the NW Natural Board of Directors; and
- (iii) provide reasonable assurance regarding prevention or timely detection of the unauthorized acquisition, use, or disposition of NW Natural's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements or fraud. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

NW Natural management assessed the effectiveness of NW Natural's internal control over financial reporting as of December 31, 2018. In making this assessment, NW Natural management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013).

Based on NW Natural management's assessment and those criteria, NW Natural management has concluded that it maintained effective internal control over financial reporting as of December 31, 2018.

/s/ David H. Anderson
David H. Anderson
President and Chief Executive Officer

/s/ Frank H. Burkhartsmeier
Frank H. Burkhartsmeier
Senior Vice President and Chief Financial Officer

March 1, 2019

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Northwest Natural Holding Company:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Northwest Natural Holding Company and its subsidiaries (the “Company”) as of December 31, 2018 and 2017, and the related consolidated statements of comprehensive income (loss), of shareholders’ equity, and of cash flows for each of the three years in the period ended December 31, 2018, including the related notes and financial statement schedules listed in the accompanying index (collectively referred to as the “consolidated financial statements”). We also have audited the Company’s internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Basis for Opinions

The Company’s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company’s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance

with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP

Portland, Oregon

March 1, 2019

We have served as the Company's auditor since 1997.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholder of Northwest Natural Gas Company:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Northwest Natural Gas Company and its subsidiaries (the “Company”) as of December 31, 2018 and 2017, and the related consolidated statements of comprehensive income (loss), of shareholder’s equity, and of cash flows for each of the three years in the period ended December 31, 2018, including the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits of these consolidated financial statements in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP

Portland, Oregon

March 1, 2019

We have served as the Company’s auditor since 1997.

Table of ContentsNORTHWEST NATURAL HOLDING COMPANY
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

In thousands, except per share data	Year Ended December 31,		
	2018	2017	2016
Operating revenues	\$706,143	\$755,038	\$668,173
Operating expenses:			
Cost of gas	255,519	324,795	260,588
Operations and maintenance	156,698	152,358	136,723
Environmental remediation	11,127	15,291	13,298
General taxes	32,172	30,639	29,243
Revenue taxes	30,082	—	—
Depreciation and amortization	85,156	81,053	77,604
Other operating expenses	3,227	—	—
Total operating expenses	573,981	604,136	517,456
Income from operations	132,162	150,902	150,717
Other income (expense), net	(3,601)	(295)	(7,151)
Interest expense, net	37,059	37,526	38,136
Income before income taxes	91,502	113,081	105,430
Income tax expense	24,191	41,008	43,011
Net income from continuing operations	67,311	72,073	62,419
Loss from discontinued operations, net of tax	(2,742)	(127,696)	(3,524)
Net income (loss)	64,569	(55,623)	58,895
Other comprehensive income (loss):			
Change in employee benefit plan liability, net of taxes of (\$166) for 2018, \$735 for 2017, and \$452 for 2016	476	(2,059)	(744)
Amortization of non-qualified employee benefit plan liability, net of taxes of (\$278) for 2018, (\$374) for 2017, and (\$624) for 2016	774	572	955
Comprehensive income (loss)	\$65,819	\$(57,110)	\$59,106
Average common shares outstanding:			
Basic	28,803	28,669	27,647
Diluted	28,873	28,753	27,779
Earnings from continuing operations per share of common stock:			
Basic	\$2.34	\$2.51	\$2.26
Diluted	2.33	2.51	2.25
Loss from discontinued operations per share of common stock:			
Basic	\$(0.10)	\$(4.45)	\$(0.13)
Diluted	(0.09)	(4.44)	(0.13)
Earnings (loss) per share of common stock:			
Basic	\$2.24	\$(1.94)	\$2.13
Diluted	2.24	(1.93)	2.12

See Notes to Consolidated Financial Statements

Table of ContentsNORTHWEST NATURAL HOLDING COMPANY
CONSOLIDATED BALANCE SHEETS

In thousands	As of December 31,	
	2018	2017
Assets:		
Current assets:		
Cash and cash equivalents	\$12,633	\$3,472
Accounts receivable	66,970	66,236
Accrued unbilled revenue	57,827	62,381
Allowance for uncollectible accounts	(977)	(956)
Regulatory assets	41,930	45,781
Derivative instruments	9,001	1,735
Inventories	44,149	47,577
Gas reserves	16,647	15,704
Income taxes receivable	6,000	—
Other current assets	28,472	24,949
Discontinued operations - current assets	13,269	3,057
Total current assets	295,921	269,936
Non-current assets:		
Property, plant, and equipment	3,414,490	3,204,635
Less: Accumulated depreciation	993,118	960,477
Total property, plant, and equipment, net	2,421,372	2,244,158
Gas reserves	66,197	84,053
Regulatory assets	371,786	356,608
Derivative instruments	725	1,306
Other investments	63,558	66,363
Goodwill	8,954	—
Other non-current assets	14,149	6,505
Discontinued operations - non-current assets	—	10,817
Total non-current assets	2,946,741	2,769,810
Total assets	\$3,242,662	\$3,039,746

See Notes to Consolidated Financial Statements

Table of ContentsNORTHWEST NATURAL HOLDING COMPANY
CONSOLIDATED BALANCE SHEETS

In thousands	As of December 31,	
	2018	2017
Liabilities and equity:		
Current liabilities:		
Short-term debt	\$217,620	\$54,200
Current maturities of long-term debt	29,989	96,703
Accounts payable	115,878	111,021
Taxes accrued	11,023	18,883
Interest accrued	7,306	6,773
Regulatory liabilities	47,436	34,013
Derivative instruments	12,381	18,722
Other current liabilities	54,492	39,942
Discontinued operations - current liabilities	12,959	1,593
Total current liabilities	509,084	381,850
Long-term debt	706,247	683,184
Deferred credits and other non-current liabilities:		
Deferred tax liabilities	280,463	270,526
Regulatory liabilities	611,560	586,093
Pension and other postretirement benefit liabilities	221,886	223,333
Derivative instruments	3,025	4,649
Other non-current liabilities	147,763	135,292
Discontinued operations - non-current liabilities	—	12,043
Total deferred credits and other non-current liabilities	1,264,697	1,231,936
Commitments and contingencies (see Note 16 and Note 17)		
Equity:		
Common stock - no par value; authorized 100,000 shares; issued and outstanding 28,880 and 28,736 at December 31, 2018 and 2017, respectively	457,640	448,865
Retained earnings	312,182	302,349
Accumulated other comprehensive loss	(7,188)	(8,438)
Total equity	762,634	742,776
Total liabilities and equity	\$3,242,662	\$3,039,746

See Notes to Consolidated Financial Statements

Table of ContentsNORTHWEST NATURAL HOLDING COMPANY
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

In thousands	Common Stock	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Equity
Balance at December 31, 2015	\$383,144	\$404,990	\$ (7,162)	\$780,972
Comprehensive income	—	58,895	211	59,106
Dividends on common stock, \$1.87 per share	—	(51,624)	—	(51,624)
Stock-based compensation	2,924	—	—	2,924
Shares issued pursuant to equity based plans	6,358	—	—	6,358
Issuance of common stock, net of issuance costs	52,761	—	—	52,761
Balance at December 31, 2016	445,187	412,261	(6,951)	850,497
Comprehensive income (loss)	—	(55,623)	(1,487)	(57,110)
Dividends on common stock, \$1.88 per share	—	(54,289)	—	(54,289)
Stock-based compensation	2,882	—	—	2,882
Shares issued pursuant to equity based plans	796	—	—	796
Balance at December 31, 2017	448,865	302,349	(8,438)	742,776
Comprehensive income	—	64,569	1,250	65,819
Dividends on common stock, \$1.89 per share	—	(54,736)	—	(54,736)
Stock-based compensation	3,020	—	—	3,020
Shares issued pursuant to equity based plans	5,175	—	—	5,175
Cash purchase of shares for business combination	(7,945)	—	—	(7,945)
Value of shares transferred for business combination	8,525	—	—	8,525
Balance at December 31, 2018	\$457,640	\$312,182	\$ (7,188)	\$762,634

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL HOLDING COMPANY
CONSOLIDATED STATEMENTS OF CASH FLOWS

In thousands	Year Ended December 31,		
	2018	2017	2016
Operating activities:			
Net income (loss)	\$64,569	\$(55,623)	\$58,895
Adjustments to reconcile net income (loss) to cash provided by operations:			
Depreciation and amortization	85,156	81,053	77,604
Regulatory amortization of gas reserves	16,684	16,353	15,525
Deferred income taxes	14,356	(52,414)	32,056
Qualified defined benefit pension plan expense	8,108	5,364	5,274
Contributions to qualified defined benefit pension plans	(15,540)	(19,430)	(14,470)
Deferred environmental expenditures, net	(14,528)	(13,716)	(10,469)
Regulatory disallowance of prior environmental cost deferrals	—	—	3,287
Amortization of environmental remediation	11,127	15,291	13,298
Regulatory revenue deferral from the TCJA	7,929	—	—
Other	1,596	2,102	2,846
Changes in assets and liabilities:			
Receivables, net	181	3,282	(6,395)
Inventories	3,207	5,600	16,565
Income and other taxes	(16,904)	6,734	9,467
Accounts payable	16,792	1,092	12,028
Interest accrued	526	807	93
Deferred gas costs	(14,395)	17,122	(10,204)
Other, net	552	(4,093)	11,727
Discontinued operations	(645)	197,180	5,020
Cash provided by operating activities	168,771	206,704	222,147
Investing activities:			
Capital expenditures	(214,636)	(213,325)	(138,357)
Other	(3,390)	(577)	2,882
Discontinued operations	573	(270)	(1,154)
Cash used in investing activities	(217,453)	(214,172)	(136,629)
Financing activities:			
Repurchases related to stock-based compensation	—	(2,034)	(1,042)
Proceeds from stock options exercised	1,546	4,819	8,404
Proceeds from common stock issued	—	—	52,760
Long-term debt issued	50,000	100,000	150,000
Long-term debt retired	(97,000)	(40,000)	(25,000)
Change in short-term debt	163,274	900	(216,735)
Cash dividend payments on common stock	(51,311)	(53,957)	(51,508)
Stock purchases related to acquisitions	(7,951)	—	—
Other	(715)	(2,309)	(3,087)
Cash provided by (used in) financing activities	57,843	7,419	(86,208)
Increase (decrease) in cash and cash equivalents	9,161	(49)	(690)
Cash and cash equivalents, beginning of period	3,472	3,521	4,211
Cash and cash equivalents, end of period	\$12,633	\$3,472	\$3,521
Supplemental disclosure of cash flow information:			
Interest paid, net of capitalization	\$35,324	\$34,787	\$36,023

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Income taxes paid (refunded)	27,370	14,780	(7,157)
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See Notes to Consolidated Financial Statements

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NORTHWEST NATURAL GAS COMPANY
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

In thousands	Year Ended December 31,		
	2018	2017	2016
Operating revenues	\$705,571	\$755,038	\$667,949
Operating expenses:			
Cost of gas	255,743	325,019	260,588
Operations and maintenance	155,225	152,180	135,979
Environmental remediation	11,127	15,291	13,298
General taxes	32,086	30,602	29,222
Revenue taxes	30,082	—	—
Depreciation and amortization	84,986	81,024	77,575
Other operating expenses	3,223	—	—
Total operating expenses	572,472	604,116	516,662
Income from operations	133,099	150,922	151,287
Other income (expense), net	(3,599)	(198)	(7,041)
Interest expense, net	36,992	37,526	38,136
Income before income taxes	92,508	113,198	106,110
Income tax expense	24,459	41,478	43,275
Net income from continuing operations	68,049	71,720	62,835
Loss from discontinued operations, net of tax	(1,723)	(127,343)	(3,940)
Net income (loss)	66,326	(55,623)	58,895
Other comprehensive income (loss):			
Change in employee benefit plan liability, net of taxes of (\$166) for 2018, \$735 for 2017, and \$452 for 2016	476	(2,059)	(744)
Amortization of non-qualified employee benefit plan liability, net of taxes of (\$278) for 2018, (\$374) for 2017, and (\$624) for 2016	774	572	955
Comprehensive income (loss)	\$67,576	\$(57,110)	\$59,106

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL GAS COMPANY
CONSOLIDATED BALANCE SHEETS

In thousands	As of December 31,	
	2018	2017
Assets:		
Current assets:		
Cash and cash equivalents	\$7,947	\$3,110
Accounts receivable	66,824	66,236
Accrued unbilled revenue	57,773	62,381
Receivables from affiliates	4,166	266
Allowance for uncollectible accounts	(975) (956
Regulatory assets	41,930	45,781
Derivative instruments	9,001	1,735
Inventories	44,126	47,577
Gas reserves	16,647	15,704
Other current assets	25,347	24,862
Discontinued operations - current assets	—	7,170
Total current assets	272,786	273,866
Non-current assets:		
Property, plant, and equipment	3,410,439	3,204,260
Less: Accumulated depreciation	992,855	960,285
Total property, plant, and equipment, net	2,417,584	2,243,975
Gas reserves	66,197	84,053
Regulatory assets	371,786	356,608
Derivative instruments	725	1,306
Other investments	49,922	52,654
Other non-current assets	13,736	6,505
Discontinued operations - non-current assets	—	24,709
Total non-current assets	2,919,950	2,769,810
Total assets	\$3,192,736	\$3,043,676

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL GAS COMPANY
CONSOLIDATED BALANCE SHEETS

In thousands	As of December 31,	
	2018	2017
Liabilities and equity:		
Current liabilities:		
Short-term debt	\$217,500	\$54,200
Current maturities of long-term debt	29,989	96,703
Accounts payable	114,937	110,354
Payables to affiliates	523	3,664
Taxes accrued	10,990	18,844
Interest accrued	7,273	6,773
Regulatory liabilities	47,436	34,013
Derivative instruments	12,381	18,722
Other current liabilities	53,027	39,942
Discontinued operations - current liabilities	—	2,565
Total current liabilities	494,056	385,780
Long-term debt	704,134	683,184
Deferred credits and other non-current liabilities:		
Deferred tax liabilities	294,739	287,388
Regulatory liabilities	611,560	586,093
Pension and other postretirement benefit liabilities	221,886	223,333
Derivative instruments	3,025	4,649
Other non-current liabilities	147,668	135,205
Discontinued operations - non-current liabilities	—	(4,732)
Total deferred credits and other non-current liabilities	1,278,878	1,231,936
Commitments and contingencies (see Note 16 and Note 17)		
Equity:		
Common stock	226,452	448,865
Retained earnings	496,404	302,349
Accumulated other comprehensive loss	(7,188)	(8,438)
Total equity	715,668	742,776
Total liabilities and equity	\$3,192,736	\$3,043,676

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL GAS COMPANY
CONSOLIDATED STATEMENTS OF SHAREHOLDER'S EQUITY

In thousands	Common Stock	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Equity
Balance at December 31, 2015	\$383,144	\$404,990	\$ (7,162)	\$780,972
Comprehensive income	—	58,895	211	59,106
Dividends on common stock	—	(51,624)	—	(51,624)
Stock-based compensation	2,924	—	—	2,924
Shares issued pursuant to equity based plans	6,358	—	—	6,358
Issuance of common stock, net of issuance costs	52,761	—	—	52,761
Balance at December 31, 2016	445,187	412,261	(6,951)	850,497
Comprehensive income (loss)	—	(55,623)	(1,487)	(57,110)
Dividends on common stock	—	(54,289)	—	(54,289)
Stock-based compensation	2,882	—	—	2,882
Shares issued pursuant to equity based plans	796	—	—	796
Balance at December 31, 2017	448,865	302,349	(8,438)	742,776
Comprehensive income	—	66,326	1,250	67,576
Dividends on common stock	—	(41,035)	—	(41,035)
Stock-based compensation ⁽¹⁾	2,161	—	—	2,161
Shares issued pursuant to equity based plans ⁽¹⁾	3,075	—	—	3,075
Transfer of investments to NW Holdings as of October 1, 2018	(227,649)	168,764	—	(58,885)
Balance at December 31, 2018	\$226,452	\$496,404	\$ (7,188)	\$715,668

⁽¹⁾ Stock-based compensation is based on stock awards of NW Natural to be issued in shares of NW Holdings.

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL GAS COMPANY
CONSOLIDATED STATEMENTS OF CASH FLOWS

In thousands	Year Ended December 31,		
	2018	2017	2016
Operating activities:			
Net income (loss)	\$66,326	\$(55,623)	\$58,895
Adjustments to reconcile net income (loss) to cash provided by operations:			
Depreciation and amortization	84,986	81,024	77,575
Regulatory amortization of gas reserves	16,684	16,353	15,525
Deferred income taxes	12,330	15,894	30,772
Qualified defined benefit pension plan expense	8,108	5,364	5,274
Contributions to qualified defined benefit pension plans	(15,540)	(19,430)	(14,470)
Deferred environmental expenditures, net	(14,528)	(13,716)	(10,469)
Regulatory disallowance of prior environmental cost deferrals	—	—	3,287
Amortization of environmental remediation	11,127	15,291	13,298
Regulatory revenue deferral from the TCJA	7,929	—	—
Other	883	2,003	2,745
Changes in assets and liabilities:			
Receivables, net	(3,920)	3,215	(6,319)
Inventories	3,212	5,601	16,565
Income and other taxes	(7,854)	6,730	9,467
Accounts payable	13,937	3,332	10,822
Interest accrued	500	807	93
Deferred gas costs	(14,395)	17,122	(10,204)
Other, net	539	(3,855)	12,342
Discontinued operations	3,184	126,371	7,041
Cash provided by operating activities	173,508	206,483	222,239
Investing activities:			
Capital expenditures	(214,328)	(213,325)	(138,357)
Other	(3,517)	(577)	2,882
Discontinued operations	(20,617)	(270)	(1,154)
Cash used in investing activities	(238,462)	(214,172)	(136,629)
Financing activities:			
Repurchases related to stock-based compensation	—	(2,034)	(1,042)
Proceeds from stock options exercised	1,368	4,819	8,404
Proceeds from common stock issued	—	—	52,760
Long-term debt issued	50,000	100,000	150,000
Long-term debt retired	(97,000)	(40,000)	(25,000)
Change in short-term debt	163,300	900	(216,735)
Cash dividend payments on common stock	(38,387)	(53,957)	(51,508)
Other	(1,539)	(2,309)	(3,087)
Discontinued operations	(7,951)	—	—
Cash provided by (used in) financing activities	69,791	7,419	(86,208)
Increase (decrease) in cash and cash equivalents	4,837	(270)	(598)
Cash and cash equivalents, beginning of period	3,110	3,380	3,978
Cash and cash equivalents, end of period	\$7,947	\$3,110	\$3,380
Supplemental disclosure of cash flow information:			
Interest paid, net of capitalization	\$35,305	\$34,787	\$36,023

Income taxes paid (refunded)	27,350	14,780	(7,157)
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See Notes to Consolidated Financial Statements

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. ORGANIZATION AND PRINCIPLES OF CONSOLIDATION

On October 1, 2018, we completed a reorganization into a holding company structure. In this reorganization, shareholders of NW Natural (the predecessor publicly held parent company) became shareholders of NW Holdings on a one-for-one basis; maintaining the same number of shares and ownership percentage as held in NW Natural immediately prior to the reorganization. NW Natural became a wholly-owned subsidiary of NW Holdings. Additionally, certain subsidiaries of NW Natural were transferred to NW Holdings. This reorganization was accounted for as a transaction among entities under common control. As required under accounting guidance, these subsidiaries are presented in this report as discontinued operations in the consolidated results of NW Natural. See Note 18 for additional information.

The accompanying consolidated financial statements represent the respective, consolidated results and financial results of NW Holdings and NW Natural and all respective companies that each registrant directly or indirectly controls, either through majority ownership or otherwise. This is a combined report of NW Holdings and NW Natural, which includes separate consolidated financial statements for each registrant.

NW Natural's natural gas distribution activities are reported in the natural gas distribution (NGD) segment, formerly titled and reported as the utility segment. The NGD segment is NW Natural's core operating business and serves residential, commercial, and industrial customers in Oregon and southwest Washington. The NGD segment is the only reportable segment for NW Holdings and NW Natural. All other business activities, including certain gas storage activities, water businesses, and other investments and activities are aggregated and reported as other at their respective registrant.

In addition, NW Holdings has reported discontinued operations results related to the pending sale of Gill Ranch Storage, LLC (Gill Ranch).

NW Holdings' direct and indirect wholly-owned subsidiaries include:

- ✦Northwest Natural Gas Company (NW Natural);
- Northwest Energy Corporation (Energy Corp);
- NWN Gas Reserves LLC (NWN Gas Reserves);
- ✦NW Natural Energy, LLC (NWN Energy);
- NW Natural Gas Storage, LLC (NWN Gas Storage);
- Gill Ranch Storage, LLC (Gill Ranch), which is presented as a discontinued operation;
- ✦NNG Financial Corporation (NNG Financial);
- KB Pipeline Company (KB);
- ✦NW Natural Water Company, LLC (NWN Water);
- Falls Water Co., Inc. (Falls Water);
- Salmon Valley Water Company;

- Cascadia Water, LLC (Cascadia);
- NW Natural Water of Oregon, LLC (NWN Water of Oregon);
- NW Natural Water of Washington, LLC (NWN Water of Washington); and

NW Natural Water of Idaho, LLC (NWN Water of Idaho); and
Gem State Water Company, LLC (Gem State)

Investments in corporate joint ventures and partnerships that NW Holdings does not directly or indirectly control, and for which it is not the primary beneficiary, include NWN Financial's investment in Kelso-Beaver Pipeline and NWN Energy's investment in Trail West Holdings, LLC (TWH), which is accounted for under the equity method. NW Holdings and its direct and indirect subsidiaries are collectively referred to herein as NW Holdings, and NW Natural and its direct and indirect subsidiaries are collectively referred to herein as NW Natural. The consolidated financial statements of NW Holdings and NW Natural are presented after elimination of all intercompany balances and transactions.

During the second quarter of 2018, we moved forward with our long-term strategic plans, which include a shift away from the California gas storage business. In June 2018, NWN Gas Storage, a wholly-owned subsidiary of NW Natural at the time and now a wholly-owned subsidiary of NW Holdings, entered into a Purchase and Sale Agreement that provides for the sale of all of the membership interests in its wholly-owned subsidiary, Gill Ranch, subject to various regulatory approvals and closing conditions. We have concluded that the pending sale of Gill Ranch qualifies as assets and liabilities held for sale and discontinued operations. As such, the results of Gill Ranch have been presented as a discontinued operation for NW Holdings for all periods presented and for NW Natural up until the holding company reorganization was effective on October 1, 2018 on the consolidated statements of comprehensive income and cash flows, and the assets and liabilities associated with Gill Ranch have been classified as discontinued operations assets and liabilities on the NW Holdings consolidated balance sheet. See Note 18 for additional information. Additionally, we reevaluated reportable segments and concluded that the remaining gas storage activities no longer meet the requirements to be separately reported as a segment. Interstate Storage Services is now reported in Other under NW Natural and all prior periods reflect this change. See Note 4, which provides segment information.

Notes to the consolidated financial statements reflect the activity of continuing operations for both NW Holdings and NW Natural for all periods presented, unless otherwise noted. Note 4 and Note 18 provide information regarding reportable segments and discontinued operations, respectively.

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All prior period amounts have been retrospectively adjusted to reflect the change in reportable segments and the designation of Gill Ranch as a discontinued operation for NW Holdings, and the designation of subsidiaries previously owned by NW Natural that are now owned by NW Holdings as discontinued operations for NW Natural. These

reclassifications and the reorganization activities described above had no effect on the prior year's consolidated results of operations, financial condition, or cash flows.

2. SIGNIFICANT ACCOUNTING POLICIES

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect reported amounts in the consolidated financial statements and accompanying notes. Actual amounts could differ from those estimates, and changes would most likely be reported in future periods. Management believes the estimates and assumptions used are reasonable.

Industry Regulation

NW Holdings' principal business is to operate as a holding company for NW Natural, NWN Water and its other subsidiaries.

NW Natural's principal business is the distribution of natural gas, which is regulated by the OPUC and WUTC. NW Natural also has natural gas storage services, which are regulated by the FERC, and to a certain extent by the OPUC and WUTC. Additionally, certain NW Holdings' subsidiaries own water businesses, which are regulated by the OPUC, WUTC, or IPUC. Accounting records and practices of the regulated businesses conform to the requirements and uniform system of accounts prescribed by these regulatory authorities in accordance with U.S. GAAP. The businesses in which customer rates are regulated by the OPUC, WUTC, IPUC, and FERC have approved cost-based rates which are intended to allow such businesses to earn a reasonable return on invested capital.

In applying regulatory accounting principles, we capitalize or defer certain costs and revenues as regulatory assets and liabilities pursuant to orders of the OPUC, WUTC, or IPUC, which provide for the recovery of revenues or expenses from, or refunds to, utility customers in future periods, including a return or a carrying charge in certain cases.

At December 31, NW Natural deferred the following amounts as regulatory assets and liabilities:

In thousands	Regulatory Assets	
	2018	2017
Current:		
Unrealized loss on derivatives ⁽¹⁾	\$12,381	\$18,712
Gas costs	2,873	154
Environmental costs ⁽²⁾	5,601	6,198
Decoupling ⁽³⁾	9,140	11,227
Income taxes	2,218	2,218
Other ⁽⁴⁾	9,717	7,272
Total current	\$41,930	\$45,781
Non-current:		
Unrealized loss on derivatives ⁽¹⁾	\$3,025	\$4,649
Pension balancing ⁽⁵⁾	74,173	60,383
Income taxes	19,185	19,991

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Pension and other postretirement benefit liabilities	174,993	179,824
Environmental costs ⁽²⁾	76,149	72,128
Gas costs	9,978	84
Decoupling ⁽³⁾	2,545	3,970
Other ⁽⁴⁾	11,738	15,579
Total non-current	\$371,786	\$356,608

In thousands	Regulatory Liabilities	
	2018	2017
Current:		
Gas costs	\$17,182	\$14,886
Unrealized gain on derivatives ⁽¹⁾	8,740	1,674
Decoupling ⁽³⁾	2,264	322
Other ⁽⁴⁾	19,250	17,131
Total current	\$47,436	\$34,013
Non-current:		
Gas costs	\$552	\$4,630
Unrealized gain on derivatives ⁽¹⁾	725	1,306
Decoupling ⁽³⁾	—	957
Income taxes ⁽⁶⁾	225,408	213,306
Accrued asset removal costs ⁽⁷⁾	380,464	360,929
Other ⁽⁴⁾	4,411	4,965
Total non-current	\$611,560	\$586,093

Unrealized gains or losses on derivatives are non-cash items and, therefore, do not earn a rate of return or a

- (1) carrying charge. These amounts are recoverable through natural gas distribution rates as part of the annual Purchased Gas Adjustment (PGA) mechanism when realized at settlement.
- (2) Refer to footnote (3) of the Deferred Regulatory Asset table in Note 17 for a description of environmental costs.
- (3) This deferral represents the margin adjustment resulting from differences between actual and expected volumes.

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- (4) Balances consist of deferrals and amortizations under approved regulatory mechanisms and typically earn a rate of return or carrying charge.
- (5) Refer to footnote (1) of the Net Periodic Benefit Cost table in Note 9 for information regarding the deferral of pension expenses.
- (6) This balance represents estimated amounts associated with the Tax Cuts and Jobs Act. See Note 10.
- (7) Estimated costs of removal on certain regulated properties are collected through rates. See "Accounting Policies—Plant, Property, and Accrued Asset Removal Costs" below.

The amortization period for NW Natural's regulatory assets and liabilities ranges from less than one year to an indeterminable period. Regulatory deferrals for gas costs payable are generally amortized over 12 months beginning each November 1 following the gas contract year during which the deferred gas costs are recorded. Similarly, most other regulatory deferred accounts are amortized over 12 months. However, certain regulatory account balances, such as income taxes, environmental costs, pension liabilities, and accrued asset removal costs, are large and tend to be amortized over longer periods once NW Natural has agreed upon an amortization period with the respective regulatory agency.

We believe all costs incurred and deferred at December 31, 2018 are prudent. All regulatory assets and liability are reviewed annually for recoverability, or more often if circumstances warrant. If it is determined that all or a portion of these regulatory assets or liabilities no longer meet the criteria for continued application of regulatory accounting, then NW Natural would be required to write-off the net unrecoverable balances in the period such determination is made.

Environmental Regulatory Accounting

See Note 17 for information about the SRRM and OPUC orders regarding implementation.

New Accounting Standards

NW Holdings and NW Natural consider the applicability and impact of all accounting standards updates (ASUs) issued by the Financial Accounting Standards Board (FASB). ASUs not listed below were assessed and determined to be either not applicable or are expected to have minimal impact on the consolidated financial position or results of operations.

Recently Adopted Accounting Pronouncements

STOCK COMPENSATION. On May 10, 2017, the FASB issued ASU 2017-09, "Stock Compensation - Scope of Modification Accounting." The purpose of the amendment is to provide clarity, reduce diversity in practice, and reduce the cost and complexity when applying the guidance in Topic 718, related to a change to the terms or conditions of a share-based payment award. Specifically, an entity would not apply modification accounting if the fair value, vesting conditions, and classification of the awards are the same immediately before and after the modification. The amendments in this update were effective beginning January 1, 2018, and will be applied prospectively to any award modified on or after the adoption date. The adoption did not have a material impact to the financial statements or disclosures of NW Holdings or NW Natural.

RETIREMENT BENEFITS. On March 10, 2017, the FASB issued ASU 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Post Retirement Benefit Cost." The ASU requires entities to disaggregate current service cost from the other components of net periodic benefit cost and present it with other current compensation costs for related employees in the income statement. Additionally, the other components of net periodic benefit costs are to be presented elsewhere in the income statement and outside of income from operations if that

subtotal is presented. Only the service cost component of the net periodic benefit cost is eligible for capitalization. The amendments in this update were effective beginning January 1, 2018. Upon adoption, the ASU required that changes to the income statement presentation of net periodic benefit cost be applied retrospectively, while changes to amounts capitalized must be applied prospectively. As such, the interest cost, expected return on assets, amortization of prior service costs, and other costs have been reclassified from operations and maintenance expense to other income (expense), net on the consolidated statements of comprehensive income for the years ended December 31, 2017 and 2016. We did not elect the practical expedient which would have allowed for the reclassification of amounts disclosed previously in the pension and other postretirement benefits footnote disclosure as the basis for applying retrospective presentation. As mentioned above, on a prospective basis, the other components of net periodic benefit cost will not be eligible for capitalization.

The retrospective presentation requirement related to the other components of net periodic benefit cost affected the operations and maintenance expense and other income (expense), net lines on the NW Natural consolidated statements of comprehensive income. For the years ended December 31, 2017 and 2016, \$5.6 million and \$6.6 million of expense was reclassified from operations and maintenance expense and included in other income (expense), net, respectively.

GOODWILL. On January 26, 2017, the FASB issued ASU 2017-04, "Simplifying the Test for Goodwill Impairment." The ASU removes Step 2 from the goodwill impairment test and under the amended guidance an entity should perform its annual goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and recognize an impairment charge for the amount in which the carrying

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amounts exceed the fair value of the reporting unit. The amendments in this standard are effective beginning January 1, 2020 and early adoption is permitted for interim or annual goodwill impairment tests performed after January 1, 2017. ASU 2017-04 was early adopted in the third quarter ended September 30, 2018. The adoption of this ASU did not materially affect the financial statements or disclosures of NW Holdings or NW Natural and is currently not applicable to NW Natural.

STATEMENT OF CASH FLOWS. On August 26, 2016, the FASB issued ASU 2016-15, "Classification of Certain Cash Receipts and Cash Payments." The ASU adds guidance pertaining to the classification of certain cash receipts and payments on the statement of cash flows. The purpose of the amendment is to clarify issues that have been creating diversity in practice. The amendments in this standard were effective beginning January 1, 2018, and the adoption did not have a material impact to financial statements or disclosures as our historical practices and presentation were consistent with the directives of this ASU for NW Holdings and NW Natural.

FINANCIAL INSTRUMENTS. On January 5, 2016, the FASB issued ASU 2016-01, "Financial Instruments - Overall: Recognition and Measurement of Financial Assets and Financial Liabilities." The ASU enhances the reporting model for financial instruments, which includes amendments to address aspects of recognition, measurement, presentation, and disclosure. The new standard was effective beginning January 1, 2018, and the adoption did not materially impact the financial statements or disclosures of NW Holdings or NW Natural.

REVENUE RECOGNITION. On May 28, 2014, the FASB issued ASU 2014-09 "Revenue From Contracts with Customers." The underlying principle of the guidance requires entities to recognize revenue depicting the transfer of goods or services to customers at amounts the entity is expected to be entitled to in exchange for those goods or services. The ASU also prescribes a five-step approach to revenue recognition: (1) identify the contract(s) with the customer; (2) identify the separate performance obligations in the contract(s); (3) determine the transaction price; (4) allocate the transaction price to separate performance obligations; and (5) recognize revenue when, or as, each performance obligation is satisfied. The guidance also requires additional disclosures, both qualitative and quantitative, regarding the nature, amount, timing and uncertainty of revenue and cash flows.

The new accounting standard and all related amendments were effective beginning January 1, 2018. The accounting standard was applied to all contracts using the modified retrospective method. The new standard is primarily reflected in the consolidated statements of comprehensive income and Note 6. The implementation of the new revenue standard did not result in changes to how NW Holdings and NW Natural currently recognize revenue, and therefore, no cumulative effect or adjustment to the opening balances of retained earnings was required. The implementation did result in changes to the disclosures and presentation of revenues and expenses. The comparative information for prior years has not been restated. There is no material

impact to the financial results of NW Holdings or NW Natural and no significant changes to our control environment due to the adoption of the new revenue standard on an ongoing basis.

As previously discussed, the adoption of the new revenue standard did not impact the consolidated balance sheets or statements of cash flows but did result in changes to the presentation of the consolidated statements of comprehensive income for NW Holdings and NW Natural. Had the adoption of the new revenue standard not occurred, operating revenues for the year ended December 31, 2018 would have been \$676.0 million for NW Holdings, compared to the reported amount of \$706.1 million under the new revenue standard. Similarly, absent the impact of the new revenue standard, operating expenses would have been \$543.9 million for NW Holdings, compared to the reported amount of \$574.0 million under the new revenue standard for the year ended December 31, 2018. The effect of the change was

an increase in both operating revenues and operating expenses of \$30.1 million at NW Holdings and NW Natural for the year ended December 31, 2018; due to the change in presentation of revenue taxes. As part of the adoption of the new revenue standard, we evaluated the presentation of revenue taxes under the new guidance and across our peer group and concluded that the gross presentation of revenue taxes provides the greatest level of consistency and transparency. Prior to the adoption of the new revenue standard, a portion of revenue taxes was presented net in operating revenues and a portion was recorded directly on the balance sheet. During year ended December 31, 2018, \$30.1 million in revenue taxes for NW Holdings and NW Natural was recognized in operating revenues and operating expenses. In comparison, for the years ended December 31, 2017 and 2016, \$32.2 million and \$28.3 million was recognized in revenue taxes for NW Holdings and NW Natural, of which \$19.1 million and \$17.1 million were recorded in operating revenues and \$13.1 million and \$11.2 million were recorded on the consolidated balance sheets, respectively. The change in presentation of revenue taxes had no impact on NGD margin, net income or earnings per share.

Recently Issued Accounting Pronouncements

CLOUD COMPUTING. On August 29, 2018, the FASB issued ASU 2018-15, "Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract." The purpose of the amendment is to align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The amendments in this update are effective beginning January 1, 2020. Early adoption is permitted. The amended guidance can be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. We are currently assessing the effect of this standard on NW Holdings' and NW Natural's financial statements and disclosures.

RETIREMENT BENEFITS. On August 28, 2018, the FASB issued ASU 2018-14, "Changes to the Disclosure Requirements for Defined Benefit Plans." The purpose of the amendment is to modify the disclosure requirements for

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defined benefit pension and other postretirement plans. The amendments in this update are effective for the year ended December 31, 2020. Early adoption is permitted. The amended presentation and disclosure guidance should be applied retrospectively. We are currently assessing the effect of this standard on NW Holdings' and NW Natural's disclosures.

FAIR VALUE MEASUREMENT. On August 28, 2018, the FASB issued ASU 2018-13, "Changes to the Disclosure Requirements for Fair Value Measurement." The purpose of the amendment is to modify the disclosure requirements for fair value measurements. The amendments in this update are effective beginning January 1, 2020. Early adoption is permitted. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements and the narrative description of measurement uncertainty should be applied prospectively. All other amendments should be applied retrospectively. We are currently assessing the effect of this standard on NW Holdings' and NW Natural's disclosures.

ACCUMULATED OTHER COMPREHENSIVE INCOME. On February 14, 2018, the FASB issued ASU 2018-02, "Income Statement—Reporting Comprehensive Income: Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income." This update was issued in response to concerns from certain stakeholders regarding the current requirements under U.S. GAAP that deferred tax assets and liabilities are adjusted for a change in tax laws or rates, and the effect is to be included in income from continuing operations in the period of the enactment date. This requirement is also applicable to items in accumulated other comprehensive income where the related tax effects were originally recognized in other comprehensive income. The adjustment of deferred taxes due to the new corporate income tax rate enacted through the TCJA on December 22, 2017 recognized in income from continuing operations causes the tax effects of items within accumulated other comprehensive income (referred to as stranded tax effects) to not reflect the appropriate tax rate. The amendments in this update allow a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the TCJA and require certain disclosures about stranded tax effects. The amendments in this update are effective beginning January 1, 2019, and should be applied either in the period of adoption or retrospectively to each period in which the effect of the change in the federal corporate income tax rate in the TCJA is recognized. The reclassification allowed in this update is elective, and we are currently assessing whether we will make the reclassification. This update is not expected to have a material impact on the financial condition of NW Holdings or NW Natural.

DERIVATIVES AND HEDGING. On August 28, 2017, the FASB issued ASU 2017-12, "Derivatives and Hedging: Targeted Improvements to Accounting for Hedging Activities." The purpose of the amendment is to more closely align hedge accounting with companies' risk management strategies. The ASU amends the accounting for risk component hedging, the hedged item in fair value hedges of interest rate risk, and amounts excluded from the

assessment of hedge effectiveness. The guidance also amends the recognition and presentation of the effect of hedging instruments and includes other simplifications of hedge accounting. The amendments in this update are effective beginning January 1, 2019. Early adoption is permitted. The amended presentation and disclosure guidance is required prospectively. We do not anticipate the adoption of this standard to have a material impact on NW Holdings' and NW Natural's financial statements and disclosures.

LEASES. On February 25, 2016, the FASB issued ASU 2016-02, "Leases," which revises the existing lease accounting guidance. Pursuant to the new standard, lessees will be required to recognize all leases, including operating leases that are greater than 12 months at lease commencement, on the balance sheet and record corresponding right-of-use assets and lease liabilities. Lessor accounting will remain substantially the same under the new standard. Quantitative and qualitative disclosures are also required for users of the financial statements to have a clear understanding of the nature of NW Natural's leasing activities. On July 30, 2018, the FASB approved an optional

alternative transition approach that would allow entities to apply the transition requirements on the effective date of the standard. Additionally, on January 25, 2018, the FASB issued ASU 2018-01, "Land Easement Practical Expedient for Transition to Topic 842", to address the costs and complexity of applying the transition provisions of the new lease standard to land easements. This ASU provides an optional practical expedient to not evaluate existing or expired land easements that were not previously accounted for as leases under the current lease guidance. The standard and associated ASUs were effective for us beginning January 1, 2019.

We elected the alternative prospective transition approach for adoption of ASC 842 beginning January 1, 2019. All comparative periods prior to January 1, 2019 will retain the financial reporting and disclosure requirements of ASC 840 "Leases" ("ASC 840"). We elected the land easement optional practical expedient to not evaluate existing or expired land easements that were not previously accounted for as leases under the current lease guidance. For the existing lease portfolio, we did not elect the optional practical expedient package to retain the legacy lease accounting conclusions upon adoption; rather, we re-assessed our existing contracts under the new leasing standard including whether the contract meets the definition of a lease and lease classification. As a result, we determined that most of our underground gas storage contracts no longer meet the definition of a lease under the new lease standard. Our lease portfolio under the new standard consists primarily of our leased headquarters, which expires in 2020. Upon adoption, NW Holdings expects to record a right-of-use lease asset and an associated lease liability of approximately \$7.3 million, of which \$7.0 million is expected to be recorded at NW Natural.

In October 2017, NW Natural entered into a 20-year operating lease agreement commencing in 2020 for the new headquarters location in Portland, Oregon. Under the new lease standard, NW Natural is no longer considered the accounting owner of the asset during construction. As such,

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we expect to de-recognized the build-to-suit asset and liability balances of \$26.0 million as of December 31, 2018 that were recorded under ASC 840 within property, plant and equipment and other non-current liabilities in the consolidated balance sheet. Refer to Note 16 for current lease commitments.

CREDIT LOSSES. On June 16, 2016, the FASB issued ASU 2016-13, "Measurement of Credit Losses on Financial Instruments," which applies to financial assets subject to credit losses and measured at amortized cost. The new standard will require financial assets measured at amortized cost to be presented at the net amount expected to be collected and the allowance for credit losses is to be recorded as a valuation account that is deducted from the amortized cost basis. The amendments in this update are effective beginning January 1, 2020. Early adoption is permitted for fiscal years beginning after December 15, 2018. We are currently assessing the effect of this standard on the financial statements and disclosures of NW Holdings and NW Natural.

Accounting Policies

The accounting policies discussed below apply to both NW Holdings and NW Natural.

Plant, Property, and Accrued Asset Removal Costs

Plant and property are stated at cost, including capitalized labor, materials, and overhead. In accordance with regulatory accounting standards, the cost of acquiring and constructing long-lived plant and property generally includes an allowance for funds used during construction (AFUDC) or capitalized interest. AFUDC represents the regulatory financing cost incurred when debt and equity funds are used for construction (see "AFUDC" below). When constructed assets are subject to market-based rates rather than cost-based rates, the financing costs incurred during construction are included in capitalized interest in accordance with U.S. GAAP, not as regulatory financing costs under AFUDC.

In accordance with long-standing regulatory treatment, our depreciation rates consist of three components: one based on the average service life of the asset, a second based on the estimated salvage value of the asset, and a third based on the asset's estimated cost of removal. We collect, through rates, the estimated cost of removal on certain regulated properties through depreciation expense, with a corresponding offset to accumulated depreciation. These removal costs are non-legal obligations as defined by regulatory accounting guidance. Therefore, we have included these costs as non-current regulatory liabilities rather than as accumulated depreciation on our consolidated balance sheets. In the rate setting process, the liability for removal costs is treated as a reduction to the net rate base on which the NGD business has the opportunity to earn its allowed rate of return.

The costs of NGD plant retired or otherwise disposed of are removed from NGD plant and charged to accumulated depreciation for recovery or refund through future rates. Gains from the sale of regulated assets are generally deferred and refunded to customers. For assets not related to NGD, we record a gain or loss upon the disposal of the property, and the gain or loss is recorded in operating

income or loss in the consolidated statements of comprehensive income.

The provision for depreciation of NGD property, plant, and equipment is recorded under the group method on a straight-line basis with rates computed in accordance with depreciation studies approved by regulatory authorities. The weighted-average depreciation rate for NGD assets in service was approximately 2.8% for 2018, 2017, and 2016, reflecting the approximate weighted-average economic life of the property. This includes 2018 weighted-average depreciation rates for the following asset categories: 2.7% for transmission and distribution plant, 2.1% for gas storage facilities, 4.5% for general plant, and 3.1% for intangible and other fixed assets.

AFUDC. Certain additions to NGD plant include AFUDC, which represents the net cost of debt and equity funds used during construction. AFUDC is calculated using actual interest rates for debt and authorized rates for ROE, if applicable. If short-term debt balances are less than the total balance of construction work in progress, then a composite AFUDC rate is used to represent interest on all debt funds, shown as a reduction to interest charges, and on ROE funds, shown as other income. While cash is not immediately recognized from recording AFUDC, it is realized in future years through rate recovery resulting from the higher NGD cost of service. Our composite AFUDC rate was 5.2% in 2018, 5.5% in 2017, and 0.7% in 2016.

IMPAIRMENT OF LONG-LIVED ASSETS. We review the carrying value of long-lived assets whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable. Factors that would necessitate an impairment assessment of long-lived assets include a significant adverse change in the extent or manner in which the asset is used, a significant adverse change in legal factors or business climate that could affect the value of the asset, or a significant decline in the observable market value or expected future cash flows of the asset, among others.

When such factors are present, we assess the recoverability by determining whether the carrying value of the asset will be recovered through expected future cash flows. An asset is determined to be impaired when the carrying value of the asset exceeds the expected undiscounted future cash flows from the use and eventual disposition of the asset. If an impairment is indicated, we record an impairment loss for the difference between the carrying value and the fair value of the long-lived assets. Fair value is estimated using appropriate valuation methodologies, which may include an estimate of discounted cash flows.

In the fourth quarter of 2017, a non-cash pre-tax impairment of long-lived assets at the Gill Ranch Facility of \$192.5 million was recognized. The income approach was used to estimate fair value, using the estimated future net cash flows. We also compared the results of the income approach to our own recent sale experience and recent market comparable transactions in order to estimate fair value. The Gill Ranch Facility was originally included in the gas storage segment, which has since been eliminated, and is now included in discontinued operations. We determined

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circumstances existed that indicated the carrying value of the assets may not be recoverable. Those circumstances included the completion of a comprehensive strategic review process that evaluated various alternatives including a potential sale, as well as contracting for available storage at lower than anticipated values for the coming storage year. Given these considerations, management re-evaluated the estimated cash flows from our interests in the Gill Ranch Facility, and determined that those estimated cash flows were no longer sufficient to cover the carrying value of the assets. The results of Gill Ranch have been presented as a discontinued operation for NW Holdings and NW Natural on the consolidated statements of comprehensive income and cash flows, and the assets and liabilities associated with Gill Ranch have been classified as discontinued operations assets and liabilities on the consolidated balance sheets. See Note 18 for additional information.

Cash and Cash Equivalents

For purposes of reporting cash flows, cash and cash equivalents include cash on hand plus highly liquid investment accounts with original maturity dates of three months or less. At December 31, 2018 and 2017, NW Holdings had outstanding checks of approximately \$2.7 million and \$4.8 million, respectively, substantially all of which is recorded at NW Natural. These balances are included in accounts payable in the NW Holdings and NW Natural balance sheets.

Revenue Recognition and Accrued Unbilled Revenue

Revenues, derived primarily from the sale and transportation of natural gas, are recognized upon delivery of the gas commodity or service to customers. Revenues include accruals for gas or water delivered but not yet billed to customers based on estimates of deliveries from meter reading dates to month end (accrued unbilled revenue).

Accrued unbilled revenue is dependent upon a number of factors that require management's judgment, including total natural gas receipts and deliveries, customer use of natural gas or water by billing cycle, and weather factors. Accrued unbilled revenue is reversed the following month when actual billings occur. NW Holdings' accrued unbilled revenue at December 31, 2018 and 2017 was \$57.8 million and \$62.4 million, respectively, substantially all of which is accrued unbilled revenue at NW Natural.

Revenues not related to NGD are derived primarily from Interstate Storage Services, asset management activities at the Mist gas storage facility, and other investments and business activities. At the Mist underground storage facility, revenues are primarily firm service revenues in the form of fixed monthly reservation charges. In addition, we also have asset management service revenue from an independent energy marketing company that optimizes commodity, storage, and pipeline capacity release transactions. Under this agreement, guaranteed asset management revenue is recognized using a straight-line, pro-rata methodology over the term of each contract. Revenues earned above the guaranteed amount are recognized as they are earned.

Revenue Taxes

Revenue-based taxes are primarily franchise taxes, which are collected from customers and remitted to taxing authorities. In 2018, revenue taxes are included in operating expenses in the statements of comprehensive income for NW Holdings and NW Natural. In 2017 and 2016, revenue taxes are included in operating revenues in the statements of comprehensive income for NW Holdings and NW Natural. All revenue taxes are recorded at NW Natural and were \$30.1 million, \$19.1 million, and \$17.1 million for 2018, 2017, and 2016, respectively.

Accounts Receivable and Allowance for Uncollectible Accounts

Accounts receivable consist primarily of amounts due for natural gas sales and transportation services to NGD customers, plus amounts due for gas storage services. At NW Holdings and NW Natural we establish allowances for uncollectible accounts (allowance) for trade receivables, including accrued unbilled revenue, based on the aging of receivables, collection experience of past due account balances including payment plans, and historical trends of write-offs as a percent of revenues. A specific allowance is established and recorded for large individual customer

receivables when amounts are identified as unlikely to be partially or fully recovered. Inactive accounts are written-off against the allowance after they are 120 days past due or when deemed uncollectible. Differences between the estimated allowance and actual write-offs will occur based on a number of factors, including changes in economic conditions, customer creditworthiness, and natural gas prices. The allowance for uncollectible accounts is adjusted quarterly, as necessary, based on information currently available.

Inventories

NGD gas inventories, which consist of natural gas in storage for NGD, are stated at the lower of average cost or net realizable value. The regulatory treatment of these inventories provides for cost recovery in customer rates. NGD gas inventories injected into storage are priced in inventory based on actual purchase costs, and those withdrawn from storage are charged to cost of gas during the current period they are withdrawn at the weighted-average inventory cost.

Gas storage inventories, which primarily represent inventories at the Gill Ranch Facility and are included in Discontinued operations - current assets on the consolidated balance sheets, mainly consist of natural gas received as fuel-in-kind from storage customers. Gas storage inventories are valued at the lower of average cost or net realizable value. Cushion gas is not included in inventory balances, is recorded at original cost, and is classified as a long-term plant asset.

Materials and supplies inventories consist of inventories both related to and unrelated to NGD and are stated at the lower of average cost or net realizable value.

NW Natural's NGD and gas storage inventories totaled \$29.9 million and \$36.7 million at December 31, 2018 and 2017, respectively. At December 31, 2018 and 2017, NW Holdings' materials and supplies inventories, which are comprised

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primarily of NW Natural's materials and supplies, totaled \$14.2 million and \$10.9 million, respectively.

Gas Reserves

Gas reserves are payments to acquire and produce natural gas reserves. Gas reserves are stated at cost, adjusted for regulatory amortization, with the associated deferred tax benefits recorded as liabilities on the balance sheet. The current portion is calculated based on expected gas deliveries within the next fiscal year. NW Natural recognizes regulatory amortization of this asset on a volumetric basis calculated using the estimated gas reserves and the estimated therms extracted and sold each month. The amortization of gas reserves is recorded to cost of gas along with gas production revenues and production costs. See Note 12.

Derivatives

NW Natural's derivatives are measured at fair value and recognized as either assets or liabilities on the balance sheet. Changes in the fair value of the derivatives are recognized currently in earnings unless specific regulatory or hedge accounting criteria are met. Accounting for derivatives and hedges provides an exception for contracts intended for normal purchases and normal sales for which physical delivery is probable. In addition, certain derivative contracts are approved by regulatory authorities for recovery or refund through customer rates. Accordingly, the changes in fair value of these approved contracts are deferred as regulatory assets or liabilities pursuant to regulatory accounting principles. NW Natural's financial derivatives generally qualify for deferral under regulatory accounting. NW Natural's index-priced physical derivative contracts also qualify for regulatory deferral accounting treatment.

Derivative contracts entered into for NGD requirements after the annual PGA rate has been set and maturing during the PGA year are subject to the PGA incentive sharing mechanism. In Oregon, NW Natural participates in a PGA sharing mechanism under which it is required to select either an 80% or 90% deferral of higher or lower gas costs such that the impact on current earnings from the gas cost sharing is either 20% or 10% of gas cost differences compared to PGA prices, respectively. For the PGA years in Oregon beginning November 1, 2018, 2017, and 2016, NW Natural selected the 90%, 90%, and 90% deferral of gas cost differences, respectively. In Washington, 100% of the differences between the PGA prices and actual gas costs are deferred. See Note 15.

NW Natural's financial derivatives policy sets forth the guidelines for using selected derivative products to support prudent risk management strategies within designated parameters. NW Natural's objective for using derivatives is to decrease the volatility of gas prices, earnings, and cash flows without speculative risk. The use of derivatives is permitted only after the risk exposures have been identified, are determined not to exceed acceptable tolerance levels, and are determined necessary to support normal business activities. NW Natural does not enter into derivative instruments for trading purposes. All derivatives for NW Holdings are currently held at NW Natural.

Fair Value

In accordance with fair value accounting, we use the following fair value hierarchy for determining inputs for our debt, pension plan assets, and derivative fair value measurements:

Level 1: Valuation is based on quoted prices for identical instruments traded in active markets;

Level 2: Valuation is based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-based valuation techniques for which all significant assumptions are observable in the market; and

Level 3: Valuation is generated from model-based techniques that use significant assumptions not observable in the market. These unobservable assumptions reflect our own estimates of assumptions market participants would use in valuing the asset or liability.

When developing fair value measurements, it is our policy to use quoted market prices whenever available or to maximize the use of observable inputs and minimize the use of unobservable inputs when quoted market prices are not available. Fair values are primarily developed using industry-standard models that consider various inputs including: (a) quoted future prices for commodities; (b) forward currency prices; (c) time value; (d) volatility factors; (e) current market and contractual prices for underlying instruments; (f) market interest rates and yield curves; (g) credit spreads; and (h) other relevant economic measures. NW Natural considers liquid points for natural gas hedging to be those points for which there are regularly published prices in a nationally recognized publication or where the instruments are traded on an exchange.

Goodwill

NW Holdings, through its wholly-owned subsidiary NWN Water and NW Water's wholly-owned subsidiaries, has completed various acquisitions that resulted in the recognition of goodwill. Goodwill is measured as the excess of the acquisition-date fair value of the consideration transferred over the acquisition-date fair value of the net identifiable assets assumed. Adjustments are recorded during the measurement period to finalize the allocation of the purchase price. The carrying value of goodwill is reviewed annually during the fourth quarter using balances as of October 1, or whenever events or changes in circumstance indicate that such carrying values may not be recoverable. The goodwill assessment policy begins with a qualitative analysis in which events and circumstances are evaluated, including macroeconomic conditions, industry and market conditions, regulatory environments, and overall financial performance of the reporting unit. If the qualitative assessment indicates that the carrying value may be at risk of recoverability, a quantitative evaluation is performed to measure the carrying value of the goodwill against the fair value of the reporting unit. The reporting unit is determined primarily based on current operating segments and the level of review provided by the Chief Operating Decision Maker (CODM) and/or segment management on the operating segment's financial results. Reporting units are evaluated periodically for changes in the corporate environment.

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As of December 31, 2018, NW Holdings had goodwill of \$9.0 million. All of NW Holdings' goodwill was acquired in 2018 through the business combinations completed by NWN Water and its wholly-owned subsidiaries. No impairment charges were recorded as a result of the fourth quarter goodwill impairment assessment.

Income Taxes

We account for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of the differences between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the enactment date period unless, for NW Natural, a regulatory Order specifies deferral of the effect of the change in tax rates over a longer period of time.

For NW Natural, deferred income tax assets and liabilities are also recognized for temporary differences where the deferred income tax benefits or expenses have previously been flowed through in the ratemaking process of the NGD business. Regulatory tax assets and liabilities are recorded on these deferred tax assets and liabilities to the extent it is believed they will be recoverable from or refunded to customers in future rates.

Deferred investment tax credits on NGD plant additions, which reduce income taxes payable, are deferred for financial statement purposes and amortized over the life of the related plant.

Interest and penalties related to unrecognized tax benefits, if any, are recognized within income tax expense and accrued interest and penalties are recognized within the related tax liability line in the consolidated balance sheets. No accrued interest or penalties for uncertain tax benefits have been recorded. See Note 10.

Environmental Contingencies

Loss contingencies are recorded as liabilities when it is probable a liability has been incurred and the amount of the loss is reasonably estimable in accordance with accounting standards for contingencies. Estimating probable losses requires an analysis of uncertainties that often depend upon judgments about potential actions by third parties.

Accruals for loss contingencies are recorded based on an analysis of potential results.

With respect to environmental liabilities and related costs, estimates are developed based on a review of information available from numerous sources, including completed studies and site specific negotiations. NW Natural's policy is to accrue the full amount of such liability when information is sufficient to reasonably estimate the amount of probable liability. When information is not available to reasonably estimate the probable liability, or when only the range of probable liabilities can be estimated and no amount within the range is more likely than another, it is our policy to

accrue at the low end of the range. Accordingly, due to numerous uncertainties surrounding the course of environmental remediation and the preliminary nature of several site investigations, in some cases, it may not be possible to reasonably estimate the high end of the range of possible loss. In those cases, the nature of the potential loss and the fact that the high end of the range cannot be reasonably estimated is disclosed. See Note 17.

Subsequent Events

We monitor significant events occurring after the balance sheet date and prior to the issuance of the financial statements to determine the impacts, if any, of events on the financial statements to be issued. We do not have any subsequent events to report.

Table of Contents**3. EARNINGS PER SHARE**

Basic earnings or loss per share are computed using NW Holdings' net income or loss and the weighted average number of common shares outstanding for each period presented. Diluted earnings per share are computed in the same manner, except it uses the weighted average number of common shares outstanding plus the effects of the

assumed exercise of stock options and the payment of estimated stock awards from other stock-based compensation plans that are outstanding at the end of each period presented. Antidilutive stock awards are excluded from the calculation of diluted earnings or loss per common share.

NW Holdings' diluted earnings or loss per share are calculated as follows:

In thousands, except per share data	2018	2017	2016
Net income from continuing operations	\$67,311	\$72,073	\$62,419
Loss from discontinued operations, net of tax	(2,742)	(127,696)	(3,524)
Net income (loss)	\$64,569	\$(55,623)	\$58,895
Average common shares outstanding - basic	28,803	28,669	27,647
Additional shares for stock-based compensation plans (See Note 7)	70	84	132
Average common shares outstanding - diluted	28,873	28,753	27,779
Earnings (loss) from continuing operations per share of common stock:			
Basic	\$2.34	\$2.51	\$2.26
Diluted	\$2.33	\$2.51	\$2.25
Loss from discontinued operations per share of common stock:			
Basic	\$(0.10)	\$(4.45)	\$(0.13)
Diluted	\$(0.09)	\$(4.44)	\$(0.13)
Earnings (loss) per share of common stock:			
Basic	\$2.24	\$(1.94)	\$2.13
Diluted	\$2.24	\$(1.93)	\$2.12
Additional information:			
Antidilutive shares	2	13	5

4. SEGMENT INFORMATION

We primarily operate in one reportable business segment, which is NW Natural's local gas distribution business and is referred to as the NGD segment. During the second quarter of 2018, we moved forward with our long-term strategic plans, which include a shift away from the California gas storage business, by entering into a Purchase and Sale Agreement that provides for the sale of all of the membership interests in Gill Ranch, subject to various regulatory approvals and closing conditions. As such, we reevaluated reportable segments and concluded that the remaining gas storage activities no longer meet the requirements of a reportable segment. Interstate Storage Services and asset management activities at the Mist gas storage facility are now reported as other under NW Natural. NW Natural and NW Holdings also have investments and business activities not specifically related to NGD, which are aggregated and reported as other and described below for each entity.

No individual customer accounts for over 10% of NW Holdings' or NW Natural's operating revenues.

Natural Gas Distribution

The NGD segment is a regulated utility principally engaged in the purchase, sale, and delivery of natural gas and related services to customers in Oregon and southwest Washington. With regulated utility operations, NW Natural is

responsible for building and maintaining a safe and reliable pipeline distribution system, purchasing sufficient gas supplies from producers and marketers, contracting for firm

and interruptible transportation of gas over interstate pipelines to bring gas from the supply basins into its service territory, and re-selling the gas to customers subject to rates, terms, and conditions approved by the OPUC or WUTC. NGD also includes taking customer-owned gas and transporting it from interstate pipeline connections, or city gates, to the customers' end-use facilities for a fee, which is approved by the OPUC or WUTC. Approximately 89% of NGD customers are located in Oregon and 11% in Washington. On an annual basis, residential and commercial customers typically account for around 60% of total NGD volumes delivered and around 90% of NGD margin. Industrial customers largely account for the remaining volumes and NGD margin. A small amount of the margin is also derived from miscellaneous services, gains or losses from an incentive gas cost sharing mechanism, and other service fees. Industrial sectors served by NW Natural include: pulp, paper, and other forest products; the manufacture of electronic, electrochemical and electrometallurgical products; the processing of farm and food products; the production of various mineral products; metal fabrication and casting; the production of machine tools, machinery, and textiles; the manufacture of asphalt, concrete, and rubber; printing and publishing; nurseries; and government and educational institutions.

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In addition to NW Natural's local gas distribution business, the NGD segment also includes the portion of the Mist underground storage facility used to serve NGD customers, the North Mist gas storage expansion in Oregon, and NWN Gas Reserves, which is a wholly-owned subsidiary of Energy Corp.

NW Natural

NW Natural activities included in Other includes Interstate Storage Services and third-party asset management services for the Mist facility in Oregon, appliance retail center operations, and corporate operating and non-operating revenues and expenses that cannot be allocated to NGD operations.

Earnings from Interstate Storage Services assets are primarily related to firm storage capacity revenues. Earnings from the Mist facility also include revenue, net of amounts shared with NGD customers, from management of NGD assets at Mist and upstream pipeline capacity when not needed to serve NGD customers. Historically, under the Oregon sharing mechanism, NW Natural retained 80% of the pre-tax income from these services when the costs of the capacity were not included in NGD rates, or 33% of the pre-tax income when the costs have been included in these rates. The remaining 20% and 67%, respectively, were recorded to a deferred regulatory account for crediting back to NGD customers. After November 1, 2018 NW Natural retains 10% of the pre-tax income when the costs have been included in these rates, and the remaining 90% is recorded to a deferred regulatory account for crediting back to NGD customers.

NW Holdings

NW Holdings' activities included in Other includes all remaining activities not associated with NW Natural, specifically NWN Water, which consolidates the water operations and is pursuing other investments in the water sector itself and through its wholly-owned subsidiaries, NWN Gas Storage, a wholly-owned subsidiary of NWN Energy, NWN Energy's equity investment in TWH, which is pursuing development of a cross-Cascades transmission pipeline project (TWP), and other pipeline assets in NNG Financial. For more information on TWP, see Note 13. Other also includes corporate revenues and expenses that cannot be allocated to other operations.

All prior period amounts have been retrospectively adjusted to reflect the change in reportable segments and the designation of Gill Ranch as a discontinued operation for NW Holdings, and the designation of subsidiaries previously owned by NW Natural that are now owned by NW Holdings as discontinued operations for NW Natural.

Segment Information Summary

Inter-segment transactions were immaterial for the periods presented. The following table presents summary financial information concerning the reportable segments of continued operations. See Note 18 for information regarding discontinued operations for NW Holdings and NW Natural.

In thousands	NGD	Other (NW Natural)	NW Natural	Other (NW Holdings)	NW Holdings
2018					
Operating revenues	\$ 680,648	\$ 24,923	\$ 705,571	\$ 572	\$ 706,143
Depreciation and amortization	83,732	1,254	84,986	170	85,156
Income (loss) from operations	118,095	15,004	133,099	(937)	132,162
Net income (loss) from continuing operations	57,491	10,558	68,049	(738)	67,311
Capital expenditures	212,323	2,005	214,328	308	214,636
Total assets at December 31, 2018 ⁽²⁾	3,141,969	50,767	3,192,736	36,657	3,229,393
2017					
Operating revenues	\$ 732,942	\$ 22,096	\$ 755,038	\$ —	\$ 755,038

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Depreciation and amortization	79,734	1,290	81,024	29	81,053
Income (loss) from operations	138,450	12,472	150,922	(20)	150,902
Net income from continuing operations ⁽¹⁾	60,509	11,211	71,720	353	72,073
Capital expenditures	211,672	1,653	213,325	—	213,325
Total assets at December 31, 2017 ⁽²⁾	2,961,326	50,471	3,011,797	14,075	3,025,872
2016					
Operating revenues	\$ 650,477	\$ 17,472	\$ 667,949	\$ 224	\$ 668,173
Depreciation and amortization	76,289	1,286	77,575	29	77,604
Income (loss) from operations	137,178	14,109	151,287	(570)	150,717
Net income (loss) from continuing operations ⁽³⁾	54,567	8,268	62,835	(416)	62,419
Capital expenditures	138,074	283	138,357	—	138,357
Total assets at December 31, 2016 ⁽²⁾	2,806,627	48,719	2,855,346	14,040	2,869,386

⁽¹⁾ Includes \$1.0 million of tax expense in NGD, \$4.0 million of tax benefit in Other (NW Natural), and \$0.4 million of tax benefit in Other (NW Holdings) from the TCJA remeasurement for the year ended December 31, 2017.

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Total assets for NW Holdings exclude assets related to discontinued operations of \$13.3 million, \$13.9 million and (2) \$210.4 million as of December 31, 2018, 2017, and 2016, respectively. Total assets for NW Natural exclude assets related to discontinued operations of \$31.9 million and \$226.1 million as of December 31, 2017, and 2016, respectively.

(3) Includes \$2.0 million in 2016 of after-tax regulatory environmental disallowance charges in NGD.

Natural Gas Distribution Margin

NGD margin is a financial measure used by the CODM, consisting of NGD operating revenues, reduced by the associated cost of gas, environmental recovery revenues, and revenue taxes. The cost of gas purchased for NGD customers is generally a pass-through cost in the amount of revenues billed to regulated NGD customers.

Environmental recovery revenues represent collections received from customers through the environmental recovery mechanism in Oregon. These collections are offset by the amortization of environmental liabilities, which

is presented as environmental remediation expense in operating expenses. Revenue taxes are collected from NGD customers and remitted to taxing authorities. The collections from customers are offset by the expense recognition of the obligation to the taxing authority. By subtracting cost of gas, environmental remediation expense, and revenue taxes from NGD operating revenues, NGD margin provides a key metric used by the CODM in assessing the performance of the NGD segment.

The following table presents additional segment information concerning NGD margin:

In thousands	2018	2017	2016
NGD margin calculation:			
NGD operating revenues	\$680,648	\$732,942	\$650,477
Less: NGD cost of gas	255,743	325,019	260,588
Environmental remediation expense	11,127	15,291	13,298
Revenue taxes ⁽¹⁾	30,082	—	—
NGD margin	\$383,696	\$392,632	\$376,591

The change in presentation of revenue taxes was a result of the adoption of ASU 2014-09 "Revenue From

(1) Contracts with Customers" and all related amendments on January 1, 2018. This change had no impact on NGD margin results as revenue taxes were previously presented net in NGD operating revenue. For additional information, see Note 2.

5. COMMON STOCK

As part of the reorganization of NW Holdings and NW Natural into a holding company structure effective October 1, 2018, NW Natural shareholders automatically became shareholders of NW Holdings on a one-for-one share basis with the same number of shares and same relative ownership percentage in NW Holdings as was held in NW Natural immediately prior to the reorganization.

As of December 31, 2018, NW Holdings had 100 million shares of common stock authorized. As of December 31, 2018 and 2017, NW Natural had 100 million shares of common stock authorized. As of December 31, 2018, NW Holdings had 24,339 shares reserved for issuance of common stock under the Employee Stock Purchase Plan (ESPP) and 394,204 shares reserved for issuance under the Dividend Reinvestment and Direct Stock Purchase Plan (DRPP). At NW Holdings' election, shares sold through the DRPP may be purchased in the open market or through original issuance of shares reserved for issuance under the DRPP.

The Restated Stock Option Plan (SOP) was terminated with respect to new grants in 2012; however, options granted before the Restated SOP was terminated remain outstanding until the earlier of their expiration, forfeiture, or exercise. Options are now exercisable for shares of NW Holdings common stock. There were 55,938 options outstanding at December 31, 2018, which were granted prior to termination of the plan.

During November 2016, NW Natural completed an equity issuance consisting of an offering of 880,000 shares of

common stock along with a 30-day option for the underwriters to purchase an additional 132,000 shares. The offering closed on November 16, 2016 and resulted in a total issuance of 1,012,000 shares as both the initial offering and the underwriter option were fully executed. All shares were issued on November 16, 2016 at an offering price of \$54.63 per share and resulted in total net proceeds of \$52.8 million.

Stock Repurchase Program

NW Holdings has a share repurchase program under which it may purchase its common shares on the open market or through privately negotiated transactions. NW Holdings currently has Board authorization through May 2019 to repurchase up to an aggregate of the greater of 2.8 million shares or \$100 million. No shares of common stock were repurchased pursuant to this program during the year ended December 31, 2018. Since the plan's inception in 2000 under NW Natural, a total of 2.1 million shares have been repurchased at a total cost of \$83.3 million.

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The following table summarizes the changes in the number of shares of NW Holdings' common stock issued and outstanding:

In thousands	Shares
Balance, December 31, 2015	27,427
Sales to employees under ESPP	18
Stock-based compensation	173
Equity Issuance	1,012
Balance, December 31, 2016	28,630
Sales to employees under ESPP	18
Stock-based compensation	88
Balance, December 31, 2017	28,736
Sales to employees under ESPP	19
Stock-based compensation	64
Sales to shareholders under DRPP	61
Balance, December 31, 2018	28,880

6. REVENUE

The following table presents disaggregated revenue from continuing operations:

In thousands	Year ended December 31, 2018				
	NGD	Other (NW Natural)	NW Natural	Other (NW Holdings)	NW Holdings
Natural gas sales	\$670,662	\$—	\$670,662	\$—	\$670,662
Gas storage revenue, net	—	10,780	10,780	—	10,780
Asset management revenue, net	—	8,548	8,548	—	8,548
Appliance retail center revenue	—	5,595	5,595	—	5,595
Other revenue	—	—	—	572	572
Revenue from contracts with customers	670,662	24,923	695,585	572	696,157
Alternative revenue	8,989	—	8,989	—	8,989
Leasing revenue	997	—	997	—	997
Total operating revenues	\$680,648	\$24,923	\$705,571	\$572	\$706,143

NW Natural's revenue represents substantially all of NW Holdings' revenue and is recognized for both registrants when the obligation to customers is satisfied and in the amount expected to be received in exchange for transferring goods or providing services. Revenue from contracts with customers contain one performance obligation that is generally satisfied over time, using the output method based on time elapsed, due to the continuous nature of the service provided. The transaction price is determined per a set price agreed upon in the contract or dependent on regulatory tariffs. Customer accounts are settled on a monthly basis or paid at time of sale and based on historical experience. It is probable that we will collect substantially all of the consideration to which we are entitled.

NW Holdings and NW Natural do not have any material contract assets, as net accounts receivable and accrued unbilled revenue balances are unconditional and only involve the passage of time until such balances are billed and

collected. NW Holdings and NW Natural do not have any material contract liabilities.

Revenue-based taxes are primarily franchise taxes, which are collected from NGD customers and remitted to taxing authorities. Beginning January 1, 2018, revenue taxes are included in operating revenues with an equal and offsetting expense recognized in operating expenses in the consolidated statements of comprehensive income.

Natural Gas Distribution

Natural gas sales. NW Natural's primary source of revenue is providing natural gas to customers in the NGD service territory, which includes residential, commercial, industrial and transportation customers. NGD revenue is generally recognized over time upon delivery of the gas commodity or service to the customer, and the amount of consideration received and recognized as revenue is dependent on the Oregon and Washington tariffs. Customer accounts are to be paid in full each month, and there is no right of return or warranty for services provided. Revenues include firm and interruptible sales and transportation services, franchise taxes recovered from the customer, late payment fees, service fees, and accruals for gas delivered but not yet billed (accrued unbilled revenue). The accrued unbilled revenue balance is based on estimates of deliveries during

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the period from the last meter reading and management judgment is required for a number of factors used in this calculation, including customer use and weather factors.

We applied the significant financing practical expedient and have not adjusted the consideration NW Natural expects to receive from NGD customers for the effects of a significant financing component as all payment arrangements are settled annually. Due to the election of the right to invoice practical expedient, we do not disclose the value of unsatisfied performance obligations as of December 31, 2018.

Alternative revenue. Weather normalization (WARM) and decoupling mechanisms are considered to be alternative revenue programs. Alternative revenue programs are considered to be contracts between NW Natural and its regulator and are excluded from revenue from contracts with customers.

Leasing revenue. Leasing revenue primarily consists of rental revenue for small leases of property owned for NGD to third parties. The majority of the transactions are accounted for as operating leases and the revenue is recognized on a straight-line basis over the term of the lease agreement. Lease revenue is excluded from revenue from contracts with customers.

NW Natural Other

Gas storage revenue. NW Natural's other revenue includes gas storage activity, which includes Interstate Storage Services used to store natural gas for customers. Gas storage revenue is generally recognized over time as the gas storage service is provided to the customer and the amount of consideration received and recognized as revenue is dependent on set rates defined per the storage agreements. Noncash consideration in the form of dekatherms of natural gas is received as consideration for providing gas injection services to gas storage customers. This noncash consideration is measured at fair value using the average spot rate. Customer accounts are generally paid in full each month, and there is no right of return or warranty for services provided. Revenues include firm and interruptible storage services, net of the profit sharing amount refunded to NGD customers.

Asset management revenue. Asset management revenue is generally recognized over time using a straight-line approach over the term of each contract, and the amount of consideration received and recognized as revenue is dependent on a variable pricing model. Variable revenues earned above guaranteed amounts are estimated and

recognized at the end of each period using the most likely amount approach. Revenues include the optimization of the storage assets and pipeline capacity provided, net of the profit sharing amount refunded to NGD customers. Asset management accounts are settled on a monthly basis.

As of December 31, 2018, unrecognized revenue for the fixed component of the transaction price related to gas storage and asset management revenue was approximately \$56.0 million. Of this amount, approximately \$14.1 million will be recognized in 2019, \$11.7 million in 2020, \$10.7 million in 2021, \$7.0 million in 2022, \$5.8 million in 2023, and \$6.7 million thereafter. The amounts presented here are calculated using current contracted rates. On October 12, 2018, NW Natural filed a rate petition with FERC for revised maximum cost-based rates, which incorporated the new federal corporate income tax rate. The revised rates became effective November 1, 2018.

Appliance retail center revenue. NW Natural owns and operates an appliance store that is open to the public, where customers can purchase natural gas home appliances. Revenue from the sale of appliances is recognized at the point in time in which the appliance is transferred to the third party responsible for delivery and installation services and when the customer has legal title to the appliance. It is required that the sale be paid for in full prior to transfer of legal title.

The amount of consideration received and recognized as revenue varies with changes in marketing incentives and discounts offered to customers.

NW Holdings Other

NW Holdings' primary source of other revenue is providing water distribution services to customers. Water distribution revenue is generally recognized over time upon delivery of the water commodity or service to the customer, and the amount of consideration received and recognized as revenue is dependent on the Oregon, Washington and Idaho tariffs. Customer accounts are to be paid in full each month, and there is no right of return or warranty for services provided.

We applied the significant financing practical expedient and have not adjusted the consideration we expect to receive from water distribution customers for the effects of a significant financing component as all payment arrangements are settled annually. Due to the election of the right to invoice practical expedient, we do not disclose the value of unsatisfied performance obligations as of December 31, 2018.

7. STOCK-BASED COMPENSATION

Stock-based compensation plans are designed to promote stock ownership in NW Holdings by employees and officers. These compensation plans include a Long Term Incentive Plan (LTIP), an ESPP, and a Restated SOP. Long Term Incentive Plan

The LTIP is intended to provide a flexible, competitive compensation program for eligible officers and key employees. Under the LTIP, shares of NW Holdings common stock are authorized for equity incentive grants in

the form of stock, restricted stock, restricted stock units, stock options, or performance shares. An aggregate of 1,100,000 shares were authorized for issuance as of December 31, 2018. Shares awarded under the LTIP may be purchased on the open market or issued as original shares.

Of the 1,100,000 shares of common stock authorized for LTIP awards at December 31, 2018, there were 574,787 shares available for issuance under any type of award. This

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assumes market, performance, and service-based grants currently outstanding are awarded at the target level. There were no outstanding grants of restricted stock or stock options under the LTIP at December 31, 2018 or 2017. The LTIP stock awards are compensatory awards for which compensation expense is based on the fair value of stock awards, with expense being recognized over the performance and vesting period of the outstanding awards. Forfeitures are recognized as they occur.

Performance Shares

Since the LTIP's inception in 2001, performance shares, which incorporate market, performance, and service-based factors, have been granted annually with three-year performance periods. The following table summarizes performance share expense information:

Dollars in thousands	Shares ⁽¹⁾	Expense During Award Year ⁽²⁾	Total Expense for Award
Estimated award:			
2016-2018 grant ⁽³⁾	28,218	\$ 598	\$ 1,413
Actual award:			
2015-2017 grant	18,304	(346)	1,169
2014-2016 grant	31,388	168	1,685

(1) In addition to common stock shares, a participant also receives a dividend equivalent cash payment equal to the number of shares of common stock received on the award payout multiplied by the aggregate cash dividends paid per share during the performance period.

(2) Amount represents the expense recognized in the third year of the vesting period noted above. For the 2015-2017 grant, targets were not met and expense was reversed during 2017 that had been previously recognized.

This represents the estimated number of shares to be awarded as of December 31, 2018 as certain performance share measures have been achieved. Amounts are subject to change with final payout amounts authorized by the Board of Directors in February 2019.

The aggregate number of performance shares granted and outstanding at the target and maximum levels were as follows:

Dollars in thousands	Performance Share Awards Outstanding		2018 Expense	Cumulative Expense December 31, 2018
Performance Period	Target	Maximum	Expense	
2016-18	24,421	48,842	\$ 598	\$ 1,413
2017-19	31,372	62,744	458	1,400
2018-20	—	—	—	—
Total	55,793	111,586	\$ 1,056	

For the 2016-2018 performance period, performance share awards are based on EPS and Return on Invested Capital (ROIC) factors and a total shareholder return (TSR factor) relative to the Dow Jones U.S. Gas Distribution peer group over the three-year performance period. Additionally, these plans are based on performance results achieved relative to specific core and non-core strategies (strategic factor). For the 2017-2019 performance period, performance share awards are based on the achievement of EPS and ROIC factors, which can be modified by a TSR factor relative to

the performance of the Russell 2500 Utilities Index over the three-year performance period and a growth modifier based on accumulative EBITDA measure. For the 2018-2020 performance period, performance share awards are based on the achievement of a three-year ROIC threshold that must be met and a cumulative EPS factor, which can be modified by a TSR factor relative to the performance of the Russell 2500 Utilities Index over the three-year performance period. The 2018-2020 performance period allows for one of the performance factors to remain variable until the first quarter of the third year of the award period. As the performance factor will not be approved until the first quarter of 2020, there is not a mutual understanding of the award's key terms and conditions between NW Natural and the participants as of December 31, 2018, and therefore, no expense was recognized for the 2018-2020 performance period. NW Natural will calculate the grant date fair value and recognize expense once the final performance factor has been approved. If the target was achieved for the 2018 award, NW Holdings would grant 34,702 shares in the first quarter of 2020.

Compensation expense is recognized in accordance with accounting standards for stock-based compensation and calculated based on performance levels achieved and an estimated fair value using the Monte-Carlo method. The weighted-average grant date fair value of nonvested shares at December 31, 2018 and 2017 was \$57.05 and \$56.40 per share, respectively. The weighted-average grant date fair value of shares vested during the year was \$56.23 per share and there were no performance shares granted during the year for accounting purposes. As of December 31, 2018, there was \$1.1 million of unrecognized compensation expense related to the nonvested portion of performance awards expected to be recognized through 2019.

Restricted Stock Units

In 2012, RSUs began being granted under the LTIP instead of stock options under the Restated SOP. Generally, the RSUs awarded are forfeitable and include a performance-based threshold as well as a vesting period of four years from the grant date. Upon vesting, the RSU holder is issued one share of common stock plus a cash payment equal to the total amount of dividends paid per share between the grant date and vesting date of that portion of the RSU. The fair value of an RSU is equal to the closing market price of NW Holdings' common stock on the grant date. During 2018, total RSU expense was \$1.8 million compared to \$1.6 million in 2017 and \$1.5 million in 2016. As of December 31, 2018, there was \$3.1 million of unrecognized compensation cost from grants of RSUs, which is expected to be recognized over a period extending through 2023.

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Information regarding the RSU activity is summarized as follows:

	Number of RSUs	Weighted Average Price Per RSU
Nonvested, December 31, 2015	88,587	\$ 44.78
Granted	40,271	54.36
Vested	(29,488)	45.56
Forfeited	(9,397)	44.59
Nonvested, December 31, 2016	89,973	48.85
Granted	32,168	60.51
Vested	(35,341)	47.07
Forfeited	(2,278)	53.78
Nonvested, December 31, 2017	84,522	53.90
Granted	32,450	57.59
Vested	(32,689)	50.75
Forfeited	(1,603)	59.95
Nonvested, December 31, 2018	82,680	\$ 56.47

Restated Stock Option Plan

The NW Natural Restated SOP was terminated for new option grants in 2012; however, options granted before the plan terminated remain outstanding until the earlier of their expiration, forfeiture, or exercise and are now exercisable for shares of NW Holdings common stock. Any new grants of stock options will be made under NW Holdings' LTIP, however, no option grants have been awarded since 2012 and all stock options were vested as of December 31, 2015.

Options under the Restated SOP were granted to officers and key employees designated by a committee of the Board of Directors. All options were granted at an option price equal to the closing market price on the date of grant and may be exercised for a period of up to 10 years and seven days from the date of grant. Option holders may exchange shares they have owned for at least six months, valued at the current market price, to purchase shares at the option price.

Information regarding the Restated SOP activity is summarized as follows:

	Option Shares	Weighted Average Price Per Share	Intrinsic Value (In millions)
Balance outstanding, December 31, 2015	352,688	\$ 44.00	\$ 2.3
Exercised	(172,525)	43.61	2.0
Forfeited	—	n/a	n/a
Balance outstanding, December 31, 2016	180,163	44.38	2.8
Exercised	(88,275)	44.33	1.8
Forfeited	(200)	41.15	n/a
Balance outstanding and exercisable, December 31, 2017	91,688	44.43	1.4
Exercised	(35,450)	43.61	0.8

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Expired	(300)	43.29	n/a
Balance outstanding and exercisable, December 31, 2018	55,938	\$ 44.96	\$ 0.9

During 2018, cash of \$1.5 million was received for stock options exercised and \$0.2 million related tax benefit was recognized. The weighted-average remaining life of options exercisable and outstanding at December 31, 2018 was 1.69 years.

Employee Stock Purchase Plan

NW Holdings' ESPP allows employees of NW Holdings, NW Natural and certain designated subsidiaries to purchase common stock at 85% of the closing price on the trading day immediately preceding the initial offering date, which is set annually. Each eligible employee may purchase up to \$21,205 worth of stock through payroll deductions over a period defined by the Board of Directors, with shares issued at the end of the subscription period.

Stock-Based Compensation Expense

Stock-based compensation expense is recognized as operations and maintenance expense or is capitalized as part of construction overhead at the entity at which the award recipient is employed. The following table summarizes the NW Holdings' financial statement impact, substantially all of which was recorded at NW Natural, of stock-based compensation under the LTIP, Restated SOP and ESPP:

In	2018	2017	2016
thousands			
Operations	\$2,489	\$2,354	\$2,370
and			
maintenance			
for			
stock-based			
compensation			
Income	(659)	(930)	(924)
benefit			
Net			
stock-based			
compensation			
effect	\$1,830	\$1,424	\$1,446
on			
net			
income			
(loss)			
Amounts			
capitalized	\$531	\$528	\$554
for			
stock-based			
compensation			

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8. DEBT

Short-Term Debt

The primary source of short-term liquidity for NW Holdings is cash balances, dividends from its operating subsidiaries, in particular NW Natural, available cash from a multi-year credit facility, and short-term credit facilities it may enter into from time to time.

The primary source of short-term liquidity for NW Natural is from the sale of commercial paper and bank loans. NW Natural has a commercial paper program, and NW Holdings and NW Natural have separate bank facilities. In addition to issuing commercial paper or bank loans to meet working capital requirements, including seasonal requirements to finance gas purchases and accounts receivable, short-term debt may also be used to temporarily fund capital requirements. For NW Natural, commercial paper and bank loans are periodically refinanced through the sale of long-term debt or equity contributions from NW Holdings. NW Natural's commercial paper is sold through two commercial banks under an issuing and paying agency agreement and is supported by one or more unsecured revolving credit facilities. See "Credit Agreements" below.

At December 31, 2018 and 2017, NW Holdings had short-term debt outstanding of \$217.6 million and \$54.2 million, respectively, substantially all of which was recorded at NW Natural and was comprised primarily of NW Natural's commercial paper. The weighted average interest rate of commercial paper outstanding at December 31, 2018 and 2017 was 3.0% and 1.9%, respectively.

The carrying cost of commercial paper approximates fair value using Level 2 inputs, due to the short-term nature of the notes. See Note 2 for a description of the fair value hierarchy. At December 31, 2018, NW Natural's commercial paper had a maximum remaining maturity of 46 days and an average remaining maturity of 22 days.

Credit Agreements

NW Holdings

In October 2018, NW Holdings entered into a \$100.0 million credit agreement, with a feature that allows it to request increases in the total commitment amount, up to a maximum of \$150.0 million. The maturity date of the agreement is October 2, 2023, with available extensions of commitments for two additional one-year periods, subject to lender approval.

The NW Holdings credit agreement permits the issuance of letters of credit in an aggregate amount of up to \$40.0 million. The principal amount of borrowings under the credit agreement is due and payable on the maturity date. The credit agreement requires NW Holdings to maintain a consolidated indebtedness to total capitalization ratio of 70% or less. Failure to comply with this covenant would entitle the lenders to terminate their lending commitments and accelerate the maturity of all amounts outstanding. NW Holdings was in compliance with this covenant at December 31, 2018.

The agreement also requires NW Holdings to maintain debt ratings (which are defined by a formula using NW Natural's

credit ratings in the event NW Holdings does not have a credit rating) with Standard & Poor's (S&P) and Moody's Investors Service, Inc. (Moody's) and notify the lenders of any change in its senior unsecured debt ratings or senior secured debt ratings, as applicable, by such rating agencies. A change in NW Holdings' debt ratings by S&P or Moody's is not an event of default, nor is the maintenance of a specific minimum level of debt rating a condition of drawing upon the credit agreement. Rather, interest rates on any loans outstanding under the credit agreements are tied

to debt ratings and therefore, a change in the debt rating would increase or decrease the cost of any loans under the credit agreements when ratings are changed. NW Holdings does not currently maintain ratings with S&P or Moody's.

There were no outstanding balances and no letters of credit issued or outstanding under the NW Holdings agreement at December 31, 2018. NW Holdings had \$2.8 million of letters of credit issued and outstanding, separate from the aforementioned credit agreement, at December 31, 2018.

NW Natural

In October 2018, NW Natural entered into a new multi-year credit agreement for unsecured revolving loans totaling \$300.0 million, with a feature that allows NW Natural to request increases in the total commitment amount, up to a maximum of \$450.0 million. The maturity date of the agreement is October 2, 2023 with available extensions of commitments for two additional one-year periods, subject to lender approval. The new credit agreement is substantially similar to the prior credit agreement which was terminated upon the closing of the New Credit Agreement. The new credit agreement permits the issuance of letters of credit in an aggregate amount of up to \$60.0 million. The principal amount of borrowings under the credit agreement is due and payable on the maturity date. There were no outstanding balances under NW Natural's prior credit agreement or the new credit agreement and no letters of credit issued or outstanding at December 31, 2018 and 2017.

NW Natural's prior credit agreement and the new credit agreement require NW Natural to maintain a consolidated indebtedness to total capitalization ratio of 70% or less. Failure to comply with this covenant would entitle the lenders to terminate their lending commitments and accelerate the maturity of all amounts outstanding. NW Natural was in compliance with this covenant at December 31, 2018 and 2017.

The new credit agreement also requires NW Natural to maintain credit ratings with S&P and Moody's and notify the lenders of any change in NW Natural's senior unsecured debt ratings or senior secured debt ratings, as applicable, by such rating agencies. A change in NW Natural's debt ratings by S&P or Moody's is not an event of default, nor is the maintenance of a specific minimum level of debt rating a condition of drawing upon the new credit agreement. Rather, interest rates on any loans outstanding under the new credit agreement are tied to debt ratings and therefore, a change in the debt rating would increase or decrease the cost of any

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loans under the new credit agreement when ratings are changed.

Long-Term Debt

NW Natural's issuance of FMBs, which includes NW Natural's medium-term notes, under the Mortgage and Deed of Trust (Mortgage) is limited by eligible property, adjusted net earnings, and other provisions of the Mortgage. The Mortgage constitutes a first mortgage lien on substantially all of NW Natural's NGD property.

Maturities and Outstanding Long-Term Debt

Retirement of long-term debt for each of the annual periods through December 31, 2023 and thereafter are as follows:

In thousands	Long-term debt maturities
2019	\$ 30,000
2020	75,000
2021	60,000
2022	—
2023	90,000
Thereafter	484,700

The following table presents debt outstanding as of December 31:

In thousands	2018	2017
NW Natural		
First Mortgage Bonds:		
6.600% Series due 2018	\$—	\$22,000
1.545% Series due 2018	—	75,000
8.310% Series due 2019	10,000	10,000
7.630% Series due 2019	20,000	20,000
5.370% Series due 2020	75,000	75,000
9.050% Series due 2021	10,000	10,000
3.176% Series due 2021	50,000	50,000
3.542% Series due 2023	50,000	50,000
5.620% Series due 2023	40,000	40,000
7.720% Series due 2025	20,000	20,000
6.520% Series due 2025	10,000	10,000
7.050% Series due 2026	20,000	20,000
3.211% Series due 2026	35,000	35,000
7.000% Series due 2027	20,000	20,000
2.822% Series due 2027	25,000	25,000
6.650% Series due 2027	19,700	19,700
6.650% Series due 2028	10,000	10,000
7.740% Series due 2030	20,000	20,000
7.850% Series due 2030	10,000	10,000
5.820% Series due 2032	30,000	30,000
5.660% Series due 2033	40,000	40,000
5.250% Series due 2035	10,000	10,000

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4.000% Series due 2042	50,000	50,000
4.136% Series due 2046	40,000	40,000
3.685% Series due 2047	75,000	75,000
4.110% Series due 2048	50,000	—
	739,700	786,700
Less: current maturities	30,000	97,000
Total long-term debt	\$709,700	\$689,700

Other NW Holdings Entities:

Long-term debt obligations	\$2,113	\$—
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NW Holdings:

Long-term debt, gross	\$741,813	\$786,700
Less: current maturities	30,000	97,000
Total long-term debt	\$711,813	\$689,700

First Mortgage Bonds

In September 2018, NW Natural issued \$50.0 million of FMBs with a coupon rate of 4.110%, due in 2048.

In September 2017, NW Natural issued \$100.0 million of FMBs consisting of \$25.0 million with a coupon rate of 2.822% and a maturity date in 2027 and \$75.0 million with a coupon rate of 3.685% and a maturity date in 2047.

Retirements of Long-Term Debt

In March 2018, NW Natural retired \$22.0 million of FMBs with a coupon rate of 6.600%, and retired \$75.0 million of FMBs with a coupon rate of 1.545% in December 2018.

In August 2017, NW Natural retired \$40.0 million of FMBs with a coupon rate of 7.000%.

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Fair Value of Long-Term Debt

NW Holdings' and NW Natural's outstanding debt does not trade in active markets. The fair value of debt is estimated using natural gas distribution companies with similar credit ratings, terms, and remaining maturities to NW Holdings' and NW Natural's debt that actively trade in public markets. Substantially all outstanding debt at NW Holdings is comprised of NW Natural debt. These valuations are based on Level 2 inputs as defined in the fair value hierarchy. See Note 2.

The following table provides an estimate of the fair value of NW Natural's long-term debt, including current maturities of long-term debt, using market prices in effect on the valuation date:

In thousands	December 31,	
	2018	2017
Gross long-term debt	\$739,700	\$786,700
Unamortized debt issuance costs	(5,577)	(6,813)
Carrying amount	\$734,123	\$779,887
Estimated fair value	\$760,222	\$853,339

9. PENSION AND OTHER POSTRETIREMENT BENEFIT COSTS

NW Natural maintains a qualified non-contributory defined benefit pension plan, non-qualified supplemental pension plans for eligible executive officers and other key employees, and other postretirement employee benefit plans. NW Natural also has a qualified defined contribution plan (Retirement K Savings Plan) for all eligible employees. The qualified defined benefit pension plan and Retirement K Savings Plan have plan assets, which are held in qualified trusts to fund retirement benefits.

Effective January 1, 2007 and 2010, the qualified defined benefit pension plans and postretirement benefits for non-union employees and union employees, respectively, were closed to new participants.

Non-union and union employees hired or re-hired after December 31, 2006 and 2009, respectively, and employees of NW Natural subsidiaries are provided an enhanced Retirement K Savings Plan benefit.

The following table provides a reconciliation of the changes in NW Natural's benefit obligations and fair value of plan assets, as applicable, for NW Natural's pension and other postretirement benefit plans, excluding the Retirement K Savings Plan, and a summary of the funded status and amounts recognized in NW Holdings' and NW Natural's consolidated balance sheets as of December 31:

In thousands	Postretirement Benefit Plans			
	Pension Benefits		Other Benefits	
	2018	2017	2018	2017
Reconciliation of change in benefit obligation:				
Obligation at January 1	\$486,289	\$457,839	\$28,927	\$29,395
Service cost	7,185	7,090	282	341
Interest cost	16,991	18,111	964	1,141
Net actuarial (gain) loss	(32,979)	34,829	(327)	(213)
Benefits paid ⁽¹⁾	(21,918)	(31,580)	(1,674)	(1,737)
Obligation at December 31	\$455,568	\$486,289	\$28,172	\$28,927

Reconciliation of change in plan assets:

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Fair value of plan assets at January 1	\$287,925	\$257,714	\$—	\$—
Actual return on plan assets	(25,925)	40,308	—	—
Employer contributions	17,715	21,483	1,674	1,737
Benefits paid ⁽¹⁾	(21,918)	(31,580)	(1,674)	(1,737)
Fair value of plan assets at December 31	\$257,797	\$287,925	\$—	\$—
Funded status at December 31	\$(197,771)	\$(198,364)	\$(28,172)	\$(28,927)

⁽¹⁾ In 2017, NW Natural completed a partial buy-out of its qualified defined benefit pension plan in which \$9.3 million of plan assets and \$8.7 million of liabilities were transferred to an insurer to provide annuities for buy-out plan participants.

NW Natural's qualified defined benefit pension plan had a projected benefit obligation of \$420.2 million and \$449.7 million at December 31, 2018 and 2017, respectively, and fair values of plan assets of \$257.8 million and \$287.9 million, respectively. The plan had an accumulated benefit obligation of \$385.9 million and \$410.3 million at December 31, 2018 and 2017, respectively.

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The following table presents amounts realized through regulatory assets or in other comprehensive loss (income) for the years ended December 31:

In thousands	Regulatory Assets						Other Comprehensive Loss (Income)		
	Pension Benefits			Other Postretirement Benefits			Pension Benefits		
	2018	2017	2016	2018	2017	2016	2018	2017	2016
Net actuarial loss (gain)	\$14,261	\$12,177	\$14,005	\$(327)	\$(214)	\$(1,488)	\$(677)	\$2,777	\$(1,196)
Settlement Loss	—	—	—	—	—	—	—	—	193
Amortization of:									
Prior service cost	(42)	(127)	(230)	468	468	468	—	—	—
Actuarial loss	(18,761)	(14,802)	(13,238)	(448)	(696)	(705)	(1,052)	(946)	1,386
Total	\$(4,542)	\$(2,752)	\$537	\$(307)	\$(442)	\$(1,725)	\$(1,729)	\$1,831	\$383

The following table presents amounts recognized in regulatory assets and accumulated other comprehensive loss (AOCL) at December 31:

In thousands	Regulatory Assets				AOCL	
	Pension Benefits		Other Postretirement Benefits		Pension Benefits	
	2018	2017	2018	2017	2018	2017
Prior service cost (credit)	\$7	\$49	\$(1,738)	\$(2,206)	\$—	\$—
Net actuarial loss	170,535	175,035	6,189	6,964	11,537	13,266
Total	\$170,542	\$175,084	\$4,451	\$4,758	\$11,537	\$13,266

The following table presents amounts recognized by NW Holdings and NW Natural in AOCL and the changes in AOCL related to NW Natural's non-qualified employee benefit plans:

In thousands	Year Ended December 31,	
	2018	2017
Beginning balance	\$(8,438)	\$(6,951)
Amounts reclassified to AOCL	642	(2,794)
Amounts reclassified from AOCL:		
Amortization of actuarial losses	1,052	946
Total reclassifications before tax	1,694	(1,848)
Tax expense (benefit)	(444)	361
Total reclassifications for the period	1,250	(1,487)
Ending balance	\$(7,188)	\$(8,438)

In 2019, NW Natural will amortize an estimated \$13.7 million from regulatory assets to net periodic benefit costs, consisting of \$14.2 million of actuarial losses offset by \$0.5 million of prior service credits. A total of \$0.6 million will be amortized from AOCL to earnings related to actuarial losses in 2019.

The assumed discount rate for NW Natural's pension plan and other postretirement benefit plans was determined independently based on the FTSE Above Median Curve (discount rate curve), which uses high quality corporate bonds rated AA- or higher by S&P or Aa3 or higher by Moody's. The discount rate curve was applied to match the

estimated cash flows in each of the plans to reflect the timing and amount of expected future benefit payments for these plans.

The assumed expected long-term rate of return on plan assets for NW Natural's qualified pension plan was developed using a weighted-average of the expected returns for the target asset portfolio. In developing the expected long-term rate of return assumption, consideration

was given to the historical performance of each asset class in which the plan's assets are invested and the target asset allocation for plan assets.

The investment strategy and policies for qualified pension plan assets held in the retirement trust fund were approved by the NW Natural Retirement Committee, which is composed of senior management with the assistance of an outside investment consultant. The policies set forth the guidelines and objectives governing the investment of plan assets. Plan assets are invested for total return with appropriate consideration for liquidity, portfolio risk, and return expectations. All investments are expected to satisfy the prudent investments rule under the Employee Retirement Income Security Act of 1974. The approved asset classes may include cash and short-term investments, fixed income, common stock and convertible securities, absolute and real return strategies, and real estate. Plan assets may be invested in separately managed accounts or in commingled or mutual funds. Investment re-balancing takes place periodically as needed, or when significant cash flows occur, in order to maintain the allocation of assets

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within the stated target ranges. The retirement trust fund is not currently invested in NW Holdings or NW Natural securities.

The following table presents the NW Natural pension plan asset target allocation at December 31, 2018:

Asset Category	Target Allocation
Long government/credit	20 %
U.S. large cap equity	18
Non-U.S. equity	18
Absolute return strategies	12
U.S. small/mid cap equity	10
Real estate funds	7
High yield bonds	5
Emerging markets equity	5
Emerging market debt	5

Non-qualified supplemental defined benefit plan obligations were \$35.4 million and \$36.6 million at December 31, 2018 and 2017, respectively. These plans are not subject to regulatory deferral, and the changes in actuarial gains and losses, prior service costs, and transition assets or obligations are recognized in AOCL, net of tax until they are amortized as a component of net periodic benefit cost.

These are unfunded, non-qualified plans with no plan assets; however, a significant portion of the obligations is indirectly funded with company and trust-owned life insurance and other assets.

Other postretirement benefit plans are unfunded plans but are subject to regulatory deferral. The actuarial gains and losses, prior service costs, and transition assets or obligations for these plans are recognized as a regulatory asset.

Net periodic benefit costs consist of service costs, interest costs, the expected returns on plan assets, and the amortization of gains and losses and prior service costs. The gains and losses are the sum of the actuarial and asset gains and losses throughout the year and are amortized over the average remaining service period of active participants. The asset gains and losses are based in part on a market-related valuation of assets. The market-related valuation reflects differences between expected returns and actual investment returns with the differences recognized over a two-year period from the year in which they occur, thereby reducing year-to-year net periodic benefit cost volatility.

The service cost component of net periodic benefit cost for NW Natural pension and other postretirement benefit plans is recognized in operations and maintenance expense in the consolidated statements of comprehensive income. The other non-service cost components are recognized in other income (expense), net in the consolidated statements of comprehensive income. The following table provides the components of net periodic benefit cost for NW Natural's pension and other postretirement benefit plans for the years ended December 31:

In thousands	Pension Benefits			Other Postretirement Benefits		
	2018	2017	2016	2018	2017	2016
Service cost	\$7,185	\$7,090	\$7,083	\$282	\$341	\$391
Interest cost	16,991	18,111	18,399	964	1,141	1,175

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Expected return on plan assets	(20,639)	(20,433)	(20,054)	—	—	—
Amortization of prior service costs	43	127	231	(468)	(468)	(468)
Amortization of net actuarial loss	19,813	15,748	14,624	448	696	705
Settlement expense	—	—	193	—	—	—
Net periodic benefit cost	23,393	20,643	20,476	1,226	1,710	1,803
Amount allocated to construction	(2,764)	(6,597)	(5,746)	(98)	(587)	(600)
Amount deferred to regulatory balancing account	(10,314)	(6,542)	(6,252)	—	—	—
Net amount charged to expense	\$10,315	\$7,504	\$8,478	\$1,128	\$1,123	\$1,203

Net periodic benefit costs are reduced by amounts capitalized to NGD plant based on approximately 25% to 35% payroll overhead charge. In addition, a certain amount of net periodic benefit costs were recorded to the regulatory balancing account, representing net periodic pension expense for the qualified plan above the amount set in rates, as approved by the OPUC, from 2011 through October 31, 2018. On October 26, 2018 the OPUC ordered that the balancing account be frozen as of October 31, 2018, with recovery subject to future proceedings. Effective November 1, 2018 the OPUC authorized an additional \$8.1 million to be included in rates for defined benefit pension plan expenses.

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The following table provides the assumptions used in measuring periodic benefit costs and benefit obligations for the years ended December 31:

	Pension Benefits			Other Postretirement Benefits		
	2018	2017	2016	2018	2017	2016
Assumptions for net periodic benefit cost:						
Weighted-average discount rate	3.51	% 3.99	% 4.17	% 3.44	% 3.85	% 4.00
Rate of increase in compensation	3.25-4.5%	3.25-4.5%	3.25-4.5%	n/a	n/a	n/a
Expected long-term rate of return	7.50	% 7.50	% 7.50	% n/a	n/a	n/a
Assumptions for year-end funded status:						
Weighted-average discount rate	4.20	% 3.52	% 4.00	% 4.13	% 3.44	% 3.85
Rate of increase in compensation	3.25-3.5%	3.25-4.5%	3.25-4.5%	n/a	n/a	n/a
Expected long-term rate of return	7.50	% 7.50	% 7.50	% n/a	n/a	n/a

The assumed annual increase in health care cost trend rates used in measuring other postretirement benefits as of December 31, 2018 was 6.75%. These trend rates apply to both medical and prescription drugs. Medical costs and prescription drugs are assumed to decrease gradually each year to a rate of 4.75% by 2025.

Assumed health care cost trend rates can have a significant effect on the amounts reported for the health care plans; however, other postretirement benefit plans have a cap on the amount of costs reimbursable by NW Natural.

A one percentage point change in assumed health care cost trend rates would have the following effects:

In thousands	1%	1%
	Increase	Decrease
Effect on net periodic postretirement health care benefit cost	\$ 43	\$ (39)
Effect on the accumulated postretirement benefit obligation	622	(560)

Mortality assumptions are reviewed annually and are updated for material changes as necessary. In 2018, mortality rate assumptions were updated from RP-2006 mortality tables for employees and healthy annuitants with a fully generational projection using scale MP-2017 to RP-2014 mortality tables using scale MP-2018, which partially offset increases of the projected benefit obligation.

The following table provides information regarding employer contributions and benefit payments for NW Natural's qualified pension plan, non-qualified pension plans, and other postretirement benefit plans for the years ended December 31, and estimated future contributions and payments:

In thousands	Pension Benefits	Other Benefits
Employer Contributions:		
2017	\$21,483	\$ 1,737
2018	17,715	1,674
2019 (estimated)	13,318	1,787
Benefit Payments:		
2016	20,959	1,732
2017	31,580	1,737
2018	21,918	1,674

Estimated Future Benefit

Payments:

2019	22,699	1,787
2020	23,622	1,846
2021	24,516	1,930
2022	25,316	1,941
2023	26,074	1,993
2024-2028	145,917	9,628

Employer Contributions to Company-Sponsored Defined Benefit Pension Plans

NW Natural makes contributions to its qualified defined benefit pension plans based on actuarial assumptions and estimates, tax regulations, and funding requirements under federal law. The Pension Protection Act of 2006 (the Act) established funding requirements for defined benefit plans. The Act establishes a 100% funding target over seven years for plan years beginning after December 31, 2008. In 2012 the Moving Ahead for Progress in the 21st Century Act (MAP-21) legislation changed several provisions affecting pension plans, including temporary funding relief and Pension Benefit Guaranty Corporation (PBGC) premium increases, which reduces the level of minimum required contributions in the near-term but generally increases contributions in the long-run and increases the operational costs of running a pension plan. In 2014, the Highway and Transportation Funding Act (HATFA) was signed and extended funding relief for an additional five years.

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The qualified defined benefit pension plan was underfunded by \$162.4 million at December 31, 2018. Including the impacts of MAP-21 and HATFA, NW Natural made cash contributions totaling \$15.5 million to its qualified defined benefit pension plan for 2018. During 2019, NW Natural expects to make contributions of approximately \$11.0 million to this plan.

Multiemployer Pension Plan

In addition to the NW Natural-sponsored defined benefit plans presented above, prior to 2014 NW Natural contributed to a multiemployer pension plan for its NGD union employees known as the Western States Office and Professional Employees International Union Pension Fund (Western States Plan). The plan's employer identification number is 94-6076144. Effective December 22, 2013, NW Natural withdrew from the plan, which was a noncash transaction. Vested participants will receive all benefits accrued through the date of withdrawal. As the plan was underfunded at the time of withdrawal, NW Natural was assessed a withdrawal liability of \$8.3 million, plus interest, which requires NW Natural to pay \$0.6 million each year to the plan for 20 years beginning in July 2014. The cost of the withdrawal liability was deferred to a regulatory account on the balance sheet.

Payments were \$0.6 million for 2018, and as of December 31, 2018 the liability balance was \$6.8 million. For 2017 and 2016, contributions to the plan were \$0.6 million and \$0.6 million, respectively, which was approximately 4% to 6% of the total contributions to the plan by all employer participants in those years.

Defined Contribution Plan

NW Natural's Retirement K Savings Plan is a qualified defined contribution plan under Internal Revenue Code Sections 401(a) and 401(k). NW Natural contributions totaled \$6.5 million, \$5.4 million, and \$4.6 million for 2018, 2017, and 2016, respectively. The Retirement K Savings Plan includes an Employee Stock Ownership Plan.

Deferred Compensation Plans

NW Natural's supplemental deferred compensation plans for eligible officers and senior managers are non-qualified plans. These plans are designed to enhance the retirement savings of employees and to assist them in strengthening their financial security by providing an incentive to save and invest regularly.

Fair Value

Below is a description of the valuation methodologies used for assets measured at fair value. In cases where NW Natural's pension plan is invested through a collective trust fund or mutual fund, the fund's market value is utilized. Market values for investments directly owned are also utilized.

U.S. EQUITY. These are non-published net asset value (NAV) assets. The non-published NAV assets consist of commingled trusts where NAV is not published but the investment can be readily disposed of at NAV or market value. The underlying investments in this asset class includes investments primarily in U.S. common stocks.

INTERNATIONAL/GLOBAL EQUITY. These are Level 1 and non-published NAV assets. The Level 1 asset is a mutual fund, and the non-published NAV assets consist of commingled trusts where the NAV/unit price is not published but the investment can be readily disposed of at the NAV/unit price. The mutual funds has a readily determinable fair value, including a published NAV, and the commingled trusts are valued at unit price. This asset class includes investments primarily in foreign equity common stocks.

LIABILITY HEDGING. These are non-published NAV assets. The non-published NAV assets consist of commingled trusts where NAV is not published but the investment can be readily disposed of at NAV or market value. The underlying investments in this asset class include long duration fixed income investments primarily in U.S. treasuries, U.S. government agencies, municipal securities, mortgage-backed securities, asset-backed securities, as well as U.S. and international investment-grade corporate bonds.

OPPORTUNISTIC. These are non-published NAV assets consisting of commingled trusts where the investments can be readily disposed of at unit price, and a hedge fund of funds where the valuation is not published. This hedge fund of funds is winding down. Based on recent dispositions, NW Natural believes the remaining investment is fairly valued. The hedge fund of funds is valued at the weighted average value of investments in various hedge funds, which in turn are valued at the closing price of the underlying securities. This asset class includes investments in emerging market debt, leveraged loans, REITs, high yield bonds, a commodities fund, and a hedge fund of funds.

ABSOLUTE RETURN STRATEGY. This is a non-published NAV asset consisting of a hedge fund of funds where the valuation is not published. This hedge fund of funds is winding down. Based on recent dispositions, NW Natural believes the remaining investment is fairly valued. The hedge fund of funds is valued at the weighted average value of investments in various hedge funds, which in turn are valued at the closing price of the underlying securities. This asset class primarily includes investments in common stocks and fixed income securities.

CASH AND CASH EQUIVALENTS. These are Level 1 and non-published NAV assets. The Level 1 assets consist of cash in U.S. dollars, which can be readily disposed of at face value. The non-published NAV assets represent mutual funds without published NAV's but the investment can be readily disposed of at the NAV. The mutual funds are valued at the NAV of the shares held by the plan at the valuation date.

The preceding valuation methods may produce a fair value calculation that is not indicative of net realizable value or reflective of future fair values. Although we believe these valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain investments could result in a different fair value measurement at the reporting date.

Investment securities are exposed to various financial risks including interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of NW

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Natural's investment securities will occur in the near term and such changes could materially affect NW Natural's investment account balances and the amounts reported as plan assets available for benefit payments.

The following tables present the fair value of NW Natural's plan assets, including outstanding receivables and liabilities, of NW Natural's retirement trust fund:

In thousands	December 31, 2018				
Investments	Level 1	Level 2	Level 3	Non-Published NAV ⁽¹⁾	Published Total
US equity	\$—	\$—	—\$	—\$85,233	\$85,233
International / Global equity	24,994	—	—	70,017	95,011
Liability hedging	—	—	—	45,659	45,659
Opportunistic	—	—	—	23,186	23,186
Cash and cash equivalents	—	—	—	8,707	8,707
Total investments	\$24,994	\$—	—\$	—\$232,802	\$257,796

	December 31, 2017				
Investments	Level 1	Level 2	Level 3	Non-Published NAV ⁽¹⁾	Published Total
US equity	\$—	\$—	—\$	—\$98,375	\$98,375
International / Global equity	21,211	—	—	84,818	106,029
Liability hedging	—	—	—	53,981	53,981
Opportunistic	—	—	—	23,895	23,895
Cash and cash equivalents	82	—	—	5,533	5,615
Total investments	\$21,293	\$—	—\$	—\$266,602	\$287,895

	December 31,	
	2018	2017
Receivables:		
Accrued interest and dividend income	\$1	\$30
Due from broker for securities sold	—	—
Total receivables	\$1	\$30
Liabilities:		
Due to broker for securities purchased	\$—	\$—
Total investment in retirement trust	\$257,797	\$287,925

⁽¹⁾ The fair value for these investments is determined using Net Asset Value per share (NAV) as of December 31, as a practical expedient, and therefore they are not classified within the fair value hierarchy. These investments primarily consist of institutional investment products, for which the NAV is generally not publicly available.

10. INCOME TAX

The following table provides a reconciliation between income taxes calculated at the statutory federal tax rate and the provision for income taxes reflected in the NW Holdings and NW Natural statements of comprehensive income or loss for December 31:

Dollars in thousands	NW Holdings			NW Natural		
	2018	2017	2016	2018	2017	2016
Income taxes at federal statutory rate	\$19,222	\$39,578	\$36,901	\$19,434	\$39,624	\$37,137

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Increase (decrease):							
State income tax, net of federal	4,927	5,066	4,844	4,982	5,072	4,858	
Differences required to be flowed-through by regulatory commissions	1,302	2,357	2,357	1,302	2,357	2,357	
Effect of the TCJA	—	(3,376)	—	—	(2,956)	—	
Deferred tax rate differential post-TCJA	(76)	—	—	(75)	—	—	
Other, net	(1,184)	(2,617)	(1,091)	(1,184)	(2,619)	(1,077)	
Total provision for income taxes	\$24,191	\$41,008	\$43,011	\$24,459	\$41,478	\$43,275	
Effective tax rate	26.4 %	36.3 %	40.8 %	26.4 %	36.6 %	40.8 %	

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The NW Holdings and NW Natural effective income tax rates for 2018 compared to 2017 changed primarily as a result of the lower federal corporate income tax rate provided for by the TCJA. The effective tax rates for 2017 compared to 2016 changed primarily as a result of the lower

federal corporate income tax rate provided for by the TCJA and NW Natural's increased benefits from the equity portion of AFUDC and excess tax benefits related to stock based compensation.

The provision for current and deferred income taxes consists of the following at December 31:

In thousands	NW Holdings			NW Natural		
	2018	2017	2016	2018	2017	2016
Current						
Federal	\$8,953	\$19,345	\$10,042	\$9,127	\$19,304	\$10,158
State	3,785	5,963	3,116	3,846	5,956	3,131
	12,738	25,308	13,158	12,973	25,260	13,289
Deferred						
Federal	9,001	13,869	25,473	9,025	14,371	25,581
State	2,452	1,831	4,380	2,461	1,847	4,405
	11,453	15,700	29,853	11,486	16,218	29,986
Income tax provision	\$24,191	\$41,008	\$43,011	\$24,459	\$41,478	\$43,275

The following table summarizes the tax effect of significant items comprising NW Holdings and NW Natural's deferred income tax balances recorded at December 31:

In thousands	NW Holdings		NW Natural	
	2018	2017 ⁽¹⁾	2018	2017
Deferred tax liabilities:				
Plant and property	\$288,385	\$278,735	\$303,186	\$296,113
Pension and postretirement obligations	27,135	23,352	27,135	23,352
Income tax regulatory asset	21,403	22,209	21,402	22,209
Other	1,061	2,766	537	2,250
Total deferred income tax liabilities	\$337,984	\$327,062	\$352,260	\$343,924
Deferred income tax assets:				
Income tax regulatory liability	\$57,469	\$56,470	\$57,469	\$56,470
Alternative minimum tax credit carryforward	52	66	52	66
Total deferred income tax assets	\$57,521	\$56,536	\$57,521	\$56,536
Total net deferred income tax liabilities	\$280,463	\$270,526	\$294,739	\$287,388

⁽¹⁾ Amounts have been reclassified among categories to conform to current period presentation.

At December 31, 2018 and 2017, regulatory income tax assets of \$19.1 million and \$21.3 million, respectively, were recorded by NW Natural, a portion of which is recorded in current assets. These regulatory income tax assets primarily represent future rate recovery of deferred tax liabilities, resulting from differences in NGD plant financial statement and tax bases and NGD plant removal costs, which were previously flowed through for rate making purposes and to take into account the additional future taxes, which will be generated by that recovery. These deferred tax liabilities, and the associated regulatory income tax assets, are currently being recovered through customer rates. At December 31, 2018 and 2017, regulatory income tax assets of \$2.3 million and \$0.9 million, respectively, were recorded by NW Natural, representing future recovery of deferred tax liabilities resulting from the equity portion of AFUDC.

At December 31, 2018 and 2017, deferred tax assets of \$57.5 million and \$56.5 million, respectively, were recorded by NW Natural representing the future income tax benefit associated with the excess deferred income tax regulatory liability recorded as a result of the lower federal corporate

income tax rate provided for by the TCJA. At December 31, 2018 and 2017, regulatory liability balances representing the net tax benefit of the change in deferred taxes as a result of the TCJA of \$217.1 million and \$213.3 million, respectively, were recorded by NW Natural.

NW Natural's natural gas utility rates include an allowance to provide for the recovery of the anticipated provision for income taxes incurred as a result of providing regulated services. As a result of the 21 percent federal corporate income tax rate enacted in 2017, NW Natural recorded an additional regulatory liability in 2018 reflecting the estimated net reduction in the provision for income taxes. This revenue deferral is based on the estimated net benefit to customers and includes a gross-up for income taxes. As of December 31, 2018, a regulatory liability of \$8.2 million, including accrued interest, was recorded to reflect this estimated revenue deferral.

NW Holdings and NW Natural assess the available positive and negative evidence to estimate if sufficient taxable income will be generated to utilize their respective existing

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deferred tax assets. Based upon this assessment, NW Holdings and NW Natural determined that it is more likely than not that all of their respective deferred tax assets recorded as of December 31, 2018 will be realized.

Uncertain tax positions are accounted for in accordance with accounting standards that require an assessment of the anticipated settlement outcome of material uncertain tax positions taken in a prior year, or planned to be taken in the current year. Until such positions are sustained, the uncertain tax benefits resulting from such positions would not be recognized. No reserves for uncertain tax positions were recorded as of December 31, 2018, 2017, or 2016.

NW Holdings files a consolidated U.S. federal income tax return that includes NW Natural. Income tax expense is allocated on a separate company basis.

The federal income tax returns for tax years 2014 and earlier are closed by statute. The IRS Compliance Assurance Process (CAP) examination of the 2015, and 2016 tax years have been completed. There were no material changes to these returns as filed. The 2017 and 2018 tax years are currently under IRS CAP examination. Our 2019 CAP application has been accepted by the IRS. Under the CAP program, NW Holdings and NW Natural work with the IRS to identify and resolve material tax matters before the tax return is filed each year.

As of December 31, 2018, income tax years 2015 through 2018 remain open for state examination. The State of Oregon is currently examining the Oregon corporate income tax returns for tax years 2015, 2016, and 2017. No material changes are anticipated as a result of this examination.

U.S. Federal TCJA Matters

On December 22, 2017, the TCJA was enacted and lowered the U.S. federal corporate income tax rate to 21% from the existing maximum rate of 35%, effective for the tax year beginning January 1, 2018. The TCJA included specific provisions related to regulated public utilities that provided for the continued deductibility of interest expense and the elimination of bonus tax depreciation for property both acquired and placed in service on or after January 1, 2018.

Under pre-TCJA law, business interest was generally deductible in the determination of taxable income. The TCJA imposed a new limitation on the deductibility of net business interest expense in excess of approximately 30 percent of adjusted taxable income. Taxpayers operating in the trade or business of a regulated utility are excluded from these new interest expense limitations. Proposed U.S. Treasury Regulations were published in November of 2018 which provide a de minimis rule whereby if 90 percent or more of a taxpayer's adjusted asset basis is allocable to regulated utility activities, then all of the business interest expense of

that taxpayer is deemed to be excepted business interest of the regulated utility activity and is thereby not limited under the TCJA. As a result of the de minimis rule, NW Holdings and NW Natural anticipate that business interest expense will not be limited under the TCJA.

The TCJA generally provides for immediate full expensing for qualified property both acquired and placed in service after September 27, 2017 and before January 1, 2023. This would generally provide for accelerated cost recovery for capital investments. However, the definition of qualified property excludes property used in the trade or business of a regulated utility. Proposed U.S. Treasury Regulations were published in August of 2018 which indicated that bonus tax depreciation would not be available for regulated utility activity assets acquired and placed in service by NW Holdings or NW Natural on or after January 1, 2018, but bonus tax depreciation would be available for regulated utility activity assets acquired and placed in service by NW Holdings or NW Natural before January 1, 2018.

The SEC staff previously issued Staff Accounting Bulletin 118, which provided guidance on accounting for the tax effects of the TCJA. SAB 118 provided a measurement period that should not extend beyond one year from the TCJA enactment date for companies to complete the accounting for the TCJA under ASC 740. To the extent that a company's accounting for certain income tax effects of the TCJA was incomplete but a reasonable estimate could be made, a company would record a provisional estimate in the financial statements. NW Natural previously disclosed

that due to uncertainties with respect to the availability of bonus tax depreciation for regulated utility activity assets under the TCJA that the effects of bonus tax depreciation for assets placed in service after September 27, 2017 but before January 1, 2018 had not been recorded. The determination to exclude all assets placed in service after September 27, 2017 but before January 1, 2018 from bonus tax depreciation was provisional as provided for under SAB 118.

As a result of the Proposed Regulations on bonus tax depreciation published in August of 2018, NW Natural revised the provisional estimate of deferred taxes and income taxes payable to reflect the effects of bonus tax depreciation for assets placed in service after September 27, 2017 but before January 1, 2018. In the third quarter, NW Natural recognized increases to prepaid income tax of \$7.4 million, deferred income tax liability of \$4.1 million, and regulatory liability of \$3.3 million. In the fourth quarter, NW Natural recognized additional increases to prepaid income tax of \$0.5 million, deferred income tax liability of \$0.3 million, and regulatory liability of \$0.2 million. The accounting for income tax effects of the TCJA is now complete.

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11. PROPERTY, PLANT, AND EQUIPMENT

The following table sets forth the major classifications of property, plant, and equipment and accumulated depreciation at December 31:

In thousands	2018	2017
NW Natural:		
NGD plant in service	\$3,134,122	\$2,975,217
NGD work in progress	204,978	159,924
Less: Accumulated depreciation	974,252	942,879
NGD plant, net	2,364,848	2,192,262
Other plant in service	66,009	64,997
Other construction work in progress	5,330	4,122
Less: Accumulated depreciation	18,603	17,406
Other plant, net ⁽¹⁾	52,736	51,713
Total property, plant, and equipment	\$2,417,584	\$2,243,975

Other (NW Holdings):

Other plant in service	\$4,051	\$375
Less: Accumulated depreciation	263	192
Other plant, net ⁽¹⁾	3,788	183

NW Holdings:

Total property, plant, and equipment	\$2,421,372	\$2,244,158
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NW Natural and NW Holdings:

Capital expenditures in accrued liabilities	\$23,676	\$34,761
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⁽¹⁾ NW Natural's previously reported other balances were restated due to certain assets and liabilities now being classified as discontinued operations assets and liabilities in its balance sheets. See Note 18 for further discussion.

Accumulated depreciation does not include the accumulated provision for asset removal costs of \$380.5 million and \$360.9 million at December 31, 2018 and 2017, respectively. These accrued asset removal costs are reflected on the balance sheet as regulatory liabilities. See Note 2. During 2018 and 2017, no equipment was acquired under capital leases.

NW Holdings

Other plant balances include long-lived assets associated with water operations and non-regulated activities not held by NW Natural or its subsidiaries.

NW Natural

Other plant balances include long-lived assets not related to NGD.

The weighted average depreciation rate for NGD assets was 2.8% during 2018, 2017, and 2016. The weighted average depreciation rate for assets not related to NGD was 2.2% in 2018, 1.9% in 2017, and 2.0% in 2016.

12. GAS RESERVES

NW Natural has invested \$188 million through the gas reserves program in the Jonah Field located in Wyoming as of December 31, 2018. Gas reserves are stated at cost, net of regulatory amortization, with the associated deferred tax benefits recorded as liabilities in the consolidated balance sheets. The investment in gas reserves provides long-term price protection for NGD customers through the original agreement with Encana Oil & Gas (USA) Inc. under which NW Natural invested \$178 million and the amended agreement with Jonah Energy LLC under which an additional \$10 million was invested.

NW Natural entered into the original agreements with Encana in 2011 under which NW Natural holds working interests in certain sections of the Jonah Field. Gas produced in these sections is sold at prevailing market prices, and revenues from such sales, net of associated operating and production costs and amortization, are credited to the NGD cost of gas. The cost of gas, including a carrying cost for the rate base investment, is included in the annual Oregon PGA filing, which allows NW Natural to recover these costs through customer rates. The investment under the original agreement, less accumulated amortization and deferred taxes, earns a rate of return.

In March 2014, NW Natural amended the original gas reserves agreement in order to facilitate Encana's proposed sale of its interest in the Jonah field to Jonah Energy. Under the amendment, NW Natural ended the drilling program with Encana, but increased its working interests in its assigned sections of the Jonah field. NW Natural also retained the right to invest in new wells with Jonah Energy. Under the amended agreement there is still the option to invest in additional wells on a well-by-well basis with drilling costs and resulting gas volumes shared at NW Natural's amended proportionate working interest for each well in which it invests. NW Natural elected to participate in some of the additional wells drilled in 2014, but did not participate in additional wells since 2014. However, there may be the opportunity to participate in more wells in the future.

Gas produced from the additional wells is included in the Oregon PGA at a fixed rate of \$0.4725 per therm, which approximates the 10-year hedge rate plus financing costs at the inception of the investment.

Gas reserves acted to hedge the cost of gas for approximately 6%, 6% and 8% of NGD gas supplies for the years ended December 31, 2018, 2017, and 2016 respectively.

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The following table outlines NW Natural's net gas reserves investment at December 31:

In thousands	2018	2017
Gas reserves, current	\$ 16,647	\$ 15,704
Gas reserves, non-current	170,660	171,832
Less: Accumulated amortization	104,463	87,779
Total gas reserves ⁽¹⁾	82,844	99,757
Less: Deferred taxes on gas reserves	20,071	22,712
Net investment in gas reserves	\$ 62,773	\$ 77,045

(1) The net investment in additional wells included in total gas reserves was \$4.8 million and \$5.8 million at December 31, 2018 and 2017, respectively.

NW Natural's investment is included in NW Holdings' and NW Natural's consolidated balance sheets under gas reserves with the maximum loss exposure limited to the investment balance.

13. INVESTMENTS

Investments include financial investments in life insurance policies, and equity method investments in certain partnerships and limited liability companies. The following table summarizes other investments at December 31:

In thousands	NW Holdings		NW Natural	
	2018	2017	2018	2017
Investments in life insurance policies	\$ 49,922	\$ 50,792	\$ 49,922	\$ 50,792
Investments in gas pipeline	13,571	13,669	—	—
Other	65	1,902	—	1,862
Total other investments	\$ 63,558	\$ 66,363	\$ 49,922	\$ 52,654

Investment in Life Insurance Policies

NW Natural has invested in key person life insurance contracts to provide an indirect funding vehicle for certain long-term employee and director benefit plan liabilities. The amount in the above table is reported at cash surrender value, net of policy loans.

Investments in Gas Pipeline

TWP, a wholly-owned subsidiary of TWH, is pursuing the development of a new gas transmission pipeline that would provide an interconnection with NW Natural's NGD system. NWN Energy, a wholly-owned subsidiary of NW Holdings, owns 50% of TWH, and 50% is owned by TransCanada American Investments Ltd., an indirect wholly-owned subsidiary of TransCanada Corporation.

Variable Interest Entity (VIE) Analysis

TWH is a VIE, with NW Holdings' investment in TWP reported under equity method accounting. It has been determined that NW Holdings is not the primary beneficiary of TWH's activities as it only has a 50% share of the entity, and there are no stipulations that allow NW Holdings a disproportionate influence over it. Investments in TWH and TWP are included in other investments on NW Holdings' balance sheet. If this investment is not developed, then the maximum loss exposure related to TWH is limited to NW

Holdings' equity investment balance, less its share of any cash or other assets available to NW Holdings as a 50% owner. The investment balance in TWH was \$13.4 million at December 31, 2018 and 2017.

Impairment Analysis

Investments in nonconsolidated entities accounted for under the equity method are reviewed for impairment at each reporting period and following updates to our corporate planning assumptions. If it is determined a loss in value is other than temporary, a charge is recognized for the difference between the investment's carrying value and its estimated fair value. Fair value is based on quoted market prices when available or on the present value of expected future cash flows. Differing assumptions could affect the timing and amount of a charge recorded in any period.

In 2011, TWP withdrew its original application with the FERC for a proposed natural gas pipeline in Oregon and informed FERC that it intended to re-file an application to reflect changes in the project scope aligning the project with the region's current and future gas infrastructure needs. TWP continues working with customers in the Pacific Northwest to further understand their gas transportation needs and determine the commercial support for a revised pipeline proposal. A new FERC certificate application is expected to be filed to reflect a revised scope based on these regional needs.

NW Holdings' equity investment was not impaired at December 31, 2018 as the fair value of expected cash flows from planned development exceeded NW Holdings' remaining equity investment of \$13.4 million at December 31, 2018. However, if NW Holdings learns that the project is not viable or will not go forward, it could be required to recognize a maximum charge of up to approximately \$13.4 million based on the current amount of the equity investment, net of cash and working capital at TWP. NW Holdings will continue to monitor and update the impairment analysis as required.

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14. BUSINESS COMBINATIONS

Falls Water

On September 13, 2018, NWN Water, then a wholly-owned subsidiary of NW Natural and now a wholly-owned subsidiary of NW Holdings, completed the acquisition of Falls Water Co., Inc. (Falls Water), a privately-owned water utility in the Pacific Northwest for preliminary non-cash consideration of \$8.5 million, subject to closing adjustments, in the form of 125,000 shares of NW Natural common stock. Falls Water became a wholly-owned subsidiary of NWN Water and marked its first acquisition in the water services sector. This acquisition aligns with NW Holdings' water sector strategy as the acquisition provides NWN Water entry into Idaho, expands service area, and opens further opportunity for growth. Falls Water is based in Idaho Falls, Idaho and serves approximately 5,300 connections.

Through the purchase of all of the outstanding shares of Falls Water, NWN Water acquired the net assets and 100% control of Falls Water. We determined that the Falls Water acquisition met the criteria of a business combination, and as such performed a preliminary allocation of the consideration to the acquired assets and assumed liabilities based on their fair value as of the acquisition date, the majority of which was allocated to goodwill. The allocation is considered preliminary as of December 31, 2018, and is primarily associated with certain tax positions and goodwill. Subsequent adjustments are not expected to be significant,

and any such adjustments are expected to be completed within a one-year measurement period. The acquisition costs were insignificant and were expensed as incurred. The results of Falls Water are not material to the consolidated financial results of NW Holdings.

Preliminary goodwill of \$6.4 million was recognized from this acquisition and is attributable to Falls Water's regulated service territory and experienced workforce as well as the strategic benefits expected from this high-growth service territory. NW Holdings has included this goodwill in other for segment reporting purposes, and it is not deductible for income tax purposes. No intangible assets aside from goodwill were acquired. See Note 2 for goodwill impairment information.

Other Acquisitions

During 2018, in addition to the Falls Water acquisition, NWN Water completed three acquisitions qualifying as business combinations. The aggregate fair value of the preliminary consideration transferred for these acquisitions was approximately \$2.8 million. These business combinations, both individually and in aggregate, were not significant to NW Holdings' results of operations.

As a result of all acquisitions completed, total goodwill was \$9.0 million as of December 31, 2018.

15. DERIVATIVE INSTRUMENTS

NW Natural enters into financial derivative contracts to hedge a portion of the NGD segment's natural gas sales requirements. These contracts include swaps, options, and combinations of option contracts. These derivative financial instruments are primarily used to manage commodity price variability. A small portion of NW Natural's derivative hedging strategy involves foreign currency exchange contracts.

NW Natural enters into these financial derivatives, up to prescribed limits, primarily to hedge price variability related to physical gas supply contracts as well as to hedge spot purchases of natural gas. The foreign currency forward contracts are used to hedge the fluctuation in foreign currency exchange rates for pipeline demand charges paid in

Canadian dollars.

In the normal course of business, NW Natural also enters into indexed-price physical forward natural gas commodity purchase contracts and options to meet the requirements of NGD customers. These contracts qualify for regulatory deferral accounting treatment.

NW Natural also enters into exchange contracts related to the third-party asset management of its gas portfolio, some of which are derivatives that do not qualify for hedge accounting or regulatory deferral, but are subject to NW Natural's regulatory sharing agreement. These derivatives are recognized in operating revenues, net of amounts shared with NGD customers.

Notional Amounts

The following table presents the absolute notional amounts related to open positions on NW Natural derivative instruments:

In thousands	At December	
	2018	2017
Natural gas (in therms):		
Financial	408,850,429	100
Physical	472,275,520	268
Foreign exchange	\$6,936	\$7,669

Purchased Gas Adjustment (PGA)

Derivatives entered into by NW Natural for the procurement or hedging of natural gas for future gas years generally receive regulatory deferral accounting treatment. In general, commodity hedging for the current gas year is completed prior to the start of the gas year, and hedge prices are reflected in the weighted-average cost of gas in the PGA filing. Hedge contracts entered into after the start of the PGA period are subject to the PGA incentive sharing mechanism in Oregon. NW Natural entered the 2018-19 and 2017-18 gas year with forecasted sales volumes hedged at 48% and 49% in financial swap and option contracts, and 24% and 26% in physical gas supplies, respectively. Hedge contracts entered into prior to the PGA filing, in September 2018, were included in the PGA for the 2018-19 gas year. Hedge contracts entered into after the PGA filing, and related to subsequent gas years, may be included in future PGA filings and qualify for regulatory deferral.

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Unrealized and Realized Gain/Loss

The following table reflects the income statement presentation for the unrealized gains and losses from NW Natural's derivative instruments, which also represents all derivative instruments at NW Holdings:

In thousands	December 31, 2018		December 31, 2017	
	Natural gas commodity	Foreign exchange	Natural gas commodity	Foreign exchange
Benefit (expense) to cost of gas	\$(1,239)	\$ (284)	\$(26,000)	\$ 107
Operating revenues	1,660	—	(1,021)	—
Amounts deferred to regulatory accounts on balance sheet	(211)	284	26,665	(107)
Total gain (loss) in pre-tax earnings	\$210	\$ —	\$(356)	\$ —

UNREALIZED GAIN/LOSS. Outstanding derivative instruments related to regulated NGD operations are deferred in accordance with regulatory accounting standards. The cost of foreign currency forward and natural gas derivative contracts are recognized immediately in the cost of gas; however, costs above or below the amount embedded in the current year PGA are subject to a regulatory deferral tariff and therefore, are recorded as a regulatory asset or liability.

REALIZED GAIN/LOSS. Net gains of \$7.4 million and net losses of \$7.8 million were realized for the years ended December 31, 2018 and 2017, respectively, from the settlement of natural gas financial derivative contracts. Realized gains and losses are recorded in cost of gas, deferred through regulatory accounts, and amortized through customer rates in the following year.

Credit Risk Management of Financial Derivatives Instruments

No collateral was posted with or by NW Natural counterparties as of December 31, 2018 or 2017. NW Natural attempts to minimize the potential exposure to collateral calls by counterparties to manage liquidity risk.

Counterparties generally allow a certain credit limit threshold before requiring NW Natural to post collateral against loss positions. Given NW Natural's counterparty credit limits and portfolio diversification, it was not subject to collateral calls in 2018 or 2017. The collateral call exposure is set forth under credit support agreements, which generally contain credit limits. NW Natural could also be subject to collateral call exposure where it has agreed to provide adequate assurance, which is not specific as to the amount of credit limit allowed, but could potentially require additional collateral in the event of a material adverse change.

Based on current commodity financial swap and option contracts outstanding, which reflect unrealized losses of \$7.8 million at December 31, 2018, we have estimated the level of collateral demands, with and without potential adequate assurance calls, using current gas prices and various credit downgrade rating scenarios for NW Natural as follows:

In thousands	(Current Ratings)	Credit Rating Downgrade Scenarios		
		A+/A3	BBB-/Baa2	BBB-/Baa3 Speculative
With Adequate Assurance Calls	\$	— \$	—\$ (3,940)	\$ (6,059)
Without Adequate Assurance Calls	—	—	(3,940)	(4,452)

NW Natural's financial derivative instruments are subject to master netting arrangements; however, they are presented on a gross basis in NW Natural's consolidated balance sheets. NW Natural and its counterparties have the ability to

set-off obligations to each other under specified circumstances. Such circumstances may include a defaulting party, a credit change due to a merger affecting either party, or any other termination event.

If netted by counterparty, NW Natural's derivative position would result in an asset of \$3.6 million and a liability of \$9.3 million as of December 31, 2018, and an asset of \$2.9 million and a liability of \$23.3 million as of December 31, 2017.

NW Natural is exposed to derivative credit and liquidity risk primarily through securing fixed price natural gas commodity swaps to hedge the risk of price increases for natural gas purchases made on behalf of customers. NW Natural utilizes master netting arrangements through International Swaps and Derivatives Association contracts to minimize this risk along with collateral support agreements with counterparties based on their credit ratings. In certain cases, NW Natural requires guarantees or letters of credit from counterparties to meet its minimum credit requirement standards.

NW Natural's financial derivatives policy requires counterparties to have a certain investment-grade credit rating at the time the derivative instrument is entered into, and the policy specifies limits on the contract amount and duration based on each counterparty's credit rating. NW Natural does not speculate with derivatives; instead, derivatives are used to hedge exposure above risk tolerance limits. Any increase in market risk created by the use of derivatives should be offset by the exposures they modify.

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We actively monitor NW Natural's derivative credit exposure and place counterparties on hold for trading purposes or require other forms of credit assurance, such as letters of credit, cash collateral, or guarantees as circumstances warrant. The ongoing assessment of counterparty credit risk includes consideration of credit ratings, credit default swap spreads, bond market credit spreads, financial condition, government actions, and market news. A Monte-Carlo simulation model is used to estimate the change in credit and liquidity risk from the volatility of natural gas prices. The results of the model are used to establish earnings-at-risk trading limits. NW Natural's credit risk for all outstanding financial derivatives at December 31, 2018 extends to October 31, 2021.

We could become materially exposed to credit risk with one or more of our counterparties if natural gas prices experience a significant increase. If a counterparty were to become insolvent or fail to perform on its obligations, we could suffer a material loss; however, we would expect such a loss to be eligible for regulatory deferral and rate recovery, subject to a prudence review. All of our existing counterparties currently have investment-grade credit ratings.

Fair Value

In accordance with fair value accounting, non-performance risk is included in calculating fair value adjustments. This includes a credit risk adjustment based on the credit spreads of NW Natural's counterparties when it is in an unrealized gain position, or on NW Natural's own credit spread when it is in an unrealized loss position. The inputs in the valuation models include natural gas futures, volatility, credit default swap spreads, and interest rates. Additionally, the assessment of non-performance risk is generally derived from the credit default swap market and from bond market credit spreads. The impact of the credit risk adjustments for all outstanding derivatives was immaterial to the fair value calculation at December 31, 2018. As of December 31, 2018 and 2017, the net fair value was a liability of \$5.7 million and a liability of \$20.3 million, respectively, using significant other observable, or Level 2, inputs. No Level 3 inputs were used in the derivative valuations, and there were no transfers between Level 1 or Level 2 during the years ended December 31, 2018 and 2017.

16. COMMITMENTS AND CONTINGENCIES

Leases

Land, buildings, and equipment are leased under agreements that expire in various years, including a 99-year land lease that extends through 2108. Rental costs for continuing operations were \$5.9 million, \$7.3 million, and \$5.9 million for the years ended December 31, 2018, 2017, and 2016, respectively, a portion of which was capitalized.

The following table reflects NW Natural's future minimum lease payments due under non-cancelable operating leases for continuing operations at December 31, 2018. These commitments relate principally to the lease of the office headquarters and underground gas storage facilities.

In thousands	Minimum lease payments
2019	\$5,368
2020	4,812
2021	7,077
2022	7,223
2023	7,304
Thereafter	149,881

Total \$ 181,665

In October 2017, NW Natural entered into a 20-year operating lease agreement for a new headquarters in Portland, Oregon in anticipation of the expiration of the current lease in 2020.

Payments under the new lease are expected to commence in 2020. Total estimated base rent payments over the life of the lease are approximately \$160 million and have been included in the table above. There is an option to extend the term of the lease for two additional seven-year periods.

Additionally, the lease was analyzed under the lease standard in effect at the time of signing in consideration of build-to-suit lease accounting implications, and NW Natural concluded that it was the accounting owner of the asset during construction. As a result, NW Natural recognized \$26.0 million and \$0.5 million in property, plant and equipment and an obligation in other non-current liabilities for the same amount in its consolidated balance sheet at December 31, 2018 and 2017, respectively.

Gas Purchase and Pipeline Capacity Purchase and Release Commitments

NW Natural has signed agreements providing for the reservation of firm pipeline capacity under which it is required to make fixed monthly payments for contracted capacity. The pricing component of the monthly payment is established, subject to change, by U.S. or Canadian regulatory bodies. In addition, NW Natural has entered into long-term sale agreements to release firm pipeline capacity. NW Natural also enters into short-term and long-term gas purchase agreements.

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The aggregate amounts of these agreements were as follows at December 31, 2018:

In thousands	Gas Purchase Agreements	Pipeline Capacity Purchase Agreements	Pipeline Capacity Release Agreements
2019	\$ 144,500	\$ 78,449	\$ 4,272
2020	2,776	76,613	3,560
2021	2,313	66,656	—
2022	—	61,075	—
2023	—	60,619	—
Thereafter	—	580,022	—
Total	149,589	923,434	7,832
Less: Amount representing interest	1,314	201,224	183
Total at present value	\$ 148,275	\$ 722,210	\$ 7,649

Total payments for fixed charges under capacity purchase agreements were \$82.6 million for 2018, \$85.3 million for 2017, and \$85.0 million for 2016. Included in the amounts were reductions for capacity release sales of \$4.3 million for 2018, \$4.5 million for 2017, and \$4.5 million for 2016. In addition, per-unit charges are required to be paid based on the actual quantities shipped under the agreements. In certain take-or-pay purchase commitments, annual deficiencies may be offset by prepayments subject to recovery over a longer term if future purchases exceed the minimum annual requirements.

Environmental Matters

Refer to Note 17 for a discussion of environmental commitments and contingencies.

17. ENVIRONMENTAL MATTERS

NW Natural owns, or previously owned, properties that may require environmental remediation or action. The range of loss for environmental liabilities is estimated based on current remediation technology, enacted laws and regulations, industry experience gained at similar sites, and an assessment of the probable level of involvement and financial condition of other potentially responsible parties (PRPs). When amounts are prudently expended related to site remediation of those sites described herein, NW Natural has a recovery mechanism in place to collect 96.68% of remediation costs from Oregon customers, and NW Natural is allowed to defer environmental remediation costs allocated to customers in Washington annually until they are reviewed for prudence at a subsequent proceeding.

These sites are subject to the remediation process prescribed by the Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (ODEQ). The process begins with a remedial investigation (RI) to determine the nature and extent of contamination and then a risk assessment (RA) to establish whether the contamination at the site poses unacceptable risks to humans and the environment. Next, a feasibility study (FS) or an engineering evaluation/cost analysis (EE/CA) evaluates various remedial alternatives. It is at this point in the process when NW Natural is able to estimate a range of remediation costs and record a reasonable potential remediation liability, or make an adjustment to the existing liability. From this study, the regulatory agency selects a remedy and issues a Record of Decision (ROD).

After a ROD is issued, NW Natural would seek to negotiate a consent decree or consent judgment for designing and implementing the remedy. NW Natural would have the ability to further refine estimates of remediation liabilities at that time.

Remediation may include treatment of contaminated media such as sediment, soil and groundwater, removal and disposal of media, institutional controls such as legal restrictions on future property use, or natural recovery. Following construction of the remedy, the EPA and ODEQ also have requirements for ongoing maintenance, monitoring, and other post-remediation care that may continue for many years. Where appropriate and reasonably known, NW Natural will provide for these costs in the remediation liabilities described below.

Due to the numerous uncertainties surrounding the course of environmental remediation and the preliminary nature of several site investigations, in some cases, NW Natural may not be able to reasonably estimate the high end of the range of possible loss. In those cases, the nature of the possible loss has been disclosed, as has the fact that the high end of the range cannot be reasonably estimated where a range of potential loss is available. Unless there is an estimate within the range of possible losses that is more likely than other cost estimates within that range, NW Natural records the liability at the low end of this range. It is likely changes in these estimates and ranges will occur throughout the remediation process for each of these sites due to the continued evaluation and clarification concerning responsibility, the complexity of environmental laws and regulations, and the determination by regulators of remediation alternatives. In addition to remediation costs, NW Natural could also be subject to Natural Resource Damages (NRD) claims. NW Natural will assess the likelihood and probability of each claim and recognize a liability if deemed appropriate. Refer to "Other Portland Harbor" below.

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Environmental Sites

The following table summarizes information regarding liabilities related to environmental sites, which are recorded in other current liabilities and other noncurrent liabilities in NW Natural's balance sheet at December 31:

In thousands	Current Liabilities		Non-Current Liabilities	
	2018	2017	2018	2017
Portland Harbor site:				
Gasco/Siltronic Sediments	\$5,117	\$2,683	\$44,351	\$45,346
Other Portland Harbor	2,600	1,949	6,273	4,163
Gasco/Siltronic Upland site	13,983	13,422	44,830	47,835
Central Service Center site	10	25	—	—
Front Street site	11,402	1,009	3	10,757
Oregon Steel Mills	—	—	179	179
Total	\$33,112	\$19,088	\$95,636	\$108,280

PORTLAND HARBOR SITE. The Portland Harbor is an EPA listed Superfund site that is approximately 10 miles long on the Willamette River and is adjacent to NW Natural's Gasco uplands sites. NW Natural is one of over one hundred PRPs to the Superfund site. In January 2017, the EPA issued its Record of Decision, which selects the remedy for the clean-up of the Portland Harbor site (Portland Harbor ROD). The Portland Harbor ROD estimates the present value total cost at approximately \$1.05 billion with an accuracy between -30% and +50% of actual costs.

NW Natural's potential liability is a portion of the costs of the remedy for the entire Portland Harbor Superfund site. The cost of that remedy is expected to be allocated among more than 100 PRPs. In addition, NW Natural is actively pursuing clarification and flexibility under the ROD in order to better understand its obligation under the clean-up. NW Natural is also participating in a non-binding allocation process with the other PRPs in an effort to resolve its potential liability. The Portland Harbor ROD does not provide any additional clarification around allocation of costs among PRPs and, as a result of the issuance of the Portland Harbor ROD, NW Natural has not modified any of the recorded liabilities at this time.

NW Natural manages its liability related to the Superfund site as two distinct remediation projects, the Gasco/Siltronic Sediments and Other Portland Harbor projects.

Gasco/Siltronic Sediments. In 2009, NW Natural and Siltronic Corporation entered into a separate Administrative Order on Consent with the EPA to evaluate and design specific remedies for sediments adjacent to the Gasco uplands and Siltronic uplands sites. NW Natural submitted a draft EE/CA to the EPA in May 2012 to provide the estimated cost of potential remedial alternatives for this site. At this time, the estimated costs for the various sediment remedy alternatives in the draft EE/CA, for the additional studies and design work needed before the cleanup can occur, and for regulatory oversight throughout the clean-up range from \$49.5 million to \$350 million. NW Natural has recorded a liability of \$49.5 million for the sediment clean-up, which reflects the low end of the range. At this time, we believe

sediments at this site represent the largest portion of NW Natural's liability related to the Portland Harbor site discussed above.

Other Portland Harbor. While we believe liabilities associated with the Gasco/Siltronic sediments site represent NW Natural's largest exposure, there are other potential exposures associated with the Portland Harbor ROD, including

NRD costs and harborwide clean-up costs (including downstream petroleum contamination), for which allocations among the PRPs have not yet been determined.

NW Natural and other parties have signed a cooperative agreement with the Portland Harbor Natural Resource Trustee council to participate in a phased NRD assessment to estimate liabilities to support an early restoration-based settlement of NRD claims. One member of this Trustee council, the Yakama Nation, withdrew from the council in 2009, and in 2017, filed suit against NW Natural and 29 other parties seeking remedial costs and NRD assessment costs associated with the Portland Harbor, set forth in the complaint. The complaint seeks recovery of alleged costs totaling \$0.3 million in connection with the selection of a remedial action for the Portland Harbor as well as declaratory judgment for unspecified future remedial action costs and for costs to assess the injury, loss, or destruction of natural resources resulting from the release of hazardous substances at and from the Portland Harbor site. The Magistrate Judge has recommended granting NW Natural and certain other defendants' motion to stay the case. NW Natural has recorded a liability for NRD claims which is at the low end of the range of the potential liability; the high end of the range cannot be reasonably estimated at this time. The NRD liability is not included in the aforementioned range of costs provided in the Portland Harbor ROD.

GASCO UPLANDS SITE. A predecessor of NW Natural, Portland Gas and Coke Company, owned a former gas manufacturing plant that was closed in 1958 (Gasco site) and is adjacent to the Portland Harbor site described above. The Gasco site has been under investigation by NW Natural for environmental contamination under the ODEQ Voluntary Clean-Up Program (VCP). It is not included in the range of remedial costs for the Portland Harbor site noted

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above. The Gasco site is managed in two parts, the uplands portion and the groundwater source control action.

NW Natural submitted a revised Remedial Investigation Report for the uplands to ODEQ in May 2007. In March 2015, ODEQ approved the RA, enabling commencement of work on the FS in 2016. NW Natural has recognized a liability for the remediation of the uplands portion of the site which is at the low end of the range of potential liability; the high end of the range cannot be reasonably estimated at this time.

In October 2016, ODEQ and NW Natural agreed to amend their VCP agreement to incorporate a portion of the Siltronic property adjacent to the Gasco site formerly owned by Portland Gas & Coke between 1939 and 1960 into the Gasco RA and FS, excluding the uplands for Siltronic. Previously, NW Natural was conducting an investigation of manufactured gas plant constituents on the entire Siltronic uplands for ODEQ. Siltronic will be working with ODEQ directly on environmental impacts to the remainder of its property.

In September 2013, NW Natural completed construction of a groundwater source control system, including a water treatment station, at the Gasco site. NW Natural has estimated the cost associated with the ongoing operation of the system and has recognized a liability which is at the low end of the range of potential costs. NW Natural cannot estimate the high end of the range at this time due to the uncertainty associated with the duration of the operation of the water treatment station, which is highly dependent on the remedy determined for both the upland portion as well as the final remedy for Gasco sediment exposure.

OTHER SITES. In addition to those sites above, NW Natural has environmental exposures at three other sites: Central Service Center, Front Street, and Oregon Steel Mills. NW Natural may have exposure at other sites that have not been identified at this time. Due to the uncertainty of the design of remediation, regulation, timing of the remediation, and in the case of the Oregon Steel Mills site, pending litigation, liabilities for each of these sites have been recognized at their respective low end of the range of potential liability; the high end of the range cannot be reasonably estimated at this time.

Central Service Center site. NW Natural is currently performing an environmental investigation of the property under ODEQ's Independent Cleanup Pathway. This site is on ODEQ's list of sites with confirmed releases of hazardous substances, and cleanup is necessary.

Front Street site. The Front Street site was the former location of a gas manufacturing plant NW Natural operated (the former Portland Gas Manufacturing site, or PGM). At ODEQ's request, NW Natural conducted a sediment and source control investigation and provided findings to ODEQ. In December 2015, a FS on the former Portland Gas Manufacturing site was completed.

In July 2017, ODEQ issued the PGM ROD. The ROD specifies the selected remedy, which requires a combination of dredging, capping, treatment, and natural recovery. In

addition, the selected remedy also requires institutional controls and long-term inspection and maintenance. NW Natural revised the liability in the second quarter of 2017 to incorporate the estimated undiscounted cost of approximately \$10.5 million for the selected remedy. Further, NW Natural has recognized an additional liability of \$0.9 million for additional studies and design costs as well as regulatory oversight throughout the clean-up. NW Natural plans to complete the remedial design in early 2019 and expects to construct the remedy during 2019.

Oregon Steel Mills site. Refer to the "Legal Proceedings," below.

Site Remediation and Recovery Mechanism (SRRM)

NW Natural has an SRRM through which it tracks and has the ability to recover past deferred and future prudently incurred environmental remediation costs allocable to Oregon, subject to an earnings test, for those sites identified therein. In the February 2015 Order establishing the SRRM (2015 Order), the OPUC addressed outstanding issues related to the SRRM, which required NW Natural to forego the collection of \$15 million out of approximately \$95 million in total environmental remediation expenses and associated carrying costs.

As a follow-up to the 2015 Order, the OPUC issued an additional Order in January 2016 (2016 Order) regarding the SRRM implementation in which the OPUC: (1) disallowed the recovery of \$2.8 million of interest earned on the previously disallowed environmental expenditure amounts; (2) clarified the state allocation of 96.68% of environmental remediation costs for all environmental sites allocable to Oregon; and (3) confirmed NW Natural's treatment of \$13.8 million of expenses put into the SRRM amortization account was correct and in compliance with prior OPUC orders. As a result of the 2016 Order, NW Natural recognized a \$3.3 million non-cash charge in the first quarter, of which \$2.8 million is reflected in other income and expense, net and \$0.5 million is included in operations and maintenance expense.

COLLECTIONS FROM OREGON CUSTOMERS. Under the SRRM collection process there are three types of deferred environmental remediation expense:

Pre-review - This class of costs represents remediation spend that has not yet been deemed prudent by the OPUC.

Carrying costs on these remediation expenses are recorded at NW Natural's authorized cost of capital. NW Natural anticipates the prudence review for annual costs and approval of the earnings test prescribed by the OPUC to occur by the third quarter of the following year.

Post-review - This class of costs represents remediation spend that has been deemed prudent and allowed after applying the earnings test, but is not yet included in amortization. NW Natural earns a carrying cost on these amounts at a rate equal to the five-year treasury rate plus 100 basis points.

Amortization - This class of costs represents amounts included in current customer rates for collection and is generally calculated as one-fifth of the post-review deferred balance. NW Natural earns a carrying cost equal to the amortization rate determined annually by the OPUC, which approximates a short-term borrowing rate.

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In addition to the collection amount noted above, the Order also provides for the annual collection of \$5.0 million from Oregon customers through a tariff rider. As NW Natural collects amounts from customers, it recognizes these collections as revenue and separately amortizes an equal and offsetting amount of its deferred regulatory asset balance through the environmental remediation operating expense line shown separately in the operating expense section of the income statement.

NW Natural received total environmental insurance proceeds of approximately \$150.0 million as a result of settlements from litigation that was dismissed in July 2014. Under the 2015 OPUC Order, one-third of the Oregon allocated proceeds were applied to costs deferred through 2012 with the remaining two-thirds applied to costs at a rate of \$5.0 million per year plus interest over the following 20 years. NW Natural accrues interest on the insurance proceeds in the customer's favor at a rate equal to the five-year treasury rate plus 100 basis points. As of December 31, 2018, NW Natural has applied \$73.2 million of insurance proceeds to prudently incurred remediation costs allocated to Oregon.

The following table presents information regarding the total regulatory asset deferred as of December 31:

In thousands	2018	2017
Deferred costs and interest ⁽¹⁾	\$41,883	\$45,546
Accrued site liabilities ⁽²⁾	128,369	126,950
Insurance proceeds and interest	(88,502)	(94,170)
Total regulatory asset deferral ⁽¹⁾	\$81,750	\$78,326
Current regulatory assets ⁽³⁾	5,601	6,198
Long-term regulatory assets ⁽³⁾	76,149	72,128

⁽¹⁾ Includes pre-review and post-review deferred costs, amounts currently in amortization, and interest, net of amounts collected from customers.

Excludes 3.32% of the Front Street site liability, or \$0.4 million in 2018 and \$0.4 million in 2017, as the OPUC

⁽²⁾ only allows recovery of 96.68% of costs for those sites allocable to Oregon, including those that historically served only Oregon customers.

Environmental costs relate to specific sites approved for regulatory deferral by the OPUC and WUTC. In Oregon, NW Natural earns a carrying charge on cash amounts paid, whereas amounts accrued but not yet paid do not earn a carrying charge until expended. NW Natural also accrues a carrying charge on insurance proceeds for amounts

⁽³⁾ owed to customers. In Washington, a carrying charge related to deferred amounts will be determined in a future proceeding. Current environmental costs represent remediation costs management expects to collect from customers in the next 12 months. Amounts included in this estimate are still subject to a prudence and earnings test review by the OPUC and do not include the \$5.0 million tariff rider. The amounts allocable to Oregon are recoverable through NGD rates, subject to an earnings test.

ENVIRONMENTAL EARNINGS TEST. To the extent NW Natural earns at or below its authorized Return on Equity (ROE), remediation expenses and interest in excess of the

\$5.0 million tariff rider and \$5.0 million insurance proceeds are recoverable through the SRRM. To the extent NW Natural earns more than its authorized ROE in a year, it is required to cover environmental expenses and interest on expenses greater than the \$10.0 million with those earnings that exceed its authorized ROE.

Under the 2015 Order, the OPUC stated they would revisit the deferral and amortization of future remediation expenses, as well as the treatment of remaining insurance proceeds three years from the original Order, or earlier if

NW Natural gains greater certainty about its future remediation costs, to consider whether adjustments to the mechanism may be appropriate. NW Natural filed an update with the OPUC in March 2018 and recommended no changes.

WASHINGTON DEFERRAL. In Washington, cost recovery and carrying charges on amounts deferred for costs associated with services provided to Washington customers will be determined in a future proceeding.

Legal Proceedings

NW Holdings is not currently party to any direct claims or litigation, though in the future it may be subject to claims and litigation arising in the ordinary course of business.

NW Natural is subject to claims and litigation arising in the ordinary course of business. Although the final outcome of any of these legal proceedings cannot be predicted with certainty, including the matter described below, NW Natural and NW Holdings do not expect that the ultimate disposition of any of these matters will have a material effect on financial condition, results of operations, or cash flows.

OREGON STEEL MILLS SITE. In 2004, NW Natural was served with a third-party complaint by the Port of Portland (the Port) in a Multnomah County Circuit Court case, Oregon Steel Mills, Inc. v. The Port of Portland. The Port alleges that in the 1940s and 1950s petroleum wastes generated by NW Natural's predecessor, Portland Gas & Coke Company, and 10 other third-party defendants, were disposed of in a waste oil disposal facility operated by the United States or Shaver Transportation Company on property then owned by the Port and now owned by Evraz Oregon Steel Mills. The complaint seeks contribution for unspecified past remedial action costs incurred by the Port regarding the former waste oil disposal facility as well as a declaratory judgment allocating liability for future remedial action costs. No date has been set for trial. In August 2017, the case was stayed pending outcome of the Portland Harbor allocation process or other mediation. Although the final outcome of this proceeding cannot be predicted with certainty, NW Natural and NW Holdings do not expect the ultimate disposition of this matter will have a material effect on NW Natural's or NW Holdings' financial condition, results of operations, or cash flows.

For additional information regarding other commitments and contingencies, see Note 16.

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18. DISCONTINUED OPERATIONS

NW Holdings

On June 20, 2018, NWN Gas Storage, then a wholly-owned subsidiary of NW Natural, entered into a Purchase and Sale Agreement (the Agreement) that provides for the sale by NWN Gas Storage of all of the membership interests in Gill Ranch. Gill Ranch owns a 75% interest in the natural gas storage facility located near Fresno, California known as the Gill Ranch Gas Storage Facility. PG&E owns the remaining 25% interest in the Gill Ranch Gas Storage Facility. The CPUC regulates Gill Ranch under a market-based rate model which allows for the price of storage services to be set by the marketplace. The CPUC also regulates the issuance of securities, system of accounts, and regulates intrastate storage services.

The Agreement provides for an initial cash purchase price of \$25.0 million (subject to a working capital adjustment), plus potential additional payments to NWN Gas Storage of up to \$26.5 million in the aggregate if Gill Ranch achieves certain economic performance levels for the first three full gas storage years (April 1 of one year through March 31 of the following year) occurring after the closing and the remaining portion of the gas storage year during which the closing occurs.

We expect the transaction to close in 2019. The closing of the transaction is subject to approval by the CPUC, satisfaction of representations, warranties and covenants of the Agreement, and other customary closing conditions. In July 2018, Gill Ranch filed an application with the CPUC for approval of this transaction. On February 14, 2019, the active parties to the CPUC proceeding filed a settlement agreement with the CPUC. The CPUC is expected to rule on the settlement agreement within 90 days of its filing, but may grant further time for public comment. We expect an order on this matter by the end of June.

As a result of the strategic shift away from the California gas storage market and the significance of Gill Ranch's financial results in 2017, we concluded that the pending sale of Gill Ranch qualified it as assets and liabilities held for sale and discontinued operations. As such, the assets and liabilities associated with Gill Ranch have been classified as discontinued operations assets and discontinued operations liabilities, respectively, and, the

results of Gill Ranch are presented, net of tax, as discontinued operations separate from the results of continuing operations for all periods presented. The expenses included in the results of discontinued operations are the direct operating expenses incurred by Gill Ranch that may be reasonably segregated from the costs of our continuing operations.

The following table presents the carrying amounts of the major components of Gill Ranch that are classified as discontinued operations assets and liabilities on NW Holdings' consolidated balance sheets:

In thousands	NW Holdings Discontinued Operations	
	2018	2017
Assets:		
Accounts receivable	\$390	\$2,126
Inventories	685	396
Other current assets	333	535
Property, plant, and equipment	11,621	10,816
Less: Accumulated depreciation	7	—

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Other non-current assets	247	1
Discontinued operations - current assets	13,269	3,057
Discontinued operations - non-current assets	—	10,817
Total discontinued operations assets	\$13,269	\$13,874

Liabilities:

Accounts payable	\$873	\$1,287
Other current liabilities	307	306
Other non-current liabilities	11,779	12,043
Discontinued operations - current liabilities	12,959	1,593
Discontinued operations - non-current liabilities	—	12,043
Total discontinued operations liabilities	\$12,959	\$13,636

(1) The total assets and liabilities of Gill Ranch are classified as current as of December 31, 2018 because it is probable that the sale will be completed within one year.

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The following table presents the operating results of Gill Ranch, which was historically reported within the gas storage segment, and is presented net of tax on NW Holdings' consolidated statements of comprehensive income:

In thousands, except per share data	NW Holdings Discontinued Operations		
	2018	2017	2016
Revenues	\$3,579	\$7,135	\$7,794
Expenses			
Operations and maintenance	5,771	7,245	6,643
General taxes	479	1,373	1,295
Depreciation and amortization	430	4,525	4,685
Other expenses and interest	609	975	992
Impairment expense	—	192,478	—
Total expenses	7,289	206,596	13,615
Loss from discontinued operations before income tax	(3,710)	(199,461)	(5,821)
Income tax benefit ⁽¹⁾	(968)	(71,765)	(2,297)
Loss from discontinued operations, net of tax	\$(2,742)	\$(127,696)	\$(3,524)

Loss from discontinued operations per share of common stock:

Basic	\$(0.10)	\$(4.45)	\$(0.13)
Diluted	\$(0.09)	\$(4.44)	\$(0.13)

⁽¹⁾ 2017 income tax benefit includes approximately \$18 million of tax benefit from the enactment of the TCJA. The TCJA was enacted December 22, 2017 and resulted in the federal tax rate changing from 35% to 21%.

NW Natural

As part of the holding company reorganization in October 2018, NWN Energy, NWN Gas Storage, Gill Ranch, NNG Financial, NWN Water, and NW Holdings, which were direct and indirect subsidiaries of NW Natural prior to the reorganization, are no longer subsidiaries of NW Natural. See Note 1 for additional information. As a result, NW Natural's financial statements reflect amounts related to these entities as discontinued operations for all periods presented. The expenses included in the results of discontinued operations are the direct operating expenses incurred by the entities that may be reasonably segregated from the costs of NW Natural's continuing operations.

The following table presents the carrying amounts of the major components of NWN Energy, NWN Gas Storage, Gill Ranch, NNG Financial, NWN Water, and NW Holdings that are classified as discontinued operations assets and liabilities on NW Natural's consolidated balance sheets:

In thousands	NW Natural Discontinued Operations 2017
Assets:	
Cash	\$ 362
Accounts receivable	2,126
Intercompany receivables	3,664
Inventories	396
Other current assets	622
Property, plant, and equipment	11,191

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Less: Accumulated depreciation	192
Other investments	13,710
Other non-current assets	—
Discontinued operations - current assets	7,170
Discontinued operations - non-current assets	24,709
Total discontinued operations assets	\$ 31,879

Liabilities:

Accounts payable	\$ 1,954
Intercompany payables	266
Other current liabilities	345
Deferred tax liabilities	(16,862)
Other non-current liabilities	12,130
Discontinued operations - current liabilities	2,565
Discontinued operations - non-current liabilities	(4,732)
Total discontinued operations liabilities	\$ (2,167)

The following table presents the operating results prior to the holding company reorganization effective October 1, 2018 of NWN Energy, NWN Gas Storage, Gill Ranch, NNG Financial, NWN Water, and NW Holdings, which were historically reported within the gas storage segment and other, and is presented net of tax on NW Natural's consolidated statements of comprehensive income:

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In thousands, except per share data	NW Natural Discontinued Operations		
	2018	2017	2016
Revenues	\$3,016	\$7,360	\$8,018
Expenses			
Operations and maintenance	4,151	7,423	7,387
General taxes	448	1,410	1,317
Depreciation and amortization	420	4,555	4,714
Other expenses and interest	342	650	1,097
Impairment expense	—	192,478	—
Total expenses	5,361	206,516	14,515
Loss from discontinued operations before income tax	(2,345)	(199,156)	(6,497)
Income tax benefit ⁽¹⁾	(622)	(71,813)	(2,557)
Loss from discontinued operations, net of tax	\$(1,723)	\$(127,343)	\$(3,940)

⁽¹⁾ 2017 income tax benefit includes approximately \$18 million of tax benefit from the enactment of the TCJA. The TCJA was enacted December 22, 2017 and resulted in the federal tax rate changing from 35% to 21%.

Table of ContentsNORTHWEST NATURAL HOLDING COMPANY
QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

In thousands, except per share data	NW Holdings Quarter ended ⁽¹⁾			
	March 31	June 30	September 30	December 31
2018				
Operating revenues	\$263,635	\$124,567	\$91,239	\$226,702
Net income (loss) from continuing operations	42,011	(339)	(11,144)	36,783
Loss from discontinued operations, net of tax	(474)	(659)	(650)	(959)
Net income (loss)	41,537	(998)	(11,794)	35,824
Average common shares outstanding:				
Basic	28,753	28,791	28,815	28,851
Diluted	28,803	28,791	28,815	28,940
Earnings (loss) from continuing operations per share of common stock:				
Basic	1.46	(0.01)	(0.39)	1.27
Diluted	1.46	(0.01)	(0.39)	1.27
Loss from discontinued operations per share of common stock:				
Basic	(0.02)	(0.02)	(0.02)	(0.03)
Diluted	(0.02)	(0.02)	(0.02)	(0.03)
Earnings (loss) per share of common stock:				
Basic	1.44	(0.03)	(0.41)	1.24
Diluted	1.44	(0.03)	(0.41)	1.24
2017				
Operating revenues	\$295,724	\$134,476	\$86,212	\$238,626
Net income (loss) from continuing operations	41,397	4,075	(7,887)	34,488
Loss from discontinued operations, net of tax	(1,087)	(1,346)	(608)	(124,655)
Net income (loss)	40,310	2,729	(8,495)	(90,167)
Average common shares outstanding:				
Basic	28,633	28,648	28,678	28,716
Diluted	28,723	28,717	28,678	28,797
Earnings (loss) from continuing operations per share of common stock:				
Basic	1.45	0.14	(0.28)	1.20
Diluted	1.44	0.14	(0.28)	1.20
Loss from discontinued operations per share of common stock:				
Basic	(0.04)	(0.04)	(0.02)	(4.34)
Diluted	(0.04)	(0.04)	(0.02)	(4.33)
Earnings (loss) per share of common stock:				
Basic	1.41	0.10	(0.30)	(3.14)
Diluted	1.40	0.10	(0.30)	(3.13)

(1) Quarterly earnings (loss) per share are based upon the average number of common shares outstanding during each quarter. Variations in earnings between quarterly periods are due primarily to the seasonal nature of our business.

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NORTHWEST NATURAL GAS COMPANY

QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

In thousands	NW Natural			
	Quarter ended			
	March 31	June 30	September 30	December 31
2018				
Operating revenues	\$263,635	\$124,563	\$91,227	\$226,146
Net income (loss) from continuing operations	42,014	(271)	(11,275)	37,581
Loss from discontinued operations, net of tax	(477)	(727)	(519)	—
Net income (loss)	41,537	(998)	(11,794)	37,581
2017				
Operating revenues	\$295,668	\$134,420	\$86,157	\$238,793
Net income (loss) from continuing operations	41,438	4,072	(7,876)	34,086
Loss from discontinued operations, net of tax	(1,128)	(1,343)	(619)	(124,253)
Net income (loss)	40,310	2,729	(8,495)	(90,167)

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SCHEDULE I - CONDENSED FINANCIAL INFORMATION OF NORTHWEST NATURAL HOLDING COMPANY

NORTHWEST NATURAL HOLDING COMPANY
CONDENSED STATEMENTS OF COMPREHENSIVE
INCOME
(PARENT COMPANY ONLY)

In thousands	Inception through December 31, 2018
Operating expenses:	
Operations and maintenance	\$ 838
Total operating expenses	838
Loss from operations	(838)
Earnings from investment in subsidiaries, net of tax	36,469
Other income (expense), net	36
Interest expense, net	53
Income before income taxes	35,614
Income tax expense (benefit)	(225)
Net income	\$ 35,839

See Notes to Condensed Financial Statements

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NORTHWEST NATURAL HOLDING COMPANY
 CONDENSED BALANCE SHEETS
 (PARENT COMPANY ONLY)

	As of December 31, 2018
In thousands	
Assets:	
Current assets:	
Cash and cash equivalents	\$4,011
Receivables from affiliates	2,796
Income taxes receivable	6,000
Other current assets	3,078
Total current assets	15,885
Non-current assets:	
Investments in subsidiaries	754,971
Other investments	65
Other non-current assets	310
Total non-current assets	755,346
Total assets	\$771,231
Liabilities and equity:	
Current liabilities:	
Accounts payable	168
Payables to affiliates	9,166
Interest accrued	32
Total current liabilities	9,366
Long-term debt	(1)
Deferred credits and other non-current liabilities:	
Deferred tax liabilities	7
Total deferred credits and other non-current liabilities	7
Equity:	
Common stock	739,722
Retained earnings	22,137
Total equity	761,859
Total liabilities and equity	\$771,231

See Notes to Condensed Financial Statements

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NORTHWEST NATURAL HOLDING COMPANY
 CONDENSED STATEMENTS OF CASH FLOWS
 (PARENT COMPANY ONLY)

In thousands	Inception through December 31, 2018
Operating activities:	
Net income	\$ 35,839
Adjustments to reconcile net income to cash used in operations:	
Equity in earnings of subsidiaries, net of tax	(36,469)
Deferred income taxes	7
Other	15
Changes in assets and liabilities:	
Receivables, net	(585)
Income and other taxes	(9,034)
Accounts payable	9,304
Interest accrued	32
Other, net	(44)
Cash used in operating activities	(935)
Investing activities:	
Contributions to subsidiaries	(1,804)
Cash used in investing activities	(1,804)
Financing activities:	
Cash dividend payments on common stock	(12,923)
Capital contributions	20,000
Other	(327)
Cash provided by financing activities	6,750
Increase in cash and cash equivalents	4,011
Cash and cash equivalents, beginning of period	—
Cash and cash equivalents, end of period	\$ 4,011

See Notes to Condensed Financial Statements

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NOTES TO CONDENSED FINANCIAL STATEMENTS

1. BASIS OF PRESENTATION

NW Holdings is an energy services holding company that conducts substantially all of its business operations through its subsidiaries, particularly NW Natural. These condensed financial statements and related footnotes have been prepared in accordance with Rule 12-04, Schedule I of Regulation S-X. These financial statements, in which NW Holdings' subsidiaries have been included using the equity method, should be read in conjunction with the

consolidated financial statements and notes thereto of NW Holdings included in Item 8 of this Form 10-K.

Equity earnings of subsidiaries included earnings from NW Natural of \$36.5 million for the year ended December 31, 2018.

2. DEBT

For information concerning NW Holdings' debt obligations, see Note 8 to the consolidated financial statements included in Item 8 of this report.

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NORTHWEST NATURAL HOLDING COMPANY

SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS AND RESERVES

COLUMN A	COLUMN B	COLUMN C		COLUMN D	COLUMN E
	Balance at beginning of period	Additions Charged to costs and expenses	Charged to other accounts	Deductions Net write-offs	Balance at end of period
In thousands (year ended December 31)					
2018					
Reserves deducted in balance sheet from assets to which they apply:					
Allowance for uncollectible accounts	\$ 956	\$ 680	\$	—\$ 659	\$ 977
2017					
Reserves deducted in balance sheet from assets to which they apply:					
Allowance for uncollectible accounts	\$ 1,290	\$ 865	\$	—\$ 1,199	\$ 956
2016					
Reserves deducted in balance sheet from assets to which they apply:					
Allowance for uncollectible accounts	\$ 870	\$ 1,246	\$	—\$ 826	\$ 1,290

NORTHWEST NATURAL GAS COMPANY

SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS AND RESERVES

COLUMN A	COLUMN B	COLUMN C		COLUMN D	COLUMN E
	Balance at beginning of period	Additions Charged to costs and expenses	Charged to other accounts	Deductions Net write-offs	Balance at end of period
In thousands (year ended December 31)					
2018					
Reserves deducted in balance sheet from assets to which they apply:					
Allowance for uncollectible accounts	\$ 956	\$ 678	\$	—\$ 659	\$ 975
2017					
Reserves deducted in balance sheet from assets to which they apply:					
Allowance for uncollectible accounts	\$ 1,290	\$ 865	\$	—\$ 1,199	\$ 956
2016					
Reserves deducted in balance sheet from assets to which they apply:					
Allowance for uncollectible accounts	\$ 870	\$ 1,246	\$	—\$ 826	\$ 1,290

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ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

(a) Evaluation of Disclosure Controls and Procedures

NW Holdings and NW Natural management, under the supervision and with the participation of the Chief Executive Officer and Chief Financial Officer, completed an evaluation of the effectiveness of the design and operation of disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended (the Exchange Act)). Based upon this evaluation, the Chief Executive Officer and Chief Financial Officer of each registrant have concluded that, as of the end of the period covered by this report, disclosure controls and procedures were effective to ensure that information required to be disclosed by each such registrant and included in reports filed or submitted under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the Securities and Exchange Commission (SEC) rules and forms and that such information is accumulated and communicated to management of each registrant, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

(b) Changes in Internal Control Over Financial Reporting

NW Holdings and NW Natural management are responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in the Exchange Act Rule 13a-15(f). There have been no changes in internal control over financial reporting that occurred during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, internal control over financial reporting for NW Holdings and NW Natural.

The statements contained in Exhibit 31a., Exhibit 31b., Exhibit 31c. and Exhibit 31d. should be considered in light of, and read together with, the information set forth in this Item 9(a).

ITEM 9B. OTHER INFORMATION

None.

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PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The "Information Concerning Nominees and Continuing Directors", "Corporate Governance", and "Section 16(a) Beneficial Ownership Reporting Compliance" contained in NW Holdings' definitive Proxy Statement for the 2019 Annual Meeting of Shareholders is hereby incorporated by reference.

EXECUTIVE OFFICERS

Name	Age at Dec. 31, 2018	Positions held during last five years ⁽¹⁾
David H. Anderson*	57	Chief Executive Officer and President ⁽²⁾ (2016-); Chief Operating Officer and President (2015-2016); Executive Vice President and Chief Operating Officer (2014-2015); Executive Vice President Operations and Regulation (2013-2014); Senior Vice President and Chief Financial Officer (2004-2013).
Frank H. Burkhartsmeier*	54	Senior Vice President and Chief Financial Officer ⁽²⁾ (2017-); President and Chief Executive Officer of Renewables, Avangrid Renewables (2015-2017); Senior Vice President of Finance, Iberdrola Renewables Holdings, Inc. (2012-2015).
Lea Anne Doolittle ⁽³⁾	63	Senior Vice President and Chief Administrative Officer (2013-2018); Senior Vice President (2008-2013).
James R. Downing	49	Vice President and Chief Information Officer (2017-); Chief Information Officer, WorleyParsons (America's Division) (2016-2017); Executive Service Delivery Manager for SAP, British Petroleum (2011-2015).
Shawn M. Filippi*	46	Vice President, Chief Compliance Officer and Corporate Secretary ⁽²⁾ (2016-); Vice President and Corporate Secretary (2015-2016); Senior Legal Counsel (2011-2014); Assistant Corporate Secretary (2010-2014).
Kimberly A. Heiting	49	Senior Vice President, Operations and Chief Marketing Officer (2018-); Senior Vice President, Communications and Chief Marketing Officer (2018); Vice President, Communications and Chief Marketing Officer (2015-2018); Chief Marketing & Communications Officer (2013-2014); Chief Corporate Communications Officer (2011-2013).
Jon G. Huddleston	56	Vice President, Engineering and Utility Operations (2018-); Senior Director, Utility Operations (2014-2018); Director, Utility Operations (2013-2014); Process Director (2007-2013).
Thomas J. Imeson ⁽⁴⁾	68	Vice President of Public Affairs (2014-); Director of Public Affairs, Port of Portland (2006-2014).
Justin Palfreyman	40	Vice President, Strategy and Business Development (2017-); Vice President, Business Development (2016-2017); Director, Power, Energy and Infrastructure Group, Lazard, Freres & Co. (2009-2016).
Melinda B. Rogers	53	Vice President, Chief Human Resources and Diversity Officer (2018-); Senior Director of Human Resources (2018); Senior Manager, Organizational Effectiveness and Talent Acquisition (2015-2017); Senior Associate, Plan B (2014-2015); Director, Executive Development Center, Willamette University (2011-2015).
Lori Russell	59	Vice President, Utility Services (2016-); Utility Field Operations Director (2013-2016); Serve Customer Process Director (2008-2013).
MardiLyn Saathoff*	62	Senior Vice President, Regulation and General Counsel ⁽⁵⁾ (2016-); Senior Vice President and General Counsel (2015-2016); Vice President, Legal, Risk and

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David A. Weber	59	Compliance (2013-2014); Deputy General Counsel (2010-2013); Chief Governance Officer and Corporate Secretary (2008-2014). President and Chief Executive Officer, NW Natural Gas Storage, LLC and Gill Ranch Storage, LLC (2011-).
Brody J. Wilson*	39	Vice President, Chief Accounting Officer, Controller and Treasurer ⁽²⁾ (2017-); Chief Financial Officer (Interim), Treasurer, Chief Accounting Officer and Controller (2016-2017); Chief Accounting Officer, Controller and Assistant Treasurer (2016); Controller (2013-2015); Acting Controller (2013); Accounting Director (2012-2013).

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DIRECTOR (NORTHWEST NATURAL GAS COMPANY ONLY)**

Name	Age at Dec. 31, 2018	Positions held during last five years ⁽¹⁾
Steven E. Wynne	66	Executive Vice President, Moda, Inc., a privately-held healthcare insurance company (2012-); Director, FLIR Systems, Inc. (1999-); Director, JELD-WEN Holding Inc. (2012-); Director, Pendleton Woolen Mills, Inc. (2013-); Director, Lone Rock Resources, Inc. (2016-); Director, Citifyd Inc. (2013-); Trustee, Willamette University (1999-); Trustee, Portland Center Stage (2012-); Executive Vice President, JELD-WEN, Inc. (2011-2012); President and Chief Executive Officer, SBI International, Ltd. (2004-2007); Partner, Ater Wynne LLP (2001-2002; 2003-2004); President and Chief Executive Officer, Adidas (1995-2000)

Mr. Wynne's senior management experience with a variety of companies, board service on a number of public and private companies and longstanding legal practice in the areas of corporate finance, securities and mergers and acquisitions qualify him to provide insight and guidance in the areas of corporate governance, strategic planning, enterprise risk management, finance and operations.

* Executive Officer of Northwest Natural Holding Company and Northwest Natural Gas Company.

** Director of Northwest Natural Gas Company only. All other directors of Northwest Natural Gas Company are also directors of Northwest Natural Holding Company, and information regarding all directors concurrently serving on the Board of Directors of Northwest Natural Gas Company and Northwest Natural Holding Company will be incorporated by reference to our definitive Proxy Statement for the 2019 Annual Meeting of Shareholders.

⁽¹⁾ Unless otherwise specified, all positions held at Northwest Natural Gas Company.

⁽²⁾ Position held at Northwest Natural Holding Company (beginning March 2018) and Northwest Natural Gas Company.

⁽³⁾ Ms. Doolittle retired effective December 31, 2018.

⁽⁴⁾ Mr. Imeson announced his intention to retire effective April 1, 2019. The Board of Directors appointed Kathryn Williams to become Vice President of Public Affairs effective April 1, 2019.

⁽⁵⁾ Ms. Saathoff is Senior Vice President and General Counsel of Northwest Natural Holding Company (beginning March 2018) and Senior Vice President, Regulation and General Counsel of Northwest Natural Gas Company.

Each executive officer serves successive annual terms; present terms end at the 2019 annual meeting. There are no family relationships among our executive officers, directors or any person chosen to become one of our officers or directors. NW Holdings and NW Natural have adopted a Code of Ethics (Code) applicable to all employees, officers, and directors that is available on our website at www.nwnaturalholdings.com. We intend to disclose on our website at www.nwnaturalholdings.com any amendments to the Code or waivers of the Code for executive officers and directors.

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ITEM 11. EXECUTIVE COMPENSATION

The information concerning "Executive Compensation", "Report of the Organization and Executive Compensation Committee", and "Compensation Committee Interlocks and

Insider Participation" contained in NW Holdings' definitive Proxy Statement for the 2019 Annual Meeting of Shareholders is hereby incorporated by reference. Information related to Executive Officers as of December 31, 2018 is reflected in Part III, Item 10, above.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

As of February 22, 2019, NW Holdings owned 100% of the outstanding common stock of NW Natural.

The following table sets forth information regarding compensation plans under which equity securities of NW Holdings are authorized for issuance as of December 31, 2018 (see Note 7 to the Consolidated Financial Statements):

Plan Category	(a)	(b)	(c)
	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders:			
LTIP ⁽¹⁾⁽²⁾	173,175	n/a	574,787
Restated Stock Option Plan	55,938	\$ 44.96	—
Employee Stock Purchase Plan	20,022	60.07	204,317
Equity compensation plans not approved by security holders:			
Executive Deferred Compensation Plan (EDCP) ⁽³⁾	1,063	n/a	n/a
Directors Deferred Compensation Plan (DDCP) ⁽³⁾	41,069	n/a	n/a
Deferred Compensation Plan for Directors and Executives (DCP) ⁽⁴⁾	194,205	n/a	n/a
Total	485,472		779,104

⁽¹⁾ Awards may be granted under the LTIP as Performance Share Awards, Restricted Stock Units, or stock options. Shares issued pursuant to Performance Share Awards and Restricted Stock Units under the LTIP do not include an exercise price, but are payable when the award criteria are satisfied. The number of shares shown in column (a) include 82,680 Restricted Stock Units and 90,495 Performance Share Awards, reflecting the number of shares to be issued as performance share awards under outstanding Performance Share Awards if target performance levels are achieved. If the maximum awards were paid pursuant to the Performance Share Awards outstanding at

December 31, 2018, the number of shares shown in column (a) would increase by 90,495 shares, reflecting the maximum share award of 200% of target, and the number of shares shown in column (c) would decrease by the same amount of shares. No stock options or other types of award have been issued under the LTIP.

- (2) The number of shares shown in column (c) includes shares that are available for future issuance under the LTIP as Restricted Stock Units, Performance Share Awards, or stock options at December 31, 2018.

Prior to January 1, 2005, deferred amounts were credited, at the participant's election, to either a "cash account" or a "stock account." If deferred amounts were credited to stock accounts, such accounts were credited with a number of shares of NW Natural (now NW Holdings) common stock based on the purchase price of the common stock on the next purchase date under our Dividend Reinvestment and Direct Stock Purchase Plan, and such accounts were credited with additional shares based on the deemed reinvestment of dividends. Cash accounts are credited quarterly with interest at a rate equal to Moody's Average Corporate Bond Yield plus two percentage points, subject to a 6% minimum rate. At the election of the participant, deferred balances in the stock accounts are payable after termination of Board service or employment in a lump sum, in installments over a period not to exceed 10 years in the case of the DDCP, or 15 years in the case of the EDCP, or in a combination of lump sum and installments. Amounts credited to stock accounts are payable solely in shares of common stock and cash for fractional shares, and amounts in the above table represent the aggregate number of shares credited to participant's stock accounts. We have contributed common stock to the trustee of the Umbrella Trusts such that the Umbrella Trusts hold approximately the number of shares of common stock equal to the number of shares credited to all participants' stock accounts.

- (3) Effective January 1, 2005, the EDCP and DDCP were closed to new participants and replaced with the DCP. The DCP continues the basic provisions of the EDCP and DDCP under which deferred amounts are credited to either a "cash account" or a "stock account." Stock accounts represent a right to receive shares of NW Holdings common stock on a deferred basis, and such accounts are credited with additional shares based on the deemed reinvestment of dividends. Effective January 1, 2007, cash accounts are credited quarterly with interest at a rate equal to Moody's Average Corporate Bond Yield. Our obligation to pay deferred compensation in accordance with the terms of the DCP will generally become due on retirement, death, or other termination of service, and will be paid in a lump sum or in installments of five, 10, or 15 years as elected by the participant in accordance with the terms of the DCP. Amounts credited to stock accounts are payable solely in shares of common stock and cash for fractional shares, and amounts in the above table represent the aggregate number of shares credited to participants' stock accounts. We have contributed common stock to the trustee of the Supplemental Trust such that this trust holds approximately the number of common shares equal to the number of shares credited to all participants' stock accounts. The right of each participant in the DCP is that of a general, unsecured creditor of the Company.

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The information captioned "Beneficial Ownership of Common Stock by Directors and Executive Officers" and "Security Ownership of Common Stock of Certain Beneficial Owners" contained in NW Holdings' definitive Proxy Statement for the 2019 Annual Meeting of Shareholders is incorporated herein by reference.

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ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information captioned "Transactions with Related Persons" and "Corporate Governance" in NW Holdings' definitive Proxy Statement for the 2019 Annual Meeting of Shareholders is hereby incorporated by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

NW Holdings

The information captioned "2018 and 2017 Audit Firm Fees" in NW Holdings' definitive Proxy Statement for the 2019 Annual Meeting of Shareholders is hereby incorporated by reference.

NW Natural

The following table shows the fees and expenses of NW Natural, paid or accrued for the integrated audits of the consolidated financial statements and other services provided by NW Natural's independent registered public accounting firm, PricewaterhouseCoopers LLP, for fiscal years 2018 and 2017:

In thousands	2018	2017
Audit Fees	\$1,379	\$1,262
Audit-Related Fees	30	115
Tax Fees	34	35
All Other Fees	4	3
Total	\$1,447	\$1,415

AUDIT FEES. This category includes fees and expenses for services rendered for the integrated audit of the consolidated financial statements included in the Annual Report on Form 10-K and the review of the quarterly financial statements included in the Quarterly Reports on Form 10-Q. The integrated audit includes the review of our internal control over financial reporting in compliance with Section 404 of the Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley Act). In addition, amounts include fees for services routinely provided by the auditor in connection with regulatory filings, including issuance of consents and comfort letters relating to the registration of Company securities and assistance with the review of documents filed with the SEC.

AUDIT-RELATED FEES. This category includes fees for assurance and related services that are reasonably related to the performance of the audit or review of our financial statements and internal control over financial reporting, including fees and expenses related to consultations for financial accounting and reporting, in addition to fees for EPA assurance letters.

TAX FEES. This category includes fees for tax compliance, and review services rendered for NW Natural's income tax returns.

ALL OTHER FEES. This category relates to services other than those described above. The amount reflects payments for accounting research tools in each of 2018 and 2017, and educational seminars in 2018.

PRE-APPROVAL POLICY FOR AUDIT AND NON-AUDIT SERVICES. The Audit Committee of NW Natural approved or ratified 100 percent of 2018 and 2017 services for audit, audit-related, tax services and all other fees,

including audit services relating to compliance with Section 404 of the Sarbanes-Oxley Act. The chair of the Audit Committee of NW Natural is authorized to pre-approve non-audit services between meetings of the Audit Committee and must report such approvals at the next Audit Committee meeting.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this exhibit 99.1:

1. A list of all Financial Statements and Supplemental Schedules is incorporated by reference to Item 8.

2. List of Exhibits filed:

Reference is made to the Exhibit Index commencing on the following page.

ITEM 16. FORM 10-K SUMMARY

None.

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NORTHWEST NATURAL HOLDING COMPANY
NORTHWEST NATURAL GAS COMPANY
Exhibit Index to Annual Report on Form 10-K
For the Fiscal Year Ended December 31, 2018

Exhibit Number	Document
<u>*2a.</u>	<u>Agreement and Plan of Merger by and among Northwest Natural Gas Company, Northwest Natural Holding Company, and NWN Merger Sub, Inc., dated as of March 7, 2018 (incorporated by reference to Exhibit 2 to the Current Report on Form 8-K dated March 13, 2018, File No. 1-15973).</u>
<u>*2b.</u>	<u>Amendment to Agreement and Plan of Merger between Northwest Natural Gas Company, Northwest Natural Holding Company, and NWN Merger Sub, Inc., dated September 26, 2018 (incorporated by reference to Exhibit 2.1(b) to the Form 8-K dated October 1, 2018, File No. 1-38681).</u>
<u>*3a.</u>	<u>Amended and Restated Articles of Incorporation of Northwest Natural Holding Company (incorporated by reference to Exhibit 3.1 to the Form 8-K dated October 1, 2018, File No. 1-38681).</u>
<u>*3b.</u>	<u>Amended and Restated Articles of Incorporation of Northwest Natural Gas Company (incorporated by reference to Exhibit 3.3 to the Form 8-K dated October 1, 2018, File No. 1-15973).</u>
<u>*3c.</u>	<u>Amended and Restated Bylaws of Northwest Natural Holding Company (incorporated by reference to Exhibit 3.2 to the Form 8-K dated October 1, 2018, File No. 1-38681).</u>
<u>*3d.</u>	<u>Bylaws of Northwest Natural Gas Company (incorporated by reference to Exhibit 3.1 to the Form 8-K filed December 22, 2017, File No. 1-15973).</u>
<u>*4a.</u>	<u>Copy of Mortgage and Deed of Trust of Northwest Natural Gas Company, dated as of July 1, 1946 (Mortgage and Deed of Trust), to Bankers Trust (to whom Deutsche Bank Trust Company Americas is the successor), Trustee (incorporated by reference to Exhibit 7(j) in File No. 2-6494); and copies of Supplemental Indentures Nos. 1 through 14 to the Mortgage and Deed of Trust, dated respectively, as of June 1, 1949, March 1, 1954, April 1, 1956, February 1, 1959, July 1, 1961, January 1, 1964, March 1, 1966, December 1, 1969, April 1, 1971, January 1, 1975, December 1, 1975, July 1, 1981, June 1, 1985 and November 1, 1985 (incorporated by reference to Exhibit 4(d) in File No. 33-1929); Supplemental Indenture No. 15 to the Mortgage and Deed of Trust, dated as of July 1, 1986 (filed as Exhibit 4(c) in File No. 33-24168); Supplemental Indentures Nos. 16, 17 and 18 to the Mortgage and Deed of Trust, dated, respectively, as of November 1, 1988, October 1, 1989 and July 1, 1990 (incorporated by reference to Exhibit 4(c) in File No. 33-40482); Supplemental Indenture No. 19 to the Mortgage and Deed of Trust, dated as of June 1, 1991 (incorporated by reference to Exhibit 4(c) in File No. 33-64014).</u>
<u>*4b.</u>	<u>Supplemental Indenture No. 20 to the Mortgage and Deed of Trust, dated as of June 1, 1993 (incorporated by reference to Exhibit 4a.(1) to Form 10-K for year ended December 31, 1993, File No. 0-00994).</u>
<u>*4c.</u>	<u>Supplemental Indenture No. 21 to the Mortgage and Deed of Trust, dated as of October 15, 2012 (incorporated by reference to Exhibit 4.1 to Form 8-K dated October 26, 2012, File No. 1-15973).</u>
<u>*4d.</u>	<u>Supplemental Indenture No. 22 to the Mortgage and Deed of Trust, dated as of November 1, 2016 (incorporated by reference to Exhibit 4.1 to Form 10-Q for the quarter ended September 30, 2016, File No. 1-15973).</u>

*4e. Supplemental Indenture No. 23 to the Mortgage and Deed of Trust, dated as of September 1, 2018 (incorporated by reference to Exhibit 4(a) to Form 8-K dated September 10, 2018, File No. 1-15973).

Copy of Indenture, dated as of June 1, 1991, between Northwest Natural Gas Company and Bankers Trust
*4f. Company (to whom Deutsch Bank Trust Company Americas is successor), Trustee, relating to Northwest Natural Gas Company's Unsecured Debt Securities (incorporated by reference to Exhibit 4(e) in File No. 33-64014).

Credit Agreement, dated as of October 2, 2018, among Northwest Natural Holding Company and the lenders party thereto, with JPMorgan Chase Bank, N.A. as administrative agent and Bank of America, N.A., U.S. Bank
*4g. National Association, and Wells Fargo Bank, National Association, as co-syndication agents (incorporated by reference to Exhibit 4.1 to Form 8-K dated October 3, 2018, File No. 1-38681).

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*4h. Credit Agreement, dated as of October 2, 2018, among Northwest Natural Gas Company and the lenders party thereto, with JPMorgan Chase Bank, N.A. as administrative agent and Bank of America, N.A., U.S. Bank National Association, and Wells Fargo Bank, National Association, as co-syndication agents (incorporated by reference to Exhibit 4.1 to Form 8-K dated October 3, 2018, File No. 1-15973).

*10 Purchase and Sale Agreement dated June 20, 2018, between NW Natural Gas Storage LLC and SENSEA Holdings LLC (incorporated by reference to Exhibit 10 to Form 10-Q for the quarter ended June 30, 2018, File No. 1-15973).

21. Subsidiaries of Northwest Natural Holding Company.

23a. Consent of PricewaterhouseCoopers LLP - NW Holdings.

23b. Consent of PricewaterhouseCoopers LLP - NW Natural.

31a. Certification of Principal Executive Officer of Northwest Natural Gas Company Pursuant to Rule 13a-14(a)/15-d-14(a), Section 302 of the Sarbanes-Oxley Act of 2002.

31b. Certification of Principal Financial Officer of Northwest Natural Gas Company Pursuant to Rule 13a-14(a)/15-d-14(a), Section 302 of the Sarbanes-Oxley Act of 2002.

31c. Certification of Principal Executive Officer of Northwest Natural Holding Company Pursuant to Rule 13a-14(a)/15-d-14(a), Section 302 of the Sarbanes-Oxley Act of 2002.

31d. Certification of Principal Financial Officer of Northwest Natural Holding Company Pursuant to Rule 13a-14(a)/15-d-14(a), Section 302 of the Sarbanes-Oxley Act of 2002.

**32a. Certification of Principal Executive Officer and Principal Financial Officer of Northwest Natural Gas Company Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

**32b. Certification of Principal Executive Officer and Principal Financial Officer of Northwest Natural Holding Company Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

The following materials formatted in Extensible Business Reporting Language (XBRL):

101. (i) Consolidated Statements of Income;
(ii) Consolidated Balance Sheets;
(iii) Consolidated Statements of Cash Flows; and
(iv) Related notes.

Executive Compensation Plans and Arrangements:

*10a. Executive Supplemental Retirement Income Plan, 2018 Restatement (incorporated herein by reference to Exhibit 10.6 to the Form 8-K dated October 1, 2018, File No. 1-38681).

*10b.

Supplemental Executive Retirement Plan, 2018 Restatement (incorporated herein by reference to Exhibit 10.7 to the Form 8-K dated October 1, 2018, File No. 1-38681).

*10c. Northwest Natural Gas Company Supplemental Trust, effective January 1, 2005, restated as of October 1, 2018 (incorporated by reference to Exhibit 10.9 to the Form 8-K dated October 1, 2018, File No. 1-38681).

*10d. Northwest Natural Gas Company Umbrella Trust for Directors, effective January 1, 1991, restated as of October 1, 2018 (incorporated by reference to Exhibit 10.11 to the Form 8-K dated October 1, 2018, File No. 1-38681).

*10e. Northwest Natural Gas Company Umbrella Trust for Executives, effective January 1, 1988, restated as of October 1, 2018 (incorporated by reference to Exhibit 10.10 to the Form 8-K dated October 1, 2018, File No. 1-38681).

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- *10f. Restated Stock Option Plan, as amended effective December 14, 2006 (incorporated by reference to Exhibit 10c. to Form 10-K for 2006, File No. 1-15973).
- *10g. Form of Restated Stock Option Plan Agreement (incorporated by reference to Exhibit 10h. to Form 10-K for 2009, File No. 1-15973).
- *10h. Executive Deferred Compensation Plan, effective as of January 1, 1987, restated as of October 1, 2018 (incorporated by reference to Exhibit 10.4 to the Form 8-K dated October 1, 2018, File No. 1-38681).
- *10i. Directors Deferred Compensation Plan, effective June 1, 1981, restated as of October 1, 2018 (incorporated by reference to Exhibit 10.5 to the Form 8-K dated October 1, 2018, File No. 1-38681).
- *10j. Deferred Compensation Plan for Directors and Executives, effective January 1, 2005, restated as of October 1, 2018 (incorporated by reference to Exhibit 10.3 to the Form 8-K dated October 1, 2018, File No. 1-38681).
- 10k. Intentionally omitted.
- 10l. Form of Indemnity Agreement as entered into between Northwest Natural Gas Company and each director and certain executive officers.
- 10m. Form of Indemnity Agreement as entered into between Northwest Natural Holding Company and each director and certain executive officers.
- *10n. Non-Employee Directors Stock Compensation Plan, as amended effective December 15, 2005 (incorporated by reference to Exhibit 10.2 to Form 8-K dated December 16, 2005, File No. 1-15973).
- *10o. Executive Annual Incentive Plan, effective January 1, 2017 (incorporated by reference to Exhibit 10o. to Form 10-K for 2016, File No. 1-15973).
- *10p. Executive Annual Incentive Plan, effective January 1, 2018, as amended and restated effective October 1, 2018 (incorporated by reference to Exhibit 10.8 to the Form 8-K dated October 1, 2018, File No. 1-38681).
- 10q. Executive Annual Incentive Plan, effective January 1, 2019.
- *10r. Form of Change in Control Severance Agreement between Northwest Natural Gas Company and each executive officer, as amended and restated as of October 1, 2018 (incorporated by reference to Exhibit 10.2 to the Form 8-K dated October 1, 2018, File No. 1-38681).
- *10s. Northwest Natural Gas Company Long Term Incentive Plan, as amended and restated effective May 24, 2012 (incorporated by reference to Exhibit 10r to Form 10-K for 2012, File No. 1-15973).
- *10t. Northwest Natural Gas Company Long Term Incentive Plan, as amended and restated effective May 25, 2017 (incorporated by reference to Exhibit 10s to Form 10-K for 2017, File No. 1-15973).
- *10u. Northwest Natural Holding Company Long Term Incentive Plan, as amended and restated as of October 1, 2018 (incorporated by reference to Exhibit 10.1 to the Form 8-K dated October 1, 2018, File No. 1-38681).

*10v. Form of Long Term Incentive Award Agreement under the Long Term Incentive Plan (2016-2018) (incorporated by reference to Exhibit 10w. to Form 10-K for 2015, File No. 1-15973).

*10w. Form of Long Term Incentive Award Agreement under the Long Term Incentive Plan between Northwest Natural Gas Company and an Executive Officer (2016-2018) (incorporated by reference to Exhibit 10x. to Form 10-K for 2015, File No. 1-15973).

*10x. Form of Long Term Incentive Award Agreement under Long Term Incentive Plan (2017-2019) (incorporated by reference to Exhibit 10x. to Form 10-K for 2016, File No. 1-15973).

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- *10y. Form of Performances Share Long Term Incentive Agreement under Long Term Incentive Plan (2018-2020) (incorporated by reference to Exhibit 10y. to Form 10-K for 2017, File No. 1-15973).
- 10z. Form of Long Term Incentive Award Agreement under Long Term Incentive Plan (2019-2021).
- *10aa. Form of Consent dated December 14, 2006 entered into by each executive officer with respect to amendments to the Executive Supplemental Retirement Income Plan, the Supplemental Executive Retirement Plan and certain change in control severance agreements (incorporated by reference to Exhibit 10.1 to Form 8-K dated December 19, 2006, File No. 1-15973).
- *10bb. Consent to Amendment of Deferred Compensation Plan for Directors and Executives, dated February 28, 2008 entered into by each executive officer (incorporated by reference to Exhibit 10bb to Form 10-K for 2007, File No. 1-15973).
- 10cc. Form of Restricted Stock Unit Award Agreement under Long Term Incentive Plan (2019).
- *10dd. Form of Restricted Stock Unit Award Agreement under Long Term Incentive Plan (2018) (incorporated by reference to Exhibit 10bb. to Form 10-K for 2017, File No. 1-15973).
- *10ee. Corrected Form of Restricted Stock Unit Award Agreement under Long Term Incentive Plan (2017) (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended March 31, 2017, File No. 1-15973).
- *10ff. Form of Restricted Stock Unit Award Agreement under Long Term Incentive Plan (2016) (incorporated by reference to Exhibit 10bb. to Form 10-K for 2015, File No. 1-15973).
- *10gg. Form of Amendment to Restricted Stock Unit Award Agreements (2013, 2014 and 2015) (incorporated by reference to Exhibit 10cc to Form 10-K for 2016, File No. 1-15973).
- *10hh. Form of Restricted Stock Unit Award Agreement under the Long Term Incentive Plan (2013, 2014 and 2015) (incorporated by reference to Exhibit 10aa. to Form 10-K for 2012, File No. 1-15973).
- 10ii. Form of Director Restricted Stock Unit Award Agreement under Long Term Incentive Plan (2018).
- *10jj. Form of Director Restricted Stock Unit Award Agreement under the Long Term Incentive Plan (2017) (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended June 30, 2017, File No 1-15973).
- *10kk. Severance Agreement between Northwest Natural Gas Company and an executive officer, dated August 1, 2016 (incorporated by reference to Exhibit 10.1 to Form 8-K dated July 29, 2016, File No. 1-15973).
- *10ll. Form of Restricted Stock Unit Award Agreement between Northwest Natural Gas Company and an executive officer dated as of July 27, 2016 (incorporated by reference to Exhibit 10.1 to Form 10-Q for the quarter ended June 30, 2016, File No. 1-15973).

*10mm. Form of Severance Agreement between Northwest Natural Gas Company and an executive officer, dated May 17, 2017 (incorporated by reference to Exhibit 10.1 to Form 8-K dated April 24, 2017, File No. 1-15973).

*10nn. Form of Special Restricted Stock Unit Agreement between Northwest Natural Gas Company and an executive officer, dated May 17, 2017 (incorporated by reference to Exhibit 10.2 to Form 8-K dated April 24, 2017, File No. 1-15973).

*10oo. Form of Hire-On Bonus Agreement between Northwest Natural Gas Company and an executive officer, dated May 17, 2017 (incorporated by reference to Exhibit 10.3 to Form 8-K dated April 24, 2017, File No. 1-15973).

*10pp. Form of Special Retention Restricted Stock Unit Agreement between Northwest Natural Gas Company and an executive officer, dated September 30, 2016 (incorporated by reference to Exhibit 10qq. to Form 10-K for 2017, File No. 1-15973).

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*10qq. Form of Hire-On Bonus Agreement between Northwest Natural Gas Company and an executive officer, dated September 30, 2016 (incorporated by reference to Exhibit 10rr. to Form 10-K for 2017, File No. 1-15973).

*10rr. Cash Retention Agreement between Northwest Natural Gas Company and an executive officer, dated as of March 1, 2018 (incorporated by reference to Exhibit 10ss. to Form 10-K for 2017, File No. 1-15973).

10ss. Annual Incentive Plan for NW Natural Gas Storage, LLC, as amended effective January 1, 2019.

*10tt. Long Term Incentive Plan for NW Natural Gas Storage, LLC, as amended effective January 1, 2016 (incorporated by reference to Exhibit 10pp. to Form 10-K for 2016, File No. 1-15973).

*Incorporated herein by reference as indicated

**Pursuant to Item 601(b)(32)(ii) of Regulation S-K, this certificate is not being "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, each registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized. The signature for each undersigned company shall be deemed to relate only to matters having reference to such company and its subsidiaries.

NORTHWEST NATURAL HOLDING COMPANY

By: /s/ David H. Anderson
David H. Anderson
President and Chief Executive Officer
Date: March 1, 2019

NORTHWEST NATURAL GAS COMPANY

By: /s/ David H. Anderson
David H. Anderson
President and Chief Executive Officer
Date: March 1, 2019

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Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the date indicated. The signatures of each of the undersigned shall be deemed to relate only to matters having reference to the below named company and its subsidiaries.

NORTHWEST NATURAL HOLDING COMPANY

Signature	Title	Date
/s/ David H. Anderson David H. Anderson President and Chief Executive Officer	Principal Executive Officer and Director	March 1, 2019
/s/ Frank H. Burkhartsmeier Frank H. Burkhartsmeier Senior Vice President and Chief Financial Officer	Principal Financial Officer	March 1, 2019
/s/ Brody J. Wilson Brody J. Wilson Vice President, Treasurer, Chief Accounting Officer and Controller	Principal Accounting Officer	March 1, 2019
/s/ Timothy P. Boyle Timothy P. Boyle	Director)))
/s/ Martha L. Byorum Martha L. Byorum	Director)))
/s/ John D. Carter John D. Carter	Director)))
/s/ Mark S. Dodson Mark S. Dodson	Director)))
/s/ C. Scott Gibson C. Scott Gibson	Director	March 1, 2019))
/s/ Tod R. Hamachek Tod R. Hamachek	Director)))
/s/ Jane L. Peverett Jane L. Peverett	Director)))
/s/ Kenneth Thrasher Kenneth Thrasher	Director)))
/s/ Malia H. Wasson	Director)

Malia H. Wasson

)

/s/ Charles A. Wilhoite

Director

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Charles A. Wilhoite

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NORTHWEST NATURAL GAS COMPANY

Signature	Title	Date
/s/ David H. Anderson David H. Anderson President and Chief Executive Officer	Principal Executive Officer and Director	March 1, 2019
/s/ Frank H. Burkhartsmeier Frank H. Burkhartsmeier Senior Vice President and Chief Financial Officer	Principal Financial Officer	March 1, 2019
/s/ Brody J. Wilson Brody J. Wilson Vice President, Treasurer, Chief Accounting Officer and Controller	Principal Accounting Officer	March 1, 2019
/s/ Timothy P. Boyle Timothy P. Boyle	Director)))
/s/ Martha L. Byorum Martha L. Byorum	Director)))
/s/ John D. Carter John D. Carter	Director)))
/s/ Mark S. Dodson Mark S. Dodson	Director)))
/s/ C. Scott Gibson C. Scott Gibson	Director)))
/s/ Tod R. Hamachek Tod R. Hamachek	Director	March 1, 2019))
/s/ Jane L. Peverett Jane L. Peverett	Director)))
/s/ Kenneth Thrasher Kenneth Thrasher	Director)))
/s/ Malia H. Wasson Malia H. Wasson	Director)))
/s/ Charles A. Wilhoite Charles A. Wilhoite	Director)))

/s/ Steven E. Wynne
Steven E. Wynne

Director

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