

**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, 2019**

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



**NW Natural
HOLDINGS™**

NORTHWEST NATURAL HOLDING COMPANY

(Exact name of registrant as specified in its charter)

Oregon

82-4710680

(State or other jurisdiction of
incorporation or organization)

(I.R.S. Employer
Identification No.)

250 S.W. Taylor Street

Portland

Oregon

97204

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number:

(503) 226-4211



NW Natural®

NORTHWEST NATURAL GAS COMPANY

(Exact name of registrant as specified in its charter)

Oregon

93-0256722

(State or other jurisdiction of
incorporation or organization)

(I.R.S. Employer
Identification No.)

250 S.W. Taylor Street

Portland

Oregon

97204

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number:

(503) 226-4211

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

<u>Registrant</u>	<u>Title of each class</u>	<u>Trading Symbol</u>	<u>Name of each exchange on which registered</u>
Northwest Natural Holding Company	Common Stock	NWN	New York Stock Exchange
Northwest Natural Gas Company	None	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

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 No NORTHWEST NATURAL GAS COMPANY Yes No

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

Large Accelerated Filer

Accelerated Filer

Accelerated Filer

Non-accelerated Filer

Non-accelerated Filer

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 NORTHWEST NATURAL GAS COMPANY Yes No

As of the end of the second quarter of 2019, the aggregate market value of the shares of Common Stock of Northwest Natural Holding Company (based upon the closing price of these shares on the New York Stock Exchange on June 28, 2019) held by non-affiliates was \$2,088,864,819.

At February 24, 2020, 30,484,008 shares of Northwest Natural Holding Company's Common Stock (the only class of Common Stock) were outstanding. All shares of Northwest Natural Gas Company's Common Stock (the only class of Common Stock) outstanding 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 2020 Annual Meeting of Shareholders, are incorporated by reference in Part III.

TABLE OF CONTENTS

Item	Page
Glossary of Terms	3
Forward-Looking Statements	6
PART I	
Item 1. Business	8
Overview	8
Business Model	8
Natural Gas Distribution	8
Other	13
Environmental Matters	14
Employees	16
Information About Our Executive Officers	16
Available Information	16
Item 1A. Risk Factors	17
Item 1B. Unresolved Staff Comments	28
Item 2. Properties	29
Item 3. Legal Proceedings	29
Item 4. Mine Safety Disclosures	29
PART II	
Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	30
Item 6. Selected Financial Data	31
Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations	32
Item 7A. Quantitative and Qualitative Disclosures About Market Risk	68
Item 8. Financial Statements and Supplementary Data	70
Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	139
Item 9A. Controls and Procedures	139
Item 9B. Other Information	139
PART III	
Item 10. Directors, Executive Officers and Corporate Governance	140
Item 11. Executive Compensation	142
Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	142
Item 13. Certain Relationships and Related Transactions, and Director Independence	143
Item 14. Principal Accountant Fees and Services	143
PART IV	
Item 15. Exhibits and Financial Statement Schedules	143
Item 16. Form 10-K Summary	143
EXHIBIT INDEX	145
SIGNATURES	150

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, which for accounting purposes is defined as an individual or group of individuals responsible for the allocation of resources and assessing the performance of the entity's business units
Core NGD Customers	Residential, commercial, and industrial customers receiving firm service from the Natural Gas Distribution business.
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, and regulatory gas cost deferrals
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 natural gas 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 the utility's earnings due to reductions in sales volumes
Demand Cost	A component in NGD 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 Northwest Natural Gas Company
EPA	Environmental Protection Agency
EPS	Earnings per share
ECRM	Environmental Cost Recovery Mechanism, a billing rate mechanism for recovering prudently incurred environmental site remediation costs allocable to Washington customers through NGD customer billings
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 NW Natural Gas Storage, LLC
Gill Ranch Facility	Underground natural gas storage facility near Fresno, California, with 75% owned by Gill Ranch and 25% owned by PG&E
GTN	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
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 customers, instead serving utilities, gas marketers, electric generators, and large industrial users
IPUC	Public Utility Commission of Idaho; the entity that regulates NW Holdings' regulated water businesses with respect to rates and terms of service, among other matters

IRP	Integrated Resource Plan
KB	Kelso-Beaver Pipeline, of which 10% is owned by KB Pipeline Company, a subsidiary of NNG Financial Corporation
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 Holding Company 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 used by NW Natural's CODM 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, the Union which represents NW Natural's bargaining unit employees
OPUC	Public Utility Commission of Oregon; the entity that regulates our Oregon natural gas and regulated water 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 primarily used to adjust 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 facility
PHMSA	U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration
PRP	Potentially Responsible Parties
RI/FS	Remedial Investigation / Feasibility Study
RNG	Renewable Natural Gas, a source of natural gas derived from organic materials which may be captured, refined, and distributed on natural gas pipeline systems
ROD	Record of Decision
ROE	Return on Equity, a measure of corporate profitability, calculated as net income or loss divided by average common 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
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 NGD business
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 NGD 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
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 regulated water businesses with respect to rates and terms of service, among other matters.

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;
- climate change and our role in a low-carbon, renewable-energy future;
- our strategy to reduce greenhouse gas emissions in the communities we serve;
- 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, and the timing and impact of planned dispositions;
- implementation and execution of our water strategy;
- pipeline capacity, demand, location, and reliability;
- adequacy of property rights and operations center development;
- technology implementation and cybersecurity practices;
- competition;
- procurement and development of gas (including for renewable natural gas) and water 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 and water 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.

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.

Item 8 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 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. 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 generally accepted accounting principles, these subsidiaries are presented as discontinued operations in the 2018 and 2017 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, LLC (NWN 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. 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. See Note 19 of the Consolidated Financial Statements in Item 8 of this report for more information.

NATURAL GAS DISTRIBUTION (NGD) SEGMENT

Both NW Holdings and NW Natural have one reportable segment, the NGD segment, which is operated by NW Natural. NGD provides natural gas service through approximately 760,000 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 Oregon Public Utility Commission (OPUC) and Washington Utilities and Transportation Commission (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 a major West Coast port 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's 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 and other customers largely account for the remaining volumes and margin.

The following table presents summary meter information for the NGD segment as of December 31, 2019:

	Number of Meters	% of Volumes	% of Margin
Residential	692,012	38%	63%
Commercial	69,858	22%	24%
Industrial	1,007	40%	8%
Other ⁽¹⁾	N/A	N/A	5%
Total	762,877	100%	100%

⁽¹⁾ NGD margin is also affected by other items, including miscellaneous revenues, gains or losses from NW Natural's gas cost incentive sharing mechanism, other margin adjustments, and other regulated services.

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 2019. 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 largest 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 direct energy source due to its affordability, reliability, comfort, convenience, 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 return on equity (ROE), an overall rate of return (ROR) on rate base, an authorized capital structure, and other revenue/cost deferral and recovery mechanisms.

NW Natural is also regulated by the Federal Energy Regulatory Commission (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 million therms. Of this total, the NGD business is currently capable of meeting about 57% of requirements with gas from storage located within or adjacent to its service territory, while the remaining supply requirements would come from gas purchases under firm gas purchase contracts and recall agreements.

NW Natural segments transportation capacity, which 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. The NGD business relies 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 2019-20 winter heating season:

<i>Therms in millions</i>	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 Integrated Resource Planning (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 OPUC 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 2019, 58% of gas supply came from Canada, with the balance primarily coming from the U.S. Rocky Mountain region. The extraction of shale gas has increased the availability of gas supplies throughout North America. 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. NW Natural has also announced its intent to incorporate Renewable Natural Gas (RNG) into its supply portfolio.

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 (Mist Facility) ⁽¹⁾	3.1	10.6
Mist, Oregon (North Mist Facility) ⁽²⁾	1.3	4.1
Contracted Facility		
Jackson Prairie, Washington ⁽³⁾	0.5	1.1
LNG Facilities		
Owned Facilities		
Newport, Oregon	0.6	1.0
Portland, Oregon	1.3	0.6
Total	6.8	17.4

⁽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 North Mist facility is contracted to exclusively serve Portland General Electric, a local electric utility, and may not be used to serve other NGD customers. See "*North Mist Gas Storage Facility*" below for more information.

⁽³⁾ 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 2019, the NGD business did not recall additional deliverability or associated storage capacity to serve customer needs. The North Mist facility is contracted for the exclusive use of Portland General Electric, a local electric utility, and may not be used to serve other NGD customers. See "*North Mist Gas Storage Facility*" below.

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 2019, a total of 836 million therms were purchased under contracts with durations as follows:

Contract Duration (primary term)	Percent of Purchases
Long-term (one year or longer)	33%
Short-term (more than one month, less than one year)	21
Spot (one month or less)	46
Total	100%

Gas supply contracts are renewed or replaced as they expire. During 2019, no individual supplier provided 10% or more 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 Purchased Gas Adjustment (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 13 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 have expiration dates ranging from 2020 to 2061. 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. The pipeline was restored to full capacity in December 2019. 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 intend to continue to evaluate and closely monitor the currently contemplated projects to determine the best option for our customers. NW Holdings 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

Safety and the protection of employees, customers, and our communities at large are, and will remain, top priorities. NW Natural constructs, operates, and maintains its 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.

Natural gas distribution businesses are likely to be subject to greater federal and state regulation in the future. 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 safety requirements for natural gas transmission pipelines. In 2019, PHMSA issued the first of three portions of these regulations which will go into effect on July 1, 2020 and include up to a 15-year timeline for compliance. The remaining portions of the regulations are anticipated to be issued in 2020. NW Natural intends to 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 laws and regulations are expected to be recovered in rates.

North Mist Gas Storage Facility

In May 2019, NW Natural completed an expansion of its existing gas storage facility near Mist, Oregon. The North Mist facility provides long-term, no-notice underground gas storage service and is dedicated solely to Portland General Electric (Portland General) under a 30-year contract with options to extend up to an additional 50 years upon mutual agreement of the parties. Portland General uses the facility to support its gas-fired electric power generation facilities, which incorporate renewable energy into the electric grid.

North Mist includes a new reservoir providing 4.1 Bcf of available storage, an additional compressor station with a contractual 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 Port Westward gas plants in Clatskanie, Oregon.

Upon placement into service in May 2019, the facility was included in rate base under an established tariff schedule 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, 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 under NW Holdings:

- NW Natural Water Company, LLC (NWN Water) and its water and wastewater utility operations and 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 NW Natural Energy LLC (NWN Energy), a wholly owned subsidiary of NW Holdings, and 50% by TransCanada American Investments Ltd., an indirect wholly owned subsidiary of TransCanada;
- 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.

WATER UTILITIES. After a comprehensive strategic planning process, in December 2017, we entered the water utility sector by announcing several acquisitions, which NWN Water subsequently closed. Through December 31, 2019, NWN Water has completed a total of eight acquisitions, with several additional signed acquisition agreements for privately-owned water and wastewater utilities in the Pacific Northwest and Texas. The pending water distribution transactions are subject to state utility commission approvals and are expected to close during 2020. Once closed, NWN Water expects to serve a total of approximately 62,000 people through 25,000 water and wastewater connections in the Pacific Northwest and Texas, with an aggregate investment of \$110 million. NW Holdings continues to pursue additional acquisitions in a disciplined manner.

The water and wastewater utilities primarily serve residential and commercial customers in the Pacific Northwest. Water distribution operations are seasonal in nature with peak demand during warmer summer months, while wastewater is less seasonally affected. Entities generally operate in exclusive service territories with no direct competitors. Water distribution customer rates are regulated by state utility commissions while the wastewater businesses we own currently are not rate regulated by utility commissions.

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

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

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 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 both Oregon and Washington, NW Natural has mechanisms to recover expenses. Oregon recoveries are subject to an earnings test. See Part II, Item 7, "Results of Operations—Regulatory Matters—Rate Mechanisms—*Environmental Cost Deferral and Recovery*", Note 2, and Note 18.

Greenhouse Gas Matters

We recognize certain of our businesses, including our natural gas business, are likely to be affected by requirements to address greenhouse gas emissions. Future federal, state or local legislation or regulation 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.

The Oregon and Washington legislatures and governors continue to consider various greenhouse gas reduction initiatives, and ballot measures may be proposed in each state. For example, in prior legislative sessions the Oregon legislature has considered cap and trade bills, and cap and trade may be considered again in future legislative sessions. While the contents of any cap and trade bill are not currently certain, such a bill could create a declining cap on greenhouse gas emissions from a wide variety of sources, including electric and natural gas utilities, and could require entities with a compliance obligation to hold permits, or allowances, to emit greenhouse gas emissions on a per ton basis. A cap and trade bill was considered in the 2019 Oregon legislative session, and failed due to lack of quorum for a vote. That bill included considerations for natural gas utilities, such as provisions for low-income customers and the value of certain allowances that could be used to invest in emission-reducing initiatives.

Even if a state-wide cap and trade program is not addressed in a legislative session, ballot measures may be proposed by advocacy groups in Oregon. These measures may include requirements for carbon free electricity, investments in electrification programs, or accelerating Oregon's existing greenhouse gas pollution targets. While the outcome of these federal, state or local climate change policy developments cannot be determined at this time, 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 regulations limiting emissions of greenhouse gases could require NW Natural to incur compliance costs associated with our customers' use, which we expect to recover through rates and therefore may result in an increase in the prices charged to customers and over time potentially a decline in the demand for natural gas.

Some local and county governments in the United States have been proposing or passing 100% renewable energy resolutions with advocates calling for electrification of new construction or seeking to accelerate renewable energy goals. At least one city in our service territory is currently considering such action. Similarly, various federal and state agencies have enacted or are considering enactment of rules that would limit greenhouse gas emissions. For example, 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 natural gas distribution utilities. In January 2020, the Supreme Court of the State of Washington upheld the lower court's ruling that the DOE lacked legislative authority to regulate non-emitters, and remanded to the lower court application of the rule to emitting sources, such as electric generating plants, for further proceedings.

In 2017, NW Natural initiated a multi-pronged, multi-year strategy to accelerate and deliver greater greenhouse gas emission reductions in the communities we serve. Key components of this strategy include energy efficiency, continued adoption of NW Natural's voluntary Smart Energy carbon offset program, and incorporating RNG into our gas supply. RNG is produced from organic materials like food, agricultural and forestry waste, wastewater, or landfills. Methane is captured from these organic materials as they decompose and is conditioned to pipeline quality, so it can be added into the existing natural gas system, reducing net greenhouse gas emissions associated with the natural gas energy supply. In 2019, Oregon Senate bill 98 (SB 98) was signed into law allowing NW Natural to procure RNG on behalf of customers and providing voluntary targets that would allow us to make qualified investments and purchase RNG from third parties such that up to 30% of the gas distributed to retail customers is RNG by 2050, and creating a limit of 5% of a utility's revenue requirement that can be used to cover the incremental cost of RNG. The OPUC is required to complete the rulemaking for SB 98 by July 31, 2020. NW Natural is actively working to procure RNG contracts for customers, and is engaging in longer-term efforts to increase the amount of RNG on our system and explore the development of renewable hydrogen through power to gas.

NW Natural continues to take proactive steps in seeking to reduce greenhouse gas emissions in our region and is proactively communicating with local, state and federal governments and communities about those steps. We believe that NW Natural has a vital role in providing energy to the communities we serve. Each year, NW Natural delivers more energy in Oregon than any other utility, while sales of natural gas to our residential and commercial customers account for approximately 5% of Oregon's greenhouse gas emissions according to the State of Oregon Department of Environmental Quality In-Boundary GHG Inventory 2015 Figures. We intend to continue to provide this necessary energy to our communities and to use our modern pipeline system to help the Pacific Northwest move to a low-carbon, renewable energy future.

EMPLOYEES

At December 31, 2019, our workforce consisted of the following:

NW Natural:

Unionized employees ⁽¹⁾	626
Non-unionized employees	541
Total NW Natural	1,167

Other Entities:

Water company employees	38
Other	15
Total other entities	53

Total Employees	1,220
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⁽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. In November 2019, NW Natural's unionized employees ratified a collective bargaining agreement that took effect on December 1, 2019 and extends to May 31, 2024, 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, as applicable.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

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.

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, 250 S.W. Taylor Street, Portland, Oregon 97204, telephone 503-226-4211 ext. 2402.

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 business in Oregon and Washington. NW Holdings' regulated water utility businesses are generally regulated by the public utility commission in the state in which a water business is located. These public utility commissions have broad regulatory authority, including: the rates charged to customers; authorized rates of return on rate base, including ROE; the amounts and types of securities that may be issued by our regulated utility companies, like NW Natural; services our regulated utility companies provide and the manner in which they provide them; the nature of investments our utility companies make; deferral and recovery of various expenses, including, but not limited to, pipeline replacement, environmental remediation costs, capital and information technology investments, commodity hedging expense, and certain employee benefit expenses such as pension costs; transactions with affiliated interests; regulatory adjustment mechanisms such as weather adjustment mechanisms, and other matters. The OPUC also regulates 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. Expansion of our businesses could result in regulation by other regulatory authorities. For example, NW Holdings' has contracted to acquire a water sector business in Texas that is subject to the regulatory authority of the Public Utility Commission of Texas.

The prices regulators allow us to charge for regulated utility 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. State utility regulators have the authority to disallow recovery of costs they find imprudently incurred or otherwise disallowed, and rates that regulators allow may be insufficient for recovery of costs we incur. We expect to continue to make expenditures to expand, improve and safely operate our gas and water utility distribution and gas storage systems. Regulators can deny recovery of those costs. Furthermore, while each applicable state regulator has established an authorized rate of return for our regulated utility businesses, we may not 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 costs or to allow an adequate return could adversely impact NW Holdings' or NW Natural's financial condition, results of operations and liquidity.

As companies with regulated utility businesses, we frequently have dockets open with our regulators, including a general rate case filed with the OPUC on December 30, 2019. 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 proceedings or our pending Oregon general rate case, 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 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 occurred 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 Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (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 operations or financial condition.

GLOBAL CLIMATE CHANGE RISK. *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.*

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.

PUBLIC PERCEPTION AND POLICY RISK. *Changes in public sentiment or public policy with respect to natural gas, including through local, state or federal laws or legislation or other regulation (including ballot initiatives), could adversely affect NW Holdings' or NW Natural's financial condition, results of operations and cash flows.*

There are a number of international, federal, state, and local legislative, legal, regulatory and other initiatives being proposed and adopted in an attempt to measure, control or limit the effects of global warming and climate change, including GHG 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. A cap and trade bill was considered in the 2019 Oregon legislative session, and failed due to a lack of quorum for a vote. If a state-wide cap and trade program is not passed during the 2020 Oregon short-legislative session, ballot measures may be proposed by advocacy groups in Oregon's November 2020 election. Similarly, one small jurisdiction in NW Natural's service territory, Eugene, Oregon, is seeking to pursue reductions in GHG emissions by negotiating for GHG targets, carbon offsets and increased use of RNG in their system. Such current or future legislation, regulation or other initiatives (including ballot

initiatives or ordinances) could impose on our natural gas businesses operational requirements or restrictions, additional charges to fund energy efficiency initiatives, or levy a tax based on carbon content. In addition, while no such bans currently exist in NW Natural's operating territories, certain municipalities, such as Berkeley, California, are moving to restrict new natural gas hookups in residential and other buildings, while other municipalities have considered requiring the conversion of buildings to electric heat, or otherwise adopting policies or incentives to encourage the use of electricity in lieu of natural gas. If successful in our territories, such restrictions could adversely impact customer growth or usage, and could adversely impact our ability to recover costs and maintain reasonable customer rates.

NW Natural believes natural gas has an important role in moving the Pacific Northwest to a low carbon future, and to that end is developing programs and measures to reduce carbon emissions. However, NW Natural's efforts may not happen quickly enough to keep pace with legislation or other regulation, legal changes or public sentiment, or may not be as effective as expected.

Any of these initiatives, or our unsuccessful response to them, could result in us incurring additional costs to comply with the imposed restrictions, provide a cost or other competitive 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 could negatively impact public perception of our services or products that negatively diminishes the value of our brand, all of which could adversely affect NW Holdings' or NW Natural's business operations, financial condition and results of operations.

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 acquisitions by NW Holdings in the water sector of a number of water utilities, wastewater entities and a water services company, with NW Holdings' continuing to seek other such water sector related opportunities. 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, which could, among other things, result in the impairment of any goodwill associated with such acquisitions;
- 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 exist 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, receive approvals granted subject to terms that are unacceptable to us, or be unable to achieve the anticipated regulatory treatment of any such transaction; or
- we may be unable to avoid a sale of assets for a price that is less than the book value of those assets.

One or more of these risks 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. We may also engage in other business development projects such as investments in additional long-term gas reserves, projects in the water sector, CNG refueling stations, RNG, power to gas or hydrogen projects or other projects intended to reduce carbon emissions. 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: technological challenges; ineffective scalability; 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, perception 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 costs or within a scheduled time frame necessary for completing the project. Any of the foregoing risks, if realized, 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 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 or losses of natural gas, water or wastewater, or contamination of natural gas or water by chemicals or compounds, as a result of the malfunction of equipment or facilities or otherwise;
- damages from third parties;
- 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 and water distribution and gas storage facilities;
- presence of chemicals or other compounds in natural gas that could adversely affect the performance of the system or end-use equipment;
- collapse of underground storage reservoirs;
- inadequate supplies of natural gas or water;
- 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 gas storage facilities, and wells.

For example TC Pipelines, LP (TC Pipelines) has identified the presence of a chemical substance, dithiazine, at several facilities on the system of its subsidiary, Gas Transmission Northwest (GTN), and those of some upstream and downstream connecting pipeline facilities. A portion of NW Natural's gas supplies from Canada are transported on GTN's pipelines. TC Pipelines reports that dithiazine can drop out of gas streams in a powdery form at some points of pressure reduction (for example, at a regulator), and that in incidents where a sufficient quantity of the material accumulates in certain places, improper functioning of equipment can occur, which can result in increased preventative and corrective action costs. While NW Natural has not detected significant quantities of dithiazine on its system to date, we continue to monitor and could discover increased levels of dithiazine or other compounds on NW Natural's system that could affect the performance of the system or end-use equipment.

These risks could result in disruption of service, 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. We could be subject to lawsuits, claims, and criminal and civil enforcement actions. 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, political unrest, 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, political unrest, 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 being the target of, and having heightened exposure to, acts of terrorism, including physical and security breaches of our physical infrastructure and information technology systems in the form of cyber-attacks. These attacks could, among other things, 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, protests or pandemic illness could result in disruption of our infrastructure or 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, cyber-attacks and other events. Additionally, large scale natural disasters or terrorist attacks could destabilize the insurance industry making the 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 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%. The ratio is measured using common equity and long-term debt excluding imputed debt or debt-like lease obligations, and is 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 to 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 Holdings' 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 May 31, 2024. 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 make substantial changes to fiscal, tax, regulation and other federal policies, which changes may be significantly impacted by the outcome of the 2020 U.S. presidential and congressional election. 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. Similarly, local elections during 2020 may lead to significant policy changes at the state or municipal levels in our service areas that may affect us. 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, through programs like the Compliance Assurance Process (CAP), 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.

Furthermore, certain tax assets and liabilities, such as deferred tax assets and regulatory tax assets and liabilities, are recognized or recorded by NW Holdings or NW Natural based on certain assumptions and determinations made based on available evidence, such as projected future taxable income, tax-planning strategies, and results of recent operations. If these assumptions and determinations prove to be incorrect, the recorded results may not be realized, which may negatively impact the financial results of NW Holdings and NW Natural.

There is uncertainty as to how our regulators will reflect the impact of the legislation and other government regulation 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 and water 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 and prioritizing the completion by the Pipeline and Hazardous Materials Safety Administration (PHMSA) of regulations related to the safety standards for natural gas transmission and gathering pipelines. 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 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 2020, 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 and fuel 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 position, results of operations and cash flows could be adversely affected.*

A number of factors can affect customer's perception of us 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 could damage the perception of natural gas, our brand, or our reputation.

Other concerns about the use of natural gas include the potential for natural gas explosions and the effect of natural gas on indoor air quality. For example, NW Natural's gas distribution system was struck by a third party resulting in a gas explosion in 2016, and while NW Natural was determined not to be at fault, the perception of natural gas as an energy source could have been affected. In addition, studies from time to time question the indoor health and general climate effects from burning natural gas, which may also impact public perception. These shifts in public sentiment may not only impact further legislative initiatives, but behaviors and perceptions of customers, investors and regulators.

If customers, legislators, or regulators have or develop a negative opinion of us and our services, or of natural gas as an energy source generally, this 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, or additional difficulties in accessing capital markets. 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 of which could adversely affect NW Holdings' or NW Natural's financial condition and results of operations.*

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, a digital dispatch system, an automated meter reading system, a web-based ordering and tracking system, and other similar technological tools and initiatives. Our future success will depend, in part, on our ability to anticipate and adapt to technological changes in a cost-effective manner and to offer, on a timely basis, services that meet customer demands and evolving industry standards. New technologies may emerge that could be superior to, or may not be compatible with, some of our existing technologies, and may require us to make significant expenditures to remain competitive. We continue to implement technology to improve our business processes and customer interactions. In addition, our various existing information technology systems require periodic modifications, upgrades and/or replacement. For example, NW Natural intends to upgrade its SAP system and replace its customer information system in the near future.

There are various risks associated with these systems in addition to upgrades and replacements, 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 addition, we are dependent on a continuing flow of important components to maintain and upgrade our information technology systems. Our suppliers may face production or import delays due to natural disasters, strikes, lock-outs, political unrest or other such circumstances.

Any modifications, upgrades, system maintenance or replacements subject us to inherent costs and risks, including potential disruption of our internal control structure, substantial capital expenditures, additional administrative and operating expenses, retention of sufficiently skilled personnel to implement and operate the new systems, and other risks and costs of delays or difficulties in transitioning to new systems or of integrating new systems into our current systems. In addition, the difficulties with implementing new technology systems may cause disruptions in our business operations and have an adverse effect on our business and operations, if not anticipated and appropriately mitigated. There is also risk that we may not be able to recover all costs associated with projects to improve our technological capabilities, which may adversely affect NW Holdings' or NW Natural's financial condition and results of operations.

CYBERSECURITY RISK. *NW Holdings' and NW Natural's status as an infrastructure services provider coupled with its reliance on technology could result in a security breach which could adversely affect NW Holdings' or NW Natural's financial condition and results of operations.*

Although we take precautions to protect our technology systems and are not aware of any material security breaches to date, 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 or other cyber attacks. Additionally, the facilities and systems of clients, suppliers and third party service providers could be vulnerable to the same cyber risks as our facilities and systems, and such third party systems may be interconnected to our systems both physically and technologically. Therefore, an event caused by cyberattacks or other malicious act at an interconnected third party could impact our business and facilities similarly. 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. 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.

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 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. NW Holdings' total goodwill was \$49.9 million as of December 31, 2019 and \$9.0 million as of December 31, 2018. The increase in the goodwill balance was due to additions associated with acquisitions in the water sector. All of our goodwill is related to water and wastewater acquisitions. There have been no impairments recognized for the water and wastewater acquisitions to date. 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 U.S. 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, in October, 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 a significant period of time 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.

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, or supplies to maintain adequate pressures 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 approximately 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 Holdings' 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 and wastewater companies. Water and wastewater 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 with naturally occurring or human-made substances or other hazardous materials;
- 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.

INVESTMENT RISK. *NW Holdings' expectations with respect to the financial results of its investments in water operations are based on various assumptions and beliefs that may not prove accurate, resulting in failures or delays in achieving expected returns or performance.*

NW Holdings' expansion into the water sector is an important component of its growth strategy. Although NW Holdings expects its water and wastewater utility operations will result in various benefits, including expanding customer bases, providing investment opportunities through infrastructure development and enhancing regulatory relationships within the local communities served, NW Holdings may not be able to realize these or other benefits. Achieving the anticipated benefits is subject to a number of uncertainties, including whether the businesses acquired can be operated in the manner intended and whether costs to finance the acquisitions and investments will be consistent with expectations. Events outside of our control, including but not limited to regulatory changes or developments, could adversely affect our ability to realize the anticipated benefits from building NW Holdings' water platform. The integration of newly acquired water businesses may be unpredictable, subject to delays or changed circumstances, and such businesses may not perform in accordance with our expectations. In addition, anticipated costs, level of management's attention and internal resources to achieve the integration of the acquired businesses may differ significantly from our current estimates resulting in failures or delays in achieving expected returns or performance. If NW Holdings' expectations regarding the financial results of its investments in water operations prove to be inaccurate, it may adversely affect NW Holdings' financial position or results of operations.

ITEM 1B. UNRESOLVED STAFF COMMENTS

We have no unresolved staff comments.

ITEM 2. PROPERTIES

NW Natural's Natural Gas Distribution Properties

NW Natural's natural gas pipeline system consists of approximately 14,000 miles of distribution and transmission mains and approximately 10,000 miles of service lines located in its territory in Oregon and southwest 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 operations center, 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 lease agreement for a new corporate operations center in Portland. NW Natural expects to begin operations at the location in March 2020.

NW Natural's Mortgage and Deed of Trust (Mortgage) is a first mortgage lien on substantially all of the property constituting NW Natural's 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

NWN Water owns and maintains water pipelines and wastewater treatment facilities, and holds related leases and other property interests in Oregon, Washington, and Idaho, associated with water entities that were acquired during 2018 and 2019. 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 18, we have only nonmaterial litigation in the ordinary course of business.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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 24, 2020, there were 4,739 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, as amended, during the quarter ended December 31, 2019:

Period	<u>Issuer Purchases of Equity Securities</u>			
	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
10/01/19-10/31/19	—	\$ —	—	—
11/01/19-11/30/19	637	65.40	—	—
12/01/19-12/31/19	—	—	—	—
Total	<u>637</u>		<u>2,124,528</u>	<u>\$ 16,732,648</u>

⁽¹⁾ During the quarter ended December 31, 2019, 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, 637 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, 2019, 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, 2019, no shares of NW Holdings common stock were repurchased pursuant to the NW Holdings Board of Directors-approved share repurchase program. In May 2019, we received NW Holdings Board of Directors approval to extend the repurchase program through May 2022. For more information on this program, see Note 5.

ITEM 6. SELECTED FINANCIAL DATA

NORTHWEST NATURAL HOLDING COMPANY

SELECTED FINANCIAL DATA

For the year ended December 31,

<i>In thousands, except per share data</i>	2019	2018	2017	2016	2015
Operating revenues	\$ 746,372	\$ 706,143	\$ 755,038	\$ 668,173	\$ 717,888
Earnings from continuing operations	65,311	67,311	72,073	62,419	60,026
Loss from discontinued operations, net of tax	(3,576)	(2,742)	(127,696)	(3,524)	(6,323)
Net income (loss)	61,735	64,569	(55,623)	58,895	53,703
Earnings from continuing operations per share of common stock:					
Basic	\$ 2.19	\$ 2.34	\$ 2.51	\$ 2.26	\$ 2.19
Diluted	2.19	2.33	2.51	2.25	2.19
Loss from discontinued operations per share of common stock:					
Basic	\$ (0.12)	\$ (0.10)	\$ (4.45)	\$ (0.13)	\$ (0.23)
Diluted	(0.12)	(0.09)	(4.44)	(0.13)	(0.23)
Earnings (loss) per share of common stock:					
Basic	\$ 2.07	\$ 2.24	\$ (1.94)	\$ 2.13	\$ 1.96
Diluted	2.07	2.24	(1.93)	2.12	1.96
Dividends paid per share of common stock	1.90	1.89	1.88	1.87	1.86
Total assets, end of period	\$ 3,428,454	\$ 3,242,662	\$ 3,039,746	\$ 3,079,801	\$ 3,069,410
Total equity	865,999	762,634	742,776	850,497	780,972
Long-term debt	805,955	706,247	683,184	679,334	569,445

NORTHWEST NATURAL GAS COMPANY

SELECTED FINANCIAL DATA

For the year ended December 31,

<i>In thousands, except per share data</i>	2019	2018	2017	2016	2015
Operating revenues	\$ 739,944	\$ 705,571	\$ 755,038	\$ 667,949	\$ 717,664
Earnings from continuing operations	68,974	68,049	71,720	62,835	60,511
Loss from discontinued operations, net of tax	—	(1,723)	(127,343)	(3,940)	(6,808)
Net income (loss)	68,974	66,326	(55,623)	58,895	53,703
Total assets, end of period	\$ 3,321,487	\$ 3,192,736	\$ 3,043,676	\$ 3,081,470	\$ 3,072,100
Total equity	822,196	715,668	742,776	850,497	780,972
Long-term debt	769,081	704,134	683,184	679,334	569,445

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

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, 2019, 2018, and 2017 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. References in this discussion to "Notes" are to the Notes to the Consolidated Financial Statements in Item 8 of this report.

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;
 - NW Natural Water of Oregon, LLC (NWN Water of Oregon);
 - Sunstone Water, LLC;
 - Sunstone Infrastructure, LLC;
 - Sunriver Water, LLC (Sunriver Water);
 - Sunriver Environmental, LLC (Sunriver Environmental)
 - NW Natural Water of Washington, LLC (NWN Water of Washington);
 - Cascadia Water, LLC (Cascadia Water);
 - Cascadia Infrastructure, LLC;
 - Suncadia Water Company, LLC (Suncadia Water);
 - Suncadia Environmental Company, LLC (Suncadia Environmental);
 - NW Natural Water of Idaho, LLC (NWN Water of Idaho);
 - Gem State Water Company, LLC (Gem State Water);
 - Gem State Infrastructure, LLC; and
 - NW Natural Water of Texas, LLC (NWN Water of Texas);
 - Blue Topaz Water, LLC; and
 - Blue Topaz Infrastructure, LLC.

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 2018 and 2017 consolidated results of NW Natural within this report.

NW Natural's natural gas distribution activities are reported in the natural gas distribution (NGD) segment. The NGD segment also includes 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.

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.

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

NW HOLDINGS NON-GAAP RECONCILIATIONS

<i>In millions, except per share data</i>	2019		2018		2017	
	Amount	Per Share	Amount	Per Share	Amount	Per Share
Net income from continuing operations	\$ 65.3	\$ 2.19	\$ 67.3	\$ 2.33	\$ 72.1	\$ 2.51
Adjustment:						
Tax effects of 2017 TCJA remeasurement ⁽¹⁾	—	—	—	—	(3.4)	(0.12)
Adjusted net income from continuing operations	\$ 65.3	\$ 2.19	\$ 67.3	\$ 2.33	\$ 68.7	\$ 2.39
NGD segment net income from continuing operations	\$ 60.8	\$ 2.04	\$ 57.5	\$ 1.99	\$ 60.5	\$ 2.10
Adjustment:						
Tax effects of 2017 TCJA remeasurement ⁽¹⁾	—	—	—	—	1.0	0.03
Adjusted NGD segment net income from continuing operations	\$ 60.8	\$ 2.04	\$ 57.5	\$ 1.99	\$ 61.5	\$ 2.13
Other net income from continuing operations	\$ 4.5	\$ 0.15	\$ 9.8	\$ 0.34	\$ 11.6	\$ 0.41
Adjustment:						
Tax effects of 2017 TCJA remeasurement ⁽¹⁾	—	—	—	—	(4.4)	(0.15)
Adjusted other net income from continuing operations	\$ 4.5	\$ 0.15	\$ 9.8	\$ 0.34	\$ 7.2	\$ 0.26

NW NATURAL NON-GAAP RECONCILIATIONS

<i>In millions</i>	2019		2018		2017	
	Amount	Amount	Amount	Amount	Amount	Amount
Net income from continuing operations	\$ 69.0	\$ 68.0	\$ 68.0	\$ 71.7		
Adjustment:						
Tax effects of 2017 TCJA remeasurement ⁽¹⁾	—	—	—	(3.0)		
Adjusted net income from continuing operations	\$ 69.0	\$ 68.0	\$ 68.0	\$ 68.7		
NGD segment net income from continuing operations	\$ 60.8	\$ 57.5	\$ 57.5	\$ 60.5		
Adjustment:						
Tax effects of 2017 TCJA remeasurement ⁽¹⁾	—	—	—	1.0		
Adjusted NGD segment net income from continuing operations	\$ 60.8	\$ 57.5	\$ 57.5	\$ 61.5		
Other net income from continuing operations	\$ 8.1	\$ 10.6	\$ 10.6	\$ 11.2		
Adjustment:						
Tax effects of 2017 TCJA remeasurement ⁽¹⁾	—	—	—	(4.0)		
Adjusted other net income from continuing operations	\$ 8.1	\$ 10.6	\$ 10.6	\$ 7.2		

Note: Totals may not foot due to rounding.

⁽¹⁾ 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 11 for additional information on the TCJA.

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 "2020 Outlook" below for more information. Highlights for the year include:

- added nearly 12,500 natural gas customers in 2019 for an annual growth rate of 1.7% at December 31, 2019;
- invested \$219.9 million in NGD's infrastructure and facilities for growth, reliability, and technology upgrades;
- completed construction of the North Mist gas storage facility and commenced storage services in May 2019;
- scored first in the nation among large gas utilities in the 2019 J.D. Power Gas Utility Residential Customer Satisfaction Study;
- concluded the Washington general rate case with a \$5.1 million increase in revenue requirement;
- filed a general rate case in Oregon requesting a \$71.4 million revenue requirement increase;
- continued acquiring water utilities, closing the largest transaction to date with the purchase of the water and wastewater utilities in Sunriver, Oregon in May 2019; and
- delivered increasing dividends for the 64th consecutive year to shareholders.

Key financial highlights for NW Holdings include:

<i>In millions, except per share data</i>	2019		2018		2017	
	Amount	Per Share	Amount	Per Share	Amount	Per Share
Net income from continuing operations	\$ 65.3	\$ 2.19	\$ 67.3	\$ 2.33	\$ 72.1	\$ 2.51
Loss from discontinued operations, net of tax	(3.6)	(0.12)	(2.7)	(0.09)	(127.7)	(4.44)
Consolidated net income (loss)	\$ 61.7	\$ 2.07	\$ 64.6	\$ 2.24	\$ (55.6)	\$ (1.93)
Adjusted net income from continuing operations ⁽¹⁾	\$ 65.3	\$ 2.19	\$ 67.3	\$ 2.33	\$ 68.7	\$ 2.39
Natural gas distribution margin	\$ 422.7		\$ 383.7		\$ 392.6	

Key financial highlights for NW Natural include:

<i>In millions, except per share data</i>	2019		2018		2017	
	Amount	Amount	Amount	Amount	Amount	Amount
Net income from continuing operations	\$ 69.0	\$ 68.0	\$ 69.0	\$ 68.0	\$ 71.7	\$ 71.7
Loss from discontinued operations, net of tax	—	(1.7)	—	(1.7)	(127.3)	(127.3)
Consolidated net income (loss)	\$ 69.0	\$ 66.3	\$ 69.0	\$ 66.3	\$ (55.6)	\$ (55.6)
Adjusted net income from continuing operations ⁽¹⁾	\$ 69.0	\$ 68.0	\$ 69.0	\$ 68.0	\$ 68.7	\$ 68.7

⁽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 financial measure.

2019 COMPARED TO 2018. NW Holdings' net income from continuing operations decreased \$2.0 million and NW Natural's net income from continuing operations increased \$1.0 million.

In March 2019, the OPUC issued an order resolving the remaining open items from NW Natural's 2018 Oregon general rate case regarding recovery of the pension balancing account and treatment of the benefits associated with the TCJA. As a result of the order, in the first quarter of 2019, NW Natural recorded a disallowance and several benefits and expenses through the consolidated statements of comprehensive income as follows:

Pension balancing account. Approximately \$12.5 million in previously deferred pension expenses were recognized of which approximately \$4.6 million was recorded in operations and maintenance expense and \$7.9 million was recorded in other income (expense), net. These charges were offset with a corresponding increase in revenue of \$7.1 million and in income tax benefits of \$2.7 million as the order required the offset of certain deferred TCJA benefits against the pension balancing account. Additional TCJA income tax benefits were realized throughout 2019 to offset the remainder of the \$12.5 million charge.

NW Natural also recognized a regulatory pension disallowance of \$10.5 million with approximately \$3.9 million recognized in operations and maintenance expense and \$6.6 million recognized in other income (expense), net, partially offset by related discrete income tax benefits of \$1.1 million. Lastly, NW Natural realized \$3.8 million of deferred regulatory interest accrued on the pension balancing account.

Deferred TCJA benefits and timing variance. In addition, the OPUC ordered the return of approximately \$6.3 million of excess deferred income taxes associated with plant and gas reserves annually beginning April 1, 2019. As a result, NW Natural recognized approximately \$2.0 million in income tax benefits in the first quarter of 2019. Reductions to customer billings commenced April 1, 2019 and offset these income tax benefits in total by the end of 2019. NW Natural will continue reductions to customer billings and recognition of deferred income tax benefits in subsequent years until all benefits have been returned.

The increase of \$1.0 million at NW Natural was primarily due to the following factors:

- a \$39.0 million increase in NGD segment margin driven by new customer rates from the 2018 Oregon rate case and 2019 Washington rate case, customer growth, and lease revenue from the North Mist storage facility; the remaining increase primarily relates to \$7.1 million in revenues which were offset by pension expenses due to the OPUC order as discussed above;
- a \$9.4 million decrease in NGD segment income tax expense primarily due to the income tax implications of the March 2019 OPUC order, of which \$5.4 million was offset by pension expenses as discussed above, with the remainder driven by the return of deferred TCJA benefit credits to customers and lower pretax income in the current period compared to the prior period; and
- a \$5.8 million increase in deferred regulatory interest income in other income (expense), net, of which \$5.1 million relates to interest recognized in association with the OPUC order discussed above; offset by
- a \$34.4 million increase in pension costs within operations and maintenance expense and other income (expense), net, of which \$12.5 million relates to costs which were entirely offset by revenues and income tax benefits as discussed above, and \$10.5 million relates to the regulatory pension disallowance discussed above. In addition, there was an \$11.4 million increase in pension expenses as NW Natural began collecting ongoing pension costs through customer rates on November 1, 2018 and began collecting deferred pension costs through customer rates on April 1, 2019 rather than deferring a portion to the balancing account;
- a \$5.4 million increase in depreciation and amortization primarily due to additional capital expenditures;
- a \$5.4 million decrease in non-NGD segment operating revenues due to lower asset management revenues and increased asset management revenue sharing with Oregon customers as a result of the 2018 Oregon rate case;
- a \$4.6 million increase in NGD segment interest expense due to higher interest on long- and short-term debt balances; and
- a \$2.9 million increase in NGD segment operations and maintenance expenses primarily attributable to annual employee cost increases.

The decrease of \$2.0 million at NW Holdings was primarily driven by increases in professional service costs and expenses associated with developing the water business, partially offset by the increase of \$1.0 million at NW Natural.

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.

2020 OUTLOOK

We expect to make significant progress on our long-term objectives in the coming year. Our natural gas distribution business is focused on providing safe, reliable, and affordable energy in an environmentally responsible way to better the lives of the public we serve. Our water and wastewater utility business is committed to reliably providing clean water and safe wastewater services to the public, while also continuing to grow organically and through acquisitions.

In 2020, we remain focused on the strategic pillars of our business:

- Ensuring safe & reliable service;
- Providing superior customer service;
- Advancing constructive legislative policies and regulation;
- Enabling customer growth; and
- Leading in a low-carbon future.

ENSURING SAFE AND RELIABLE SERVICE. Delivering our products safely and reliably to customers is our first priority. At NW Natural, we remain focused on safety and emergency response through hands-on, scenario-based training for employees, third-party contractors, and first responders. The reliability, resiliency and safety of our gas system is critical and to this end, we remain focused on investing in necessary upgrades and replacing key system components. Safety for our gas infrastructure also includes maintaining and strengthening our cybersecurity defenses, upgrading key technology systems over the next several years, and preparing for large-scale emergency events, such as seismic hazards. Our water and wastewater utilities are focused on enhancing their capital expenditure plans to ensure continued safe and reliable service to customers and allow us to readily prioritize capital investments.

PROVIDING SUPERIOR CUSTOMER EXPERIENCE. We have a legacy of providing excellent customer service and a long-standing dedication to continuous improvement, which has resulted in NW Natural consistently receiving high rankings in the J.D. Power and Associates customer satisfaction studies. In 2020, we intend to strive to enhance our natural gas customers' experience to meet their evolving expectations by prioritizing improvements to technology and internal processes, to support our customers' most frequent interactions and highest value touchpoints.

ADVANCING CONSTRUCTIVE LEGISLATIVE POLICIES AND REGULATION. NW Natural recently worked with lawmakers and the governor to pass a landmark bill for the State of Oregon Senate Bill 98 is groundbreaking legislation that allows utilities to procure renewable natural gas for homes and businesses. While currently in regulatory rulemaking, NW Natural has been pursuing potential renewable natural gas supplies and expects to begin procuring it for customers in 2020. This year, NW Natural plans to submit an integrated resource plan to both the Oregon and Washington Commissions outlining our key long-term capital projects and resource plans for conventional and renewable natural gas. NW Natural will also continue working with the EPA and other stakeholders on an environmentally protective and cost-effective clean-up for the Portland Harbor Superfund Site. For our water utilities, we are focused on building relationships with our current and prospective regulators, pursuing efficient approval processes for acquisitions, and engaging in constructive regulatory proceedings.

ENABLING CUSTOMER GROWTH. Natural gas is the preferred energy choice in our 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 residential sector and capture new commercial customers as well as multifamily developments. At NW Natural Water, we continue to be focused on supporting the fast-growing communities we currently serve and continuing our disciplined acquisition strategy.

LEADING IN A LOW-CARBON FUTURE. We are deeply committed to a clean energy future and environmental stewardship. It's why NW Natural launched a low-carbon initiative to reduce emissions in the communities we serve by leveraging our modern natural gas pipeline system in new ways, working closely with customers, policymakers and regulators, and embracing cutting-edge technology. In 2020, we will continue to execute on our RNG strategy with plans to procure RNG for our customers as prescribed under Oregon Senate Bill 98, execute on our RNG interconnection projects, and develop voluntary renewable product offerings for our customers. A study commissioned with a premier environmental consultant has concluded that natural gas can help achieve crucial emission reductions of 80% by 2050. NW Natural intends to strive to help its customers reduce and offset their consumption, support the development of RNG, and explore other innovative solutions to lower the carbon intensity of natural gas, such as power to gas. We also intend to leverage technology and relationships to examine ways to reduce emissions across the entire value chain from suppliers to end-use heating appliances.

DIVIDENDS

NW Holdings dividend highlights include:

<i>Per common share</i>	2019	2018	2017
Dividends paid	\$ 1.9025	\$ 1.8925	\$ 1.8825

In January 2020, the NW Holdings' Board of Directors declared a quarterly dividend on NW Holdings common stock of \$0.4775 per share, payable on February 14, 2020, to shareholders of record on January 31, 2020, reflecting an indicated annual dividend rate of \$1.91 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.

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 2019, 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 Completed Rate Cases*" below.

MIST INTERSTATE GAS STORAGE. NW Natural's interstate storage activity at Mist is subject to regulation by the OPUC, WUTC, and the Federal Energy Regulatory Commission (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 the agency in NW Natural's 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, a wholly-owned subsidiary of NW Holdings, 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. The sale was approved by the CPUC in December 2019. The wholly owned rate regulated water businesses of NWN Water, a wholly owned subsidiary of NW Holdings, are subject to regulation by the utility commissions in the states in which they are located, which currently include Oregon, Washington, and Idaho, and is expected to include Texas.

Most Recent Completed Rate Cases

OREGON. Effective November 1, 2018, the OPUC authorized rates to customers based on an ROE of 9.4%, an overall return of 7.317%, and a capital structure of 50% common equity and 50% long-term debt. In March 2019, the OPUC issued an order resolving the remaining matters of the rate case regarding recovery of NW Natural's pension balancing account and the return of tax reform benefits to customers. For additional information, see "*Rate Mechanisms - Pension Cost Deferral and Pension Balancing Account*" and "*Rate Mechanisms - Tax Reform Deferral*" below.

On December 30, 2019, NW Natural filed a general rate case in Oregon. For more information, see "*Regulatory Proceeding Updates - 2020 Oregon Rate Case*" below.

WASHINGTON. Effective January 1, 2009, through October 31, 2019, 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.

Effective November 1, 2019, the WUTC authorized rates to customers based on an ROE of 9.4% and an overall rate of return of 7.161% with a capital structure of 50.0% long-term debt, 1.0% short-term debt, and 49.0% common equity. The WUTC also authorized the recovery of environmental remediation expenses allocable to Washington customers through an Environmental Cost Recovery Mechanism (ECRM) and directed NW Natural to provide federal tax reform benefits to customers. See "*Rate Mechanisms - Environmental Cost Deferral and Recovery - Washington ECRM*" and "*Rate Mechanisms - Tax Reform Deferral*" 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. 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 were effective beginning November 1, 2018.

NW Natural continuously evaluates the need for rate cases in its jurisdictions. See "Regulatory Proceeding Updates—Oregon Rate Case" below.

Rate Mechanisms

During 2019, NW Natural's key approved rates and recovery mechanisms for each service area included:

	Oregon	Washington	
	2018 Rate Case	2009 Rate Case	2019 Rate Case (effective 11/1/2019)
Authorized Rate Structure:			
ROE	9.4%	10.1%	9.4%
ROR	7.3%	8.4%	7.2%
Debt/Equity Ratio	50%/50%	49%/51%	51%/49%
Key Regulatory Mechanisms:			
PGA	X	X	X
Gas Cost Incentive Sharing	X		
Decoupling	X		
WARM	X		
Environmental Cost Recovery	X		X
Interstate Storage and Asset Management Sharing	X	X	X

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.

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 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.

Typically, each year NW Natural 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 2019-20 gas year with its forecasted sales volumes hedged at 52% in financial swap and option contracts, including hedging of 56% in Oregon and 24% in Washington, and 19% in physical gas supplies, including hedging of 20% in Oregon and 14% in Washington.

As of December 31, 2019, NW Natural was hedged at approximately 71% for the 2019-20 gas year, and was hedged in Oregon at approximately 75% and Washington at approximately 38%. NW Natural is also hedged between 1% and 29% for annual requirements over the subsequent five gas years, which consists of between 2% and 31% in Oregon and between 0% and 15% in Washington. 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 2019, NW Natural filed its annual PGA and received OPUC and WUTC approval in October 2019. PGA rate changes were effective November 1, 2019. Rates and hedging approaches may vary between states due to different rate structures and mechanisms. In addition, as required with the Washington PGA filing, NW Natural incorporated and began 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 2018-19 and 2019-20 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 2018-19 and 2019-20 gas years, it selected the 90% deferral option. The ROE threshold is subject to adjustment annually based on movements in short-term interest rates. For calendar years 2017, 2018, and 2019, the ROE threshold was 10.66%, 10.48%, and 10.24%, respectively. There were no refunds required for 2017 and 2018. NW Natural does not expect a refund for 2019 based on results, and anticipates filing its 2019 earnings test in May 2020.

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 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 has not participated in additional wells since 2014.

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.

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. Residential and commercial customers in Oregon are allowed to opt out of the weather normalization mechanism, and as of December 31, 2019, 8% of total eligible customers had opted out. NW Natural does not have a weather normalization mechanism approved for residential and commercial Washington customers, which account for about 11% of total customers. See "Business Segment—*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 RECOVERY. NW Natural has authorizations in Oregon and Washington to defer costs related to remediation of properties that are owned or were previously owned by NW Natural. In Oregon, a Site Remediation and Recovery Mechanism (SRRM) is currently in place to recover prudently incurred costs allocable to Oregon customers, subject to an earnings test. On October 21, 2019 the WUTC authorized an Environmental Cost Recovery Mechanism (ECRM) for recovery of prudently incurred costs allocable to Washington customers beginning November 1, 2019.

Oregon SRRM

Under the Oregon 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 \$5.1 million and \$6.1 million of deferred remediation expense approved by the OPUC for collection during the 2019-20 and 2018-19 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 net of any earnings test adjustments 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 18 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 were 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. 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 as defined in the SRRM, 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 2019, NW Natural has performed this test, which is anticipated to be submitted to the OPUC in May 2020. No earnings test adjustment is expected for 2019.

Washington ECRM

The ECRM established by the WUTC order on October 21, 2019 permits NW Natural's recovery of environmental remediation expenses allocable to Washington customers. These expenses represent 3.32 percent of costs associated with remediation of sites that historically served both Oregon and Washington customers. The order allows for recovery of past deferred and future prudently incurred remediation costs allocable to Washington through application of insurance proceeds and collections from customers. Prudently incurred costs that were deferred from the initial deferral authorization in February 2011 through June 2019 are to be fully offset with insurance proceeds, with any remaining insurance proceeds to be amortized over a 10.5 year period. On an annual basis NW Natural will file for a prudence determination and a request to recover remediation expenditures in excess of insurance amortizations in the following year's customer rates. After insurance proceeds are fully amortized, if in a particular year the request to collect deferred amounts exceeds one percent of Washington normalized revenues, then the excess will be collected over three years with interest.

The WUTC order also disallowed approximately \$1.5 million of deferred environmental remediation expenses. NW Natural recognized an after-tax charge of approximately \$1.1 million in the fourth quarter of 2019 as a result of this order.

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 NW Natural to accrue interest on the account balance at the NGD business' authorized rate of return. The OPUC ordered the freezing of the account in October 2018 with pension expenses to be recovered through rates beginning November 1, 2018.

In March 2019 the OPUC issued an order (Pension Order) directing the means by which the account would be recovered. As a result, the following items were recorded in the first quarter of 2019:

- Applied \$7.1 million of TCJA benefits deferred from January 1, 2018 to October 31, 2018, as a reduction against the pension balancing account;
- Credited to customers' benefit \$5.4 million of deferred income taxes as a reduction against the pension balancing account;
- Reduced the amount of the frozen balancing account by an additional \$10.5 million; and
- Reduced the interest rate on the pension balancing account from NW Natural's authorized rate of return of 7.317% to 4.3%.

The items above resulted in the recovery of \$12.5 million of deferred pension expenses by applying deferred tax benefits against the pension balancing account. Recognition of these items resulted in higher operations and maintenance expense and other income (expense), net with offsetting benefits recognized in operating revenues and income tax expense. Additional pension expenses of \$10.5 million from the regulatory disallowance were also recognized in operations and maintenance expense and other income (expense), net. Deferred regulatory interest income of \$3.8 million was also realized in other income (expense), net.

Commencing April 1, 2019, the OPUC also authorized the collection of the remainder of the pension balancing account over ten years in a customer tariff of \$7.3 million per year. Pension expense deferrals, excluding interest, were \$10.3 million and \$6.5 million in 2018 and 2017, respectively. Deferred pension expense recoveries, inclusive of the applications of deferred TCJA benefits described above, were \$16.8 million in 2019.

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.

In February 2019, NW Natural and the other parties to the 2018 Oregon rate case agreed upon terms by which the deferred benefits would be returned to customers via a joint stipulation filed with the OPUC. In March 2019, the OPUC approved the terms in their entirety as follows:

- Applied \$7.1 million of TCJA benefits deferred from January 1, 2018 to October 31, 2018, as a reduction against the pension balancing account;
- Credited to customers' benefit \$5.4 million of deferred income taxes as a reduction against the pension balancing account;

Commencing April 1, 2019, the OPUC also ordered the following:

- Provide an annual credit to base rates of \$3.4 million for excess deferred income taxes to all customers, subject to the average rate assumption method;
- Provide an additional annual credit of \$3.0 million to sales service customers for five years;
- An increase in rate base of \$15.4 million, and corresponding increase to revenue requirement of \$1.4 million.

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

On October 21, 2019 the WUTC issued an order dictating the means by which deferred tax reform benefits would be returned to customers beginning November 1, 2019. The order directs NW Natural to provide customers with a rate reduction of \$2.1 million over one year to reflect the benefit of the lower federal corporate income tax rate accumulating from January 1, 2018 through October 31, 2019, and provides an additional annual rate reduction initially set at approximately \$0.5 million to reflect a benefit from the remeasurement of deferred tax liabilities of approximately \$15.0 million.

INTERSTATE STORAGE AND ASSET MANAGEMENT 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. In November 2018, the percentage of net revenues shared with Oregon customers increased from 67% to 90% as a result of the 2018 Oregon general rate case.

The following table presents the credits to NGD customers:

<i>In millions</i>	2019		2018		2017	
Oregon	\$	16.3	\$	11.7	\$	11.7
Washington		1.2		1.0		1.0

HOLDING COMPANY REORGANIZATION. On October 1, 2018, we completed the reorganization to a holding company structure. 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 following formation of the holding company, NW Natural will be required to provide an annual \$500,000 credit to Oregon customers and a \$55,000 credit to Washington customers. The first and second year credits to both Oregon and Washington customers were given in conjunction with the 2018-19 and 2019-20 PGA filings with the rate adjustments commencing on November 1, 2018 and 2019, respectively.

Regulatory Proceeding Updates

During 2019, NW Natural was involved in the regulatory activities discussed below.

WATER UTILITIES. In 2019, NW Holdings, through its water subsidiaries, continued implementation of its growth strategy and entered into the following agreements which required regulatory approval:

- **Sunriver Water, LLC and Sunriver Environmental, LLC** — NWN Water of Oregon received regulatory approval from the OPUC for the Sunriver Water acquisition in April 2019. Sunriver Environmental is not under the OPUC's jurisdiction. The transaction closed in May 2019.
- **Estates Water Systems Inc. and Monterra Inc.** — Cascadia Water received regulatory approval from the WUTC for these Sequim, Washington acquisitions in April 2019. The transaction closed in May 2019.
- **Spirit Lake East Water Company and Lynnwood Water** — Gem State Water received regulatory approval from the IPUC for these Coeur d'Alene, Idaho acquisitions in July 2019. The transaction closed in July 2019.
- **Suncadia Water Company, LLC and Suncadia Environmental, LLC** — NWN Water of Washington received regulatory approval for the purchase of Suncadia Water in January 2020. Suncadia Environmental is not subject to the WUTC's jurisdiction. The transaction closed in January 2020. See Note 20 for additional information.
- **T&W Water Service Company** — NWN Water of Texas received regulatory approval from the Public Utility Commission of Texas for the T&W Water Service Company acquisition in February 2020. We expect the transaction to close in 2020.

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 IRP 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.

RENEWABLE NATURAL GAS. On June 19, 2019, the Oregon legislature passed Senate Bill 98 (SB98), which enables natural gas utilities to procure or develop renewable natural gas (RNG) on behalf of their Oregon customers. RNG is produced from organic materials like food, agricultural and forestry waste, wastewater, or landfills. Methane is captured from these organic materials as they decompose and is conditioned to pipeline quality, so it can be added into the existing natural gas system, reducing net greenhouse gas emissions.

SB98 outlines the following parameters for the RNG program including: setting out broad targets for gas utilities that allow for the purchase of RNG from third parties such that 30% of the gas distributed to retail customers is RNG by 2050; allowing gas utilities to invest in RNG infrastructure for the production, processing, pipeline interconnection and distribution of RNG to their customers; and creating a limit of 5% of a utility's revenue requirement that can be used to cover the incremental cost of RNG to protect utilities and ratepayers from increased costs as the RNG market develops.

The bill was signed into law by the governor in July 2019. The OPUC opened a docket in August to begin the rulemaking process for the bill, which is expected to conclude with the OPUC adopting rules by July 31, 2020.

CORPORATE ACTIVITY TAX. In 2019, the State of Oregon enacted a Corporate Activity Tax (CAT) that is applicable to all businesses with annual Oregon gross revenue in excess of \$1 million. The CAT is in addition to the state's corporate income tax and imposes a 0.57% tax on certain Oregon gross receipts less a reduction for a portion of cost of goods sold or labor. The CAT legislation became effective September 29, 2019 and applies to calendar years beginning January 1, 2020. On December 23, 2019, NW Natural filed an application with the OPUC to allow us to defer this additional expense, with recovery of these deferred amounts to be determined through future rate case proceedings.

2020 OREGON RATE CASE. On December 30, 2019, NW Natural filed a request for a general rate increase with the OPUC.

The filing includes a requested \$71.4 million annual revenue requirement increase based upon the following assumptions or requests:

- Capital structure of 50% debt and 50% equity;
- Return on equity of 10.0%;
- Cost of capital of 7.298%;
- Average rate base of \$1.47 billion.

The filing includes an increase in average rate base of \$269.9 million compared to the last rate case due to the following items:

- Investments supporting customer growth and reliability for the distribution system as well as for operating resiliency;
- Replacing key components of our Mist storage facility, which provides service during the peak winter months; and
- Upgrading technology including cybersecurity and critical customer interfacing systems.

NW Natural's filing will be reviewed by the OPUC and other stakeholders. The process is anticipated to take up to 10 months with new rates expected to take effect November 1, 2020.

Business Segment - Natural Gas Distribution (NGD)

NGD 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. 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. Residential and commercial customers in Oregon are allowed to opt out of the weather normalization mechanism, and as of December 31, 2019, 8% of total eligible customers had opted out. NW Natural does not have a weather normalization mechanism approved for residential and commercial Washington customers, which account for about 11% of total customers. The decoupling and WARM 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:

<i>Dollars and therms in millions, except EPS data</i>	2019	2018	2017
NGD net income	\$ 60.8	\$ 57.5	\$ 60.5
Adjusted NGD net income ⁽¹⁾	60.8	57.5	61.5
EPS - NGD segment	2.04	1.99	2.10
Adjusted EPS - NGD segment ⁽¹⁾	2.04	1.99	2.13
Gas sold and delivered (in therms)	1,215	1,128	1,240
NGD margin ⁽²⁾	\$ 422.7	\$ 383.7	\$ 392.6

⁽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 financial measure.

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

2019 COMPARED TO 2018. NGD net income was \$60.8 million in 2019 compared to \$57.5 million in 2018. The primary factors contributing to the increase in NGD net income were as follows:

- a \$39.0 million increase in NGD margin primarily due to:
 - a \$16.2 million increase due to new customer rates from the 2018 Oregon rate case and 2019 Washington rate case;
 - a \$6.1 million increase from customer growth;
 - an \$11.8 million increase from revenue generated from NW Natural's North Mist storage contract which commenced service in May 2019 and is included within other regulated services within NGD margin;
 - a \$7.1 million increase due to revenues recognized in association with recoveries of NW Natural's pension balancing account, which are entirely offset by pension expenses within operations and maintenance and other income (expense), net; and
 - a \$3.7 million increase driven by colder than average weather in the first quarter of 2019 coupled with higher fee revenues from interruptible customers as a result of system restrictions; partially offset by
 - a \$3.2 million decrease due to an adjustment to the tax reform deferral estimate in 2018; and
 - a \$1.5 million decrease due to a regulatory disallowance of deferred environmental expenditures as a result of the 2019 Washington rate case.
- a \$9.4 million decrease in income tax expense primarily due to the income tax implications of the March 2019 OPUC order, of which \$5.4 million was offset by pension expenses as discussed above, with the remainder driven by the return of deferred TCJA benefit credits to customers and lower pretax income in the current period compared to the prior period; and
- a \$5.8 million increase in deferred regulatory interest income in other income (expense), net, of which \$5.1 million relates to interest recognized in association with the OPUC order discussed above.

The increases were partially offset by:

- a \$34.4 million increase in pension costs within operations and maintenance expense and other income (expense), net, of which \$12.5 million relates to costs which were entirely offset by revenues and income tax benefits in the March 2019 OPUC order, and \$10.5 million relates to the regulatory pension disallowance included in the March 2019 OPUC order. In addition, there was a \$11.4 million increase in pension expenses as NW Natural began collecting ongoing pension costs through

customer rates on November 1, 2018 and began collecting deferred pension costs through customer rates on April 1, 2019 rather than deferring a portion to the balancing account;

- a \$5.7 million increase in depreciation expense due to NGD plant additions;
- a \$4.6 million increase in interest expense driven by \$2.3 million higher interest on long term debt, \$1.2 million lower AFUDC debt interest income, and \$0.9 million higher commercial paper and line of credit interest;
- a \$3.3 million decrease in AFUDC equity interest; and
- a \$2.9 million increase in NGD segment operations and maintenance expenses primarily attributable to annual employee cost increases.

Total natural gas sold and delivered in 2019 increased 8% over 2018 primarily due to the impact of weather that was average in the current period compared to weather that was 15% warmer than average in the prior period.

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:

- a \$8.9 million decrease in NGD 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.

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

<i>In thousands, except degree day and customer data</i>	2019	2018	2017	Favorable (Unfavorable)	
				2019 vs. 2018	2018 vs. 2017
NGD volumes (therms):					
Residential and commercial sales	734,347	661,163	740,369	73,184	(79,206)
Industrial sales and transportation	480,807	467,040	499,924	13,767	(32,884)
Total NGD volumes sold and delivered	1,215,154	1,128,203	1,240,293	86,951	(112,090)
Operating revenues:					
Residential and commercial sales	\$ 638,884	\$ 621,782	\$ 684,214	\$ 17,102	\$ (62,432)
Industrial sales and transportation	56,553	58,713	63,925	(2,160)	(5,212)
Other distribution revenues	13,035	(109)	3,872	13,144	(3,981)
Other regulated services	12,056	262	—	11,794	262
Less: Revenue taxes ⁽¹⁾	—	—	19,069	—	(19,069)
Total operating revenues	720,528	680,648	732,942	39,880	(52,294)
Less: Cost of gas	255,135	255,743	325,019	608	69,276
Less: Environmental remediation expense	12,337	11,127	15,291	(1,210)	4,164
Less: Revenue taxes ⁽¹⁾	30,325	30,082	—	(243)	(30,082)
NGD margin	422,731	383,696	392,632	39,035	(8,936)
Margin⁽²⁾					
Residential and commercial sales	\$ 366,974	\$ 352,710	\$ 355,736	\$ 14,264	\$ (3,026)
Industrial sales and transportation	31,985	30,817	31,847	1,168	(1,030)
Miscellaneous revenues	4,671	5,542	3,865	(871)	1,677
Gain (loss) from gas cost incentive sharing	(1,299)	(27)	1,237	(1,272)	(1,264)
Other margin adjustments ⁽³⁾	8,350	(5,608)	(53)	13,958	(5,555)
Distribution margin	\$ 410,681	\$ 383,434	\$ 392,632	\$ 27,247	\$ (9,198)
Other regulated services	\$ 12,050	\$ 262	\$ —	\$ 11,788	\$ 262
NGD margin	\$ 422,731	\$ 383,696	\$ 392,632	\$ 39,035	\$ (8,936)
Degree days⁽⁴⁾					
Average ⁽⁵⁾	2,710	2,714	2,705	(4)	9
Actual	2,709	2,313	3,114	17%	(26)%
Percent colder (warmer) than average weather	— %	(15)%	15%		
NGD Meters - end of period:					
Residential meters	692,012	680,134	668,803	11,878	11,331
Commercial meters	69,858	69,259	68,050	599	1,209
Industrial meters	1,007	1,028	1,021	(21)	7
Total number of meters	762,877	750,421	737,874	12,456	12,547
NGD Meter growth:					
Residential meters	1.7 %	1.7 %			
Commercial meters	0.9 %	1.8 %			
Industrial meters	(2.0)%	0.7 %			
Total meter growth	1.7 %	1.7 %			

⁽¹⁾ The change in presentation of revenue taxes was a result of the adoption of ASU 2014-09 "Revenue From 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 net revenue recoveries of \$6.2 million and revenue deferrals of \$7.9 million for the years ended December 31, 2019 and 2018, respectively, 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.

⁽⁵⁾ 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.



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 82% 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:

<i>In millions</i>	2019	2018	2017
Volumes (therms):			
Residential sales	457.2	411.7	465.2
Commercial sales	277.1	249.5	275.2
Total volumes	734.3	661.2	740.4
Operating revenues:			
Residential sales	\$ 437.7	\$ 418.4	\$ 455.9
Commercial sales	201.2	203.3	228.3
Total operating revenues	\$ 638.9	\$ 621.7	\$ 684.2
Margin:			
Residential:			
Sales	\$ 272.3	\$ 240.0	\$ 262.1
Alternative revenues:			
Weather normalization	(1.8)	7.6	(11.9)
Decoupling	(6.6)	(0.6)	(2.4)
Amortization of alternative revenue	2.0	1.9	—
Total residential NGD margin	265.9	248.9	247.8
Commercial:			
Sales	115.8	103.7	101.5
Alternative revenues:			
Weather normalization	(0.7)	2.4	(4.6)
Decoupling	(5.2)	7.3	11.1
Amortization of alternative revenue	(8.8)	(9.6)	—
Total commercial NGD margin	101.1	103.8	108.0
Total residential and commercial NGD margin	\$ 367.0	\$ 352.7	\$ 355.8

2019 COMPARED TO 2018. The increases of \$17.2 million in operating revenue and \$14.3 million in total residential and commercial NGD margin were primarily driven by new customer rates from the 2018 Oregon rate case and 2019 Washington rate case as well as sales volume increases of 73.1 million therms, or 11%, due to customer growth and average weather in 2019 compared to warmer than average weather in 2018.

2018 COMPARED TO 2017. The decreases of \$62.5 million in operating revenue and \$3.1 million in total residential and commercial NGD margin were primarily driven by 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.

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 from NW Natural. 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:

<i>In millions</i>	2019	2018	2017
Volumes (therms):			
Industrial - firm sales	36.6	35.3	35.7
Industrial - firm transportation	175.7	162.7	167.7
Industrial - interruptible sales	47.4	50.6	55.1
Industrial - interruptible transportation	221.1	218.4	241.4
Total volumes	480.8	467.0	499.9
Margin:			
Industrial - sales and transportation	\$ 32.0	\$ 30.8	\$ 31.8

2019 COMPARED TO 2018. Industrial sales and transportation volumes increased by 13.8 million therms and NGD margin increased \$1.2 million due to an increase in manufacturing activity in NW Natural's service territory. The increase was partially offset by a reduction in customer count, which was driven by customer elections to switch from industrial to commercial rate schedules.

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.

Miscellaneous Revenues

Margin from miscellaneous revenues includes 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.

Margin from NGD miscellaneous revenues highlights include:

<i>In millions</i>	2019	2018	2017
Other revenues	\$ 4.7	\$ 5.5	\$ 3.9

2019 COMPARED TO 2018. Margin from miscellaneous revenues remained flat due to continued entitlement and curtailment revenue in first quarter of 2019 related to the October 2018 Canadian pipeline event.

2018 COMPARED TO 2017. Margin from miscellaneous revenues increased \$1.6 million 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 Regulated Services

Other Regulated Services primarily consist of lease revenues from NW Natural's North Mist storage facility as well as other lease revenues for compressed natural gas assets.

Other regulated services revenue highlights include:

<i>In millions</i>	2019	2018	2017
North Mist storage services	\$ 11.8	\$ —	\$ —
Other services	0.3	0.3	—
Total other regulated services	\$ 12.1	\$ 0.3	\$ —

2019 COMPARED TO 2018. Other regulated services margin increased \$11.8 million in 2019 compared to 2018 due to the commencement of storage services at the North Mist expansion facility in May 2019. See Note 7 for more information regarding North Mist expansion lease accounting.

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:

<i>In millions except where indicated</i>	2019		2018		2017	
Cost of gas	\$	255.1	\$	255.7	\$	325.0
Volumes sold (therms)		818		747		831
Average cost of gas (cents per therm)	\$	0.31	\$	0.34	\$	0.39
Gain (loss) from gas cost incentive sharing		(1.3)		—		1.2

2019 COMPARED TO 2018. Cost of gas was flat compared to the prior year, primarily due to the 10% increase in volumes sold driven by average weather in 2019 compared to warmer than average weather in 2018 and customer growth, primarily offset by a three cent decrease in the average cost of gas.

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.

The effect on net income from NW Natural's Oregon gas cost incentive sharing mechanism resulted in a margin loss of \$1.3 million in 2019 compared to a slight margin loss in 2018 and a margin gain of \$1.2 million in 2017. In 2019, actual gas prices were higher than those included in rates during the period. In 2018, actual prices closely aligned with estimated prices included in customer rates. In 2017, 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 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. 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. See Note 4 for further discussion of our business segment and other, as well as our direct and indirect wholly-owned subsidiaries, and Note 14 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.

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

<i>In millions, except EPS data</i>	2019		2018		2017	
NW Natural other - net income	\$	8.1	\$	10.6	\$	11.2
Other NW Holdings activity		(3.6)		(0.8)		0.4
NW Holdings other - net income	\$	4.5	\$	9.8	\$	11.6
EPS - NW Holdings - other	\$	0.15	\$	0.34	\$	0.41

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

2019 COMPARED TO 2018. Other net income decreased \$5.3 million and \$2.5 million at NW Holdings and NW Natural, respectively. The decrease at NW Natural was primarily driven by lower asset management revenues and increased asset management revenue sharing with Oregon customers as a result of the 2018 Oregon rate case. The decrease from other NW Holdings activity was driven by increases in professional service costs and expenses associated with developing the water business.

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.

Consolidated Operations

Operations and Maintenance

Operations and maintenance highlights include:

<i>In millions</i>	2019	2018	2017
NW Natural	\$ 169.1	\$ 155.2	\$ 152.2
Other NW Holdings operations and maintenance	9.1	1.5	0.2
NW Holdings	\$ 178.2	\$ 156.7	\$ 152.4

2019 COMPARED TO 2018. Operations and maintenance expense increased \$21.5 million and \$13.9 million for NW Holdings and NW Natural, respectively. The increase at NW Natural was primarily due to the following:

- a \$12.5 million increase in pension expenses, consisting of:
 - a \$4.6 million increase from recovery of amounts in NW Natural's pension balancing account upon receipt of an OPUC accounting order in March 2019, which was offset within NGD margin and income tax benefits;
 - a \$4.0 million increase from higher pension costs as NW Natural began collecting ongoing pension costs through customer rates on November 1, 2018 and began collecting deferred pension costs through customer rates on April 1, 2019 rather than deferring a portion to the balancing account; and
 - a \$3.9 million increase from a regulatory pension disallowance as a result of the March 2019 OPUC order in the Oregon general rate case.

The remaining change was primarily attributable to annual employee cost increases.

The \$7.6 million increase in other NW Holdings operations and maintenance expense was primarily due to expenses associated with developing the water business.

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:

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

Delinquent customer receivable balances continue to remain at historically low levels. Bad debt expense as a percent of revenues was 0.1% for 2019, 2018, and 2017.

Depreciation and Amortization

Depreciation and amortization highlights include:

<i>In millions</i>	2019	2018	2017
NW Natural	\$ 90.4	\$ 85.0	\$ 81.0
Other NW Holdings depreciation and amortization	1.1	0.2	0.1
NW Holdings	\$ 91.5	\$ 85.2	\$ 81.1

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

2019 COMPARED TO 2018. Depreciation and amortization expense increased by \$6.3 million and \$5.4 million for NW Holdings and NW Natural, respectively, primarily due to NGD plant additions that included investments in natural gas transmission and distribution systems supporting customer growth, safety, reliability, facility upgrades, and enhanced technology. In addition, the

North Mist gas storage facility began operations and began depreciating in May 2019. The increase in other NW Holdings depreciation and amortization was primarily due to depreciation expense at acquired water and wastewater entities.

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.

Other Income (Expense), Net

Other income (expense), net highlights include:

<i>In millions</i>	2019	2018	2017
Pension and other postretirement costs	\$ (13.3)	\$ (17.0)	\$ (10.2)
Deferral (amortization) of regulatory pension balancing account	(10.7)	7.9	4.1
Regulatory disallowance of pension costs	(6.6)	—	—
Equity portion of AFUDC	0.7	4.1	2.7
Net interest income (expense) on deferred regulatory accounts	7.2	1.7	2.0
Other non-operating	(0.3)	(0.3)	1.2
NW Natural total other income (expense), net	\$ (23.0)	\$ (3.6)	\$ (0.2)
Other NW Holdings activity	0.2	—	(0.1)
NW Holdings total other income (expense), net	\$ (22.8)	\$ (3.6)	\$ (0.3)

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

2019 COMPARED TO 2018. Other income (expense), net, decreased \$19.2 million and \$19.4 million at NW Holdings and NW Natural, respectively. The decrease was primarily driven by activity in NW Natural's pension balancing account as described below. In addition, net interest income on deferred regulatory accounts increased \$5.5 million primarily due to \$5.1 million of deferred equity interest income recognized in 2019 in conjunction with amortization of the pension balancing account. Interest income from the equity portion of AFUDC decreased \$3.3 million, primarily driven by the placement of the North Mist facility into service in May 2019.

Pension Balancing Account

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. This pension cost deferral was recorded to a regulatory balancing account, which stabilized the amount of pension expense recognized each year in the consolidated statements of comprehensive income (loss). Total pension cost deferrals, excluding interest, were \$10.3 million and \$6.5 million for the years ended December 31, 2018 and 2017, of which \$7.9 million and 4.1 million was recognized in other income (expense), net, respectively. In October 2018, the OPUC issued an order freezing the pension balancing account and directing that future pension expense would be recovered through rates with an increase of \$8.1 million to revenue requirement.

In March 2019, the OPUC issued another order allowing for the application of certain deferred revenues and tax benefits from the TCJA to reduce NW Natural's pension regulatory balancing account. A corresponding total of \$12.5 million in pension expenses were recognized, of which \$7.9 million was recognized in other income (expense), net in the consolidated statements of comprehensive income in the first quarter of 2019, with offsetting benefits recorded within operating revenues and income taxes. The order also directed NW Natural to reduce the balancing account by an additional, disallowed, \$10.5 million, of which \$6.6 million was charged to other income (expense), net in the consolidated statements of comprehensive income. Amortization of the remaining amount of the balancing account began in the second quarter of 2019 in accordance with the order. Total amortization of the balancing account for the year ended December 31, 2019, inclusive of the \$12.5 million recovery mentioned above, was \$16.8 million, of which \$10.7 million was recorded to other income (expense), net. See Note 10 and "Regulatory Matters—Regulatory Proceeding Updates - *Pension Cost Deferral and Pension Balancing Account*" for more information regarding the pension balancing account.

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.

Interest Expense, Net

Interest expense, net highlights include:

<i>In millions</i>	2019	2018	2017
NW Natural	\$ 41.3	\$ 37.0	\$ 37.5
Other NW Holdings interest expense	1.4	0.1	—
NW Holdings	\$ 42.7	\$ 37.1	\$ 37.5

2019 COMPARED TO 2018. Interest expense, net of amounts capitalized increased \$5.6 million and \$4.3 million at NW Holdings and NW Natural, respectively. The increase at NW Natural was primarily driven by \$2.3 million higher interest on long term debt balances, \$1.2 million lower AFUDC debt interest income, and \$0.9 million higher commercial paper and line of credit interest. The additional increase at NW Holdings was driven by interest on long-term debt at NWN Water and interest on NW Holdings' line of credit.

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.

Income Tax Expense

NW Holdings income tax expense highlights include:

<i>In millions</i>	2019	2018	2017
Income tax expense	\$ 12.6	\$ 24.2	\$ 41.0
Effects from the TCJA ⁽¹⁾	—	—	3.4
Adjusted income tax expense	\$ 12.6	\$ 24.2	\$ 44.4
Effective tax rate	16.2%	26.4%	36.3%
Adjusted effective tax rate	16.2%	26.4%	39.3%

⁽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:

<i>In millions</i>	2019	2018	2017
Income tax expense	\$ 14.1	\$ 24.5	\$ 41.5
Effects from the TCJA ⁽¹⁾	—	—	3.0
Adjusted income tax expense	\$ 14.1	\$ 24.5	\$ 44.5
Effective tax rate	16.9%	26.4%	36.6%
Adjusted effective tax rate	16.9%	26.4%	39.3%

⁽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.

2019 COMPARED TO 2018. The effective tax rate decreased by 10.2% and 9.5% at NW Holdings and NW Natural, respectively. The reduction was driven by the return of tax reform benefits to customers, including \$5.4 million in tax benefits recognized in association with the OPUC 2018 Oregon rate case order which was offset by pension expenses. See "Executive Summary - *Deferred TCJA benefits and timing variance*" above.

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.

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 decision approving the transaction was issued by the CPUC on December 12, 2019 and the transaction is subject to 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, as amended, is currently subject to termination by either party if the transaction has not closed by March 31, 2020. We continue to strive to close this transaction.

On January 29, 2019, PG&E filed voluntary petitions for relief under chapter 11 bankruptcy. We cannot fully predict the course of the bankruptcy proceedings or the impact on the sale and will continue to monitor the situation closely.

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 19 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 Geologic Energy Management Division of the California Department of Conservation 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 were finalized during 2019 and increased costs for all storage providers. NW Holdings will continue to monitor and assess additional new regulations until the sale is complete.

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**

NW Holdings' long-term goal is to maintain a strong and balanced consolidated capital structure. NW Natural targets a regulatory capital structure of 50% common equity and 50% long-term debt, which is consistent with approved regulatory allocations in Oregon, which has an allocation of 50% common equity and 50% long-term debt without recognition of short-term debt, and Washington, which has an allocation of 50% long-term debt, 1% short-term debt, and 49% common equity.

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

NW Holdings' consolidated capital structure, excluding short-term debt, was as follows:

	December 31,	
	2019	2018
Common equity	49.6%	50.9%
Long-term debt (including current maturities)	50.4	49.1
Total	100.0%	100.0%

NW Natural's consolidated long-term capital structure, excluding short-term debt, was as follows:

	December 31,	
	2019	2018
Common equity	49.3%	49.4%
Long-term debt (including current maturities)	50.7	50.6
Total	100.0%	100.0%

Including short-term debt balances, as of December 31, 2019 and 2018, NW Holdings' consolidated capital structure included common equity of 45.7% and 44.4%, long-term debt of 42.5% and 41.1%, and short-term debt including current maturities of long-term debt of 11.8% and 14.5%, respectively. As of December 31, 2019 and 2018, NW Natural's consolidated capital structure included common equity of 45.9% and 42.9%, long-term debt of 42.9% and 42.2%, and short-term debt including current maturities of long-term debt of 11.2% and 14.9%, respectively.

During 2019, changes to NW Natural's capital structures were primarily due to capital contributions from NW Holdings and the issuance of long-term debt. Changes to NW Holdings' capital structure were primarily due to issuances of common equity at NW Holdings and the issuance of long-term debt at NW Natural. See further discussion below in "Cash Flows — *Financing Activities*".

Liquidity and Capital Resources

At December 31, 2019 and December 31, 2018, NW Holdings had approximately \$9.6 million and \$12.6 million, and NW Natural had approximately \$5.9 million and \$7.9 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. NW Holdings guarantees the debt of its wholly-owned subsidiary, NWN Water. See "*Long-Term Debt*" below for more information regarding NWN Water debt.

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, defined as the ratio of equity to long-term debt, 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%, where the ratio is measured using common equity and long-term debt excluding imputed debt or debt-like lease obligations. 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, 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, 2019 and 2018, NW Natural satisfied the ring-fencing provisions described above.

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.

NW HOLDINGS DIVIDENDS. 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.

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 its current debt ratings (see "*Credit Ratings*" below), NW Natural 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 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.

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, 2019. However, if the credit risk-related contingent features underlying these contracts were triggered on December 31, 2019, assuming long-term debt ratings dropped to non-investment grade levels, NW Natural could have been required to post \$0.1 million in collateral with our counterparties. See "*Credit Ratings*" below and Note 16.

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), as amended. See "*Application of Critical Accounting Policies—Accounting for Pensions and Postretirement Benefits*" below and Note 10 for more information.

ENVIRONMENTAL EXPENDITURES. NW Natural expects to continue using cash resources to fund environmental liabilities. NW Natural has authorizations in Oregon and Washington to defer costs related to remediation of properties that are owned or were previously owned by NW Natural. In Oregon, a Site Remediation and Recovery Mechanism (SRRM) is currently in place to recovery prudently incurred costs allocable to Oregon customers, subject to an earnings test. On October 21, 2019 the WUTC authorized an Environmental Cost Recovery Mechanism (ECRM) for recovery of prudently incurred costs allocable to Washington customers beginning November 1, 2019. See Note 18, and "*Results of Operations—Regulatory Matters—Environmental Cost Deferral and Recovery*" 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 DIVIDENDS. 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 lease agreement for a new corporate operations center location in Portland, Oregon. The existing 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 the third quarter of 2020 and total estimated base rent payments over the 20-year 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 during 2018 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, ASC 842, 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.

Contractual Obligations

The following table shows contractual obligations from continuing operations at December 31, 2019 by maturity and type of obligation:

In millions	Payments Due in Years Ending December 31,						Total
	2020	2021	2022	2023	2024	Thereafter	
NW Natural							
Short-term debt maturities	\$ 125.1	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 125.1
Long-term debt maturities	75.0	60.0	—	90.0	—	624.7	849.7
Interest on long-term debt	36.1	34.9	33.2	32.3	29.2	343.9	509.6
Postretirement benefit payments ⁽¹⁾	25.8	26.7	27.5	28.4	29.2	162.4	300.0
Operating leases	4.4	6.7	6.8	7.0	7.1	130.9	162.9
Gas purchases ⁽²⁾	86.2	2.9	—	—	—	—	89.1
Gas pipeline capacity commitments	81.1	74.5	72.8	72.5	71.0	530.4	902.3
Other purchase commitments ⁽³⁾	—	0.9	1.6	0.1	2.0	—	4.6
Other long-term liabilities ⁽⁴⁾	18.3	—	—	—	—	—	18.3
NW Natural Total	452.0	206.6	141.9	230.3	138.5	1,792.3	2,961.6
Other (NW Holdings)							
Short-term debt maturities	24.0	—	—	—	—	—	24.0
Short- and long-term obligations ⁽⁵⁾	1.3	35.8	0.3	0.3	0.3	1.1	39.1
NW Holdings Total	\$ 477.3	\$ 242.4	\$ 142.2	\$ 230.6	\$ 138.8	\$ 1,793.4	\$ 3,024.7

⁽¹⁾ 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 NW Natural's withdrawal from the plan in December 2013. See Note 10.

⁽²⁾ Gas purchases include contracts which use price formulas tied to monthly index prices. The commitment amounts presented incorporate the December 2019 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 17.

⁽³⁾ Other purchase commitments primarily consist of remaining balances under existing purchase orders.

⁽⁴⁾ Other long-term liabilities includes accrued 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.

⁽⁵⁾ 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 18 for a further discussion of environmental remediation cost liabilities.

At December 31, 2019, 626 of NW Natural's natural gas distribution employees were members of the Office and Professional Employees International Union (OPEIU) Local No. 11. In November 2019, union employees ratified a new collective bargaining agreement that took effect on December 1, 2019, expires on May 31, 2024, and is effective 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 the collective bargaining agreement include the following items: a 1.5% wage increase effective December 1, 2019, a 2.0% wage increase effective June 1, 2020, and scheduled wage increases effective June 1 of each subsequent year of 3.5%; competitive health benefits, including 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 8% of savings.

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, available cash from a multi-year credit facility, and short-term credit facilities. NW Natural has a separate commercial paper program 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, 2019 and 2018, NW Holdings had short-term debt outstanding of \$149.1 million and \$217.6 million, respectively, and NW Natural had short-term debt outstanding of \$125.1 million and \$217.5 million, respectively. The weighted average interest rate on short-term debt outstanding at December 31, 2019 and 2018 was 2.0% and 3.0%, respectively, at both NW Holdings and NW Natural.

Credit Agreements

NW Holdings

NW Holdings has 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 extensions 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, 2019 as follows:

In millions

Lender rating, by category

	Loan Commitment	
AA/Aa	\$	100
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, 2019 and 2018, with consolidated indebtedness to total capitalization ratios of 54.3% and 55.6%, respectively.

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.

Interest charges on the credit agreement are indexed to the London Interbank Offered Rate (LIBOR). The agreement contains a provision to transition to an equivalent replacement rate upon the phase-out of LIBOR in 2021.

NW Holdings had \$1.0 million and \$2.8 million of letters of credit issued and outstanding in support of acquisitions of water companies, separate from the aforementioned credit agreement, at December 31, 2019 and 2018, respectively. The \$1.0 million letter of credit outstanding at NW Holdings as of December 31, 2019 for purposes of facilitating the Suncadia acquisition was extinguished after the close of the transaction on January 31, 2020.

NW Natural

NW Natural has a 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.

All lenders under the NW Natural credit agreement are major financial institutions with committed balances and investment grade credit ratings as of December 31, 2019 as follows:

In millions

Lender rating, by category	Loan Commitment	
AA/Aa	\$	300
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, 2019 or 2018. 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, 2019 and 2018, with consolidated indebtedness to total capitalization ratios of 54.1% and 57.1%, 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.

Interest charges on the credit agreement are indexed to LIBOR. The agreement contains a provision to transition to an equivalent replacement rate upon the phase-out of LIBOR in 2021.

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-	A2
Senior unsecured (long-term debt)	n/a	Baa1
Corporate credit rating	A+	n/a
Ratings outlook	Stable	Stable

In May 2019, Moody's revised NW Natural's ratings outlook from negative to stable. In addition, the senior secured (long-term debt) rating changed from A1 to A2 and the senior unsecured (long-term debt) rating was revised from A3 to Baa1.

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:

<i>In millions</i>	Year Ended December 31,		
	2019	2018	2017
NW Natural First Mortgage Bonds			
Series 7.00% due 2017	\$ —	\$ —	\$ 40
Series 6.60% due 2018	—	22	—
Series 1.55% due 2018	—	75	—
Series 8.31% due 2019	10	—	—
Series 7.63% due 2019	20	—	—
Total	\$ 30	\$ 97	\$ 40

In June 2019, NWN Water, a wholly-owned subsidiary of NW Holdings, entered into a two-year term loan agreement for \$35.0 million. The loan carried an interest rate of 2.35% at December 31, 2019, which is based upon the one-month LIBOR rate. The loan is guaranteed by NW Holdings and 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, 2019, with a consolidated indebtedness to total capitalization ratio of 54.3%.

In June 2019, NW Natural issued \$140.0 million of FMBs consisting of \$50.0 million with an interest rate of 3.141%, due in 2029, and \$90.0 million with an interest rate of 3.869%, due in 2049. In September 2019, NW Natural retired \$10.0 million of FMBs with an interest rate of 8.310%, and retired \$20.0 million of FMBs with an interest rate of 7.630% in December 2019.

\$75.0 million of FMBs with an interest rate of 5.370% matured in February 2020. No other long-term debt is scheduled to mature over the next twelve months.

See "Financial Condition—*Contractual Obligations*" above for long-term debt maturing over the next five years.

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, 2019 and 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:

<i>NW Holdings</i>			
<i>In millions</i>	2019	2018	2017
Cash provided by operating activities	\$ 185.3	\$ 168.8	\$ 206.7
<i>NW Natural</i>			
<i>In millions</i>	2019	2018	2017
Cash provided by operating activities	\$ 186.2	\$ 173.5	\$ 206.5

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

2019 COMPARED TO 2018. The significant factors contributing to the \$16.5 million and \$12.7 million increases in NW Holdings and NW Natural cash flow provided by operating activities, respectively, were as follows:

- an increase of \$27.5 million at NW Holdings and \$24.9 million at NW Natural due to net income tax refunds in 2019 compared to payments in 2018. The refunds were primarily due to bonus depreciation taken on NW Natural's North Mist gas storage expansion which was placed into service in May 2019, as well as \$6.0 million in income taxes paid in 2018 and refunded to NW Natural in 2019;
- an increase of \$10.6 million from collections of both current and deferred pension expenses as a result of NW Natural's Oregon rate case; and
- an increase of \$4.6 million due to lower contributions paid to qualified defined benefit pension plans in the current period compared to prior periods; partially offset by
- a net decrease of \$28.5 million at NW Natural from changes in receivables, inventories, and accounts payable, primarily reflecting increased gas purchase expenditures from average weather in the current period compared to warmer-than average weather in the prior period as well as higher gas costs than those included in customer rates.

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.

During the year ended December 31, 2019, NW Natural contributed \$11.0 million to its qualified defined benefit pension plan, compared to \$15.5 million for 2018 and \$19.4 million in 2017. The amount and timing of future contributions will depend on market interest rates and investment returns on the plans' assets. See Note 10.

Bonus income tax depreciation of 50% was available in 2017 for a large portion of capital expenditures, and bonus depreciation of 40% was available in 2019 for a large portion of North Mist gas storage expansion capital expenditures for federal and Oregon purposes. This reduced taxable income and provided cash flow benefits in 2017 and 2019. As a result of the enactment of the TCJA on December 22, 2017, bonus depreciation was eliminated for other NGD business property acquired and placed in service after December 31, 2017. Accordingly, bonus depreciation was not available for such property in 2018 and 2019, and 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 17.

Investing Activities

Investing activity highlights include:

<i>NW Holdings</i>			
<i>In millions</i>	2019	2018	2017
Cash used in investing activities	\$ (303.8)	\$ (217.5)	\$ (214.2)
Capital expenditures	(223.5)	(214.6)	(213.3)
<i>NW Natural</i>			
<i>In millions</i>	2019	2018	2017
Cash used in investing activities	\$ (243.1)	\$ (238.5)	\$ (214.2)
Capital expenditures	(221.4)	(214.3)	(213.3)

2019 COMPARED TO 2018. Cash used in investing activities increased \$86.3 million and \$4.6 million at NW Holdings and NW Natural, respectively. The increase at NW Natural was driven by continued capital expenditures for customer growth, system reinforcement, and technology, as well as leasehold improvement additions at NW Natural's new corporate operations center. The increase was partially offset by lower capital expenditures due to the completion of the North Mist gas storage expansion in May 2019. The increase at NW Holdings was driven by \$55.9 million higher expenditures for acquisitions, net of cash acquired.

2018 COMPARED TO 2017. The \$3.3 million increase in cash used in investing activities at NW Holdings was primarily due to continued capital expenditures primarily related to NW Natural's North Mist gas storage expansion facility as well as customer growth, system reinforcement, technology, and facilities. The additional increase in cash used in investing activities at NW Natural was primarily due to NW Natural's initial cash contribution of \$20 million to its then subsidiary, and now parent, NW Holdings.

NW Holdings capital expenditures in 2020 are anticipated to be between \$240 million and \$280 million, of which between \$230 million and \$270 million are anticipated to occur at the NGD business. The total capital investment for the five-year period from 2020 to 2024 is expected to range from \$980 million to \$1.14 billion, with \$950 million to \$1.10 billion relating to the natural gas distribution segment and \$30 million to \$40 million related to maintenance capital expenditures for water utilities we currently own or have under a purchase and sale agreement.

The timing and amount of the core capital expenditures and projects for 2020 and the next five years could change based on regulation, growth, and cost estimates. Additional investments in our infrastructure during and after 2020 that are not incorporated in the estimates provided above will depend largely on additional regulations, growth, and expansion opportunities. Required funds for the investments are expected to be internally generated or financed with long-term debt or equity, as appropriate.

Financing Activities

Financing activity highlights include:

<i>NW Holdings</i>				
<i>In millions</i>	2019	2018	2017	
Cash provided by financing activities	\$ 115.5	\$ 57.8	\$ 7.4	
Change in short-term debt	(68.5)	163.3	0.9	
Change in long-term debt	145.0	(47.0)	60.0	
Change in common stock issued, net	93.0	—	—	
Cash dividend payments on common stock	53.3	51.3	54.0	

<i>NW Natural</i>				
<i>In millions</i>	2019	2018	2017	
Cash provided by financing activities	\$ 54.9	\$ 69.8	\$ 7.4	
Change in short-term debt	(92.4)	163.3	0.9	
Change in long-term debt	110.0	(47.0)	60.0	
Cash dividend payments on common stock	53.4	38.4	54.0	

2019 COMPARED TO 2018. Cash provided by financing activities increased \$57.7 million and decreased \$14.9 million at NW Holdings and NW Natural, respectively.

The decrease in cash provided by financing activities at NW Natural was primarily driven by \$255.7 million in higher repayments of short-term debt compared to the prior period and \$15.0 million higher cash dividends paid. The decrease was partially offset by net issuances of \$110.0 million in long-term debt in the current period compared to net repayments of \$47.0 million in the prior period as well as a capital contribution from NW Holdings to NW Natural of \$93.0 million.

The increase at NW Holdings was primarily due to proceeds of \$93.0 million from the June 2019 issuance of NW Holdings common stock, the issuance of \$35.0 million of long-term debt at NW Natural Water, and short-term debt issuances of \$24 million at NW Holdings. These increases were partially offset by the debt activity at NW Natural described above.

2018 COMPARED TO 2017. The \$50.4 million increase in cash provided by financing activities at NW Holdings 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. 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.

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 – *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 \$16.5 million in 2019, a decrease of \$4.2 million from 2018. The fair market value of pension assets in this plan increased to \$313.1 million at December 31, 2019 from \$257.8 million at December 31, 2018. The increase was due to a gain on plan assets of \$65.1 million and \$11.0 million in employer contributions, partially offset by benefit payments of \$20.8 million.

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 \$164.3 million at December 31, 2019. NW Natural plans to make contributions during 2020 of \$29.0 million. See Note 10 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, 2019, NW Natural's total estimated liability related to environmental sites was \$136.0 million. See Note 18 and "Results of Operations—Regulatory Matters—Rate Mechanisms—*Environmental Cost Deferral and Recovery*" 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.

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, 2019 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 \$285.3 million and a net liability of \$245.3 million as of December 31, 2019 and 2018, 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%:

<i>In millions</i>	2019	
	Up 1%	Down 1%
Unbilled revenue increase (decrease) ⁽¹⁾	\$ 0.9	\$ (0.9)
Margin increase (decrease) ⁽¹⁾	0.2	(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 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, 2019, 2018 and 2017 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, notional amounts, 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 16.

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

<i>In millions</i>	2019	2018	2017
NGD business net gain (loss) on:			
Commodity Swaps	\$ 17.9	\$ 7.4	\$ (7.8)

Realized gains and losses from commodity hedges shown above were recorded in 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 10.

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. As part of general rate case proceedings, on October 26, 2018, the OPUC issued an order to freeze NW Natural's pension balancing account as of October 31, 2018. In March 2019, the OPUC issued an order resolving the remaining open items for NW Natural's 2018 Oregon general rate case regarding recovery of the pension balancing account. At December 31, 2019, the cumulative amount deferred for future pension cost recovery was \$54.2 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 from 2011 through October 31, 2018, and at 4.3% thereafter. See "*Regulatory Matters - Rate Mechanisms - Pension Cost Deferral and Pension Balancing Account*" above for more information.

A number of factors, as discussed above, are considered in developing pension and postretirement benefit assumptions. For the December 31, 2019 measurement date, NW Natural reviewed and updated:

- the weighted-average discount rate assumptions for pensions decreased from 4.20% for 2018 to 3.16% for 2019, and our weighted-average discount rate assumptions for other postretirement benefits decreased from 4.13% for 2018 to 3.11% for 2019. 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 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 for bargaining unit employees, which was updated from a range of 3.25% to 3.50% for 2018, to the 2019 assumption of 6.50% in 2020 and 3.50% thereafter. The increase was a result of a new collective bargaining agreement that took effect December 1, 2019. The assumed range of 3.25% to 3.50% for non-bargaining employees remained unchanged;
- the expected long-term return on qualified defined benefit plan assets decreased from 7.50% to 7.25%;
- the mortality rate assumptions were updated RP-2014 mortality tables using scale MP-2018 to Pri-2012 mortality tables using scale MP-2019, which partially offset the increase of our projected benefit obligation; and
- other key assumptions, which were based on actual plan experience and actuarial recommendations.

At December 31, 2019, the net pension liability (benefit obligations less market value of plan assets) for NW Natural's qualified defined benefit plan increased \$1.9 million compared to 2018. The increase in the net pension liability is primarily due to the \$57.1 million increase to the pension benefit obligation, partially offset by a \$55.3 million increase in plan assets. The liability for non-qualified plans increased \$3.0 million, and the liability for other postretirement benefits increased \$1.4 million in 2019.

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:

<i>Dollars in millions</i>	Change in Assumption	Impact on 2019 Retirement Benefit Costs	Impact on Retirement Benefit Obligations at Dec. 31, 2019
Discount rate:	(0.25)%		
Qualified defined benefit plans		\$ 1.4	\$ 16.2
Non-qualified plans		—	0.8
Other postretirement benefits		0.1	0.9
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 shifts the level of minimum required contributions from the short-term to the long-term as well as increasing the operational costs of running a pension plan. 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. MAP-21, as amended, provides for the current corridor to be in effect through 2020 and subsequently broaden on an annual basis from 2021 through 2024.

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, 2019. See Note 11.

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 2019, 2018, or 2017. See Note 11.

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 11 for more information on how we are impacted by the TCJA.

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, 2019 and 2018, NW Natural had net regulatory income tax assets of \$19.4 million and \$21.4 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. At December 31, 2019 and 2018, regulatory income tax assets of \$2.5 million and \$2.3 million, respectively, were recorded by NW Natural, representing probable future rate recovery of deferred tax liabilities resulting from the equity portion of AFUDC.

At December 31, 2019 and 2018, 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 \$205.0 million and \$217.1 million, respectively, were recorded by NW Natural. These balances include a gross up for income taxes of \$54.3 million and \$57.5 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. Regulatory orders were issued by Oregon in March 2019 and by Washington in October 2019 addressing the provision of these TCJA tax benefits to customers. See "Regulatory Matters-Regulatory Proceeding Updates-Tax Reform Deferral" for more information.

NGD rates in effect for Oregon through October 31, 2018 and for Washington through October 31, 2019 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 in 2018 and 2019 reflecting the deferral of estimated rate benefit for customers due to the newly enacted 21 percent federal corporate income tax rate. As of December 31, 2019 and 2018, regulatory liabilities of \$1.7 million and \$8.3 million, respectively, were recorded to reflect the estimated revenue deferral benefit to be provided to Oregon and Washington customers.

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 18. 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 Cost Deferral and Recovery*" above.

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 19 for additional information.

Goodwill and Business Combinations

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 2019 which indicated a quantitative assessment was not required; thus, no goodwill impairment was recorded. See Note 2 and Note 15 for additional information.

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at fair value at the acquisition date, and the fair value of any non-controlling interest in the acquiree. Acquisition-related costs are expensed as incurred. When NW Natural acquires a business, it assesses the financial assets acquired and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic circumstances and pertinent conditions as of the acquisition date. When there is substantial judgment or uncertainty around the fair value of acquired assets, we may engage a third party expert to assist in determining the fair values of certain assets or liabilities.

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 512.8 million therms and 472.3 million therms as of December 31, 2019 and 2018, 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 \$123.3 million and \$77.7 million as of December 31, 2019 and 2018, respectively. The fair value of financial swaps, based on market prices at December 31, 2019, was an unrealized gain of \$5.6 million, which would result in cash inflows of \$1.2 million in 2020, \$0.7 million in 2021, and \$3.7 million in 2022.

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, 2019 or 2018.

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 \$6.7 million and \$6.9 million as of December 31, 2019 and 2018, respectively. If all of the foreign currency forward contracts had been settled on December 31, 2019, a gain of \$0.1 million would have been realized. See Note 16.

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, 2019, 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. 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.

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:

<i>In millions</i>	Financial Derivative Position by Credit Rating Unrealized Fair Value Gain (Loss)			
	2019		2018	
AA/Aa	\$	4.0	\$	(6.3)
A/A		1.6		(1.5)
Total	\$	5.6	\$	(7.8)

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, most of which 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, business types and countries to reduce credit and liquidity risk.

At December 31, 2019, financial derivative credit risk on a volumetric basis was geographically concentrated 38% in the United States and 62% in Canada, based on counterparties' location. At December 31, 2018, financial derivative credit risk on a volumetric basis was geographically concentrated 33% in the United States and 67% 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, 2019, 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 18% of all residential and commercial customers. See "Results of Operations—Regulatory Matters—Rate Mechanisms—WARM" above.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

TABLE OF CONTENTS

	Page
1. Management's Reports on Internal Control Over Financial Reporting	71
2. Reports of Independent Registered Public Accounting Firm	73
3. Consolidated Financial Statements:	
Consolidated Statements of Comprehensive Income (Loss) of Northwest Natural Holding Company for the Years Ended December 31, 2019, 2018, and 2017	76
Consolidated Balance Sheets of Northwest Natural Holding Company at December 31, 2019 and 2018	77
Consolidated Statements of Shareholders' Equity of Northwest Natural Holding Company for the Years Ended December 31, 2019, 2018, and 2017	79
Consolidated Statements of Cash Flows of Northwest Natural Holding Company for the Years Ended December 31, 2019, 2018, and 2017	80
Consolidated Statements of Comprehensive Income (Loss) of Northwest Natural Gas Company for the Years Ended December 31, 2019, 2018, and 2017	82
Consolidated Balance Sheets of Northwest Natural Gas Company at December 31, 2019 and 2018	83
Consolidated Statements of Shareholder's Equity of Northwest Natural Gas Company for the Years Ended December 31, 2019, 2018, and 2017	85
Consolidated Statements of Cash Flows of Northwest Natural Gas Company for the Years Ended December 31, 2019, 2018, and 2017	86
Notes to Consolidated Financial Statements	87
4. Quarterly Financial Information	132
5. Supplementary Data for the Years Ended December 31, 2019, 2018, and 2017:	
Financial Statement Schedules	
Schedule I - Condensed Financial Information of Northwest Natural Holding Company at December 31, 2019 and 2018, and for the Years Ended December 31, 2019 and 2018	134
Schedule II - Valuation and Qualifying Accounts and Reserves of Northwest Natural Holding Company and Northwest Natural Gas Company for the Years Ended December 31, 2019, 2018, and 2017	138

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.

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 (U.S. 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 U.S. 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, 2019. 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, 2019.

The effectiveness of internal control over financial reporting as of December 31, 2019 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 2, 2020

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 (U.S. 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 U.S. 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, 2019. 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, 2019.

/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 2, 2020

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, 2019 and 2018, 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, 2019, 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, 2019, 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, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 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, 2019, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

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 NW Holdings' 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.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Accounting for the Effects of Regulatory Matters

As described in Note 2 to the consolidated financial statements, the Company has operations that are subject to the actions of regulators where rates are designed to recover specific costs of providing regulatory services, which requires the Company to record regulatory assets and liabilities. As of December 31, 2019, there were \$385.1 million of regulatory assets and \$670.4 million of regulatory liabilities. The Company's Natural Gas Distribution segment is regulated by the Oregon Public Utility Commission and Washington Utilities and Transportation Commission, 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. Regulatory accounting requires management to account for 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, management recognizes the expense or revenue on the income statement at the same time the adjustment to amounts included in rates charged to customers.

The principal considerations for our determination that performing procedures relating to the Company's accounting for the effects of regulatory matters is a critical audit matter are there was a significant amount of judgment by management in assessing the potential outcomes and related accounting impacts associated with the ongoing accounting application of regulated operations, including alternative revenue programs, deferral and amortization accounting, and the results of earnings tests. This in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures and evaluating audit evidence obtained related to the recovery of regulatory assets and the settlement of regulatory liabilities.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's assessment of regulatory proceedings and the ongoing accounting application of regulated operations, including alternative revenue programs, deferral and amortization accounting, and the results of earnings tests, and including the probability of recovering incurred costs and related accounting and disclosure impacts. These procedures also included, among others, evaluating (i) the reasonableness of management's assessment regarding the probability of recovery of regulatory assets and settlement of regulatory liabilities, and (ii) the sufficiency of the disclosures in the consolidated financial statements. Testing the regulatory assets and liabilities and ongoing accounting application of regulated operations involved considering the provisions and formulas outlined in rate orders, other regulatory correspondence, and application of relevant regulatory precedents.

Valuation of Acquired Tangible Assets for Sunriver Environmental, LLC

As described in Note 15 to the consolidated financial statements, in May 2019 the Company completed the acquisition of Sunriver Water, LLC and Sunriver Environmental, LLC for cash consideration of \$55.0 million, subject to closing adjustments, which resulted in \$14.0 million of tangible assets being recorded. The Sunriver acquisition met the criteria of a business combination, and as such a preliminary allocation of the consideration to the acquired assets based on their estimated fair value as of the acquisition date was performed. The fair value determination was made using existing regulatory conditions for assets associated with Sunriver Water, LLC as well as existing market conditions and standard valuation approaches for assets associated with Sunriver Environmental, LLC in order to allocate value as determined by an independent third party assessor for certain assets, which involved the use of management judgment in determining the significant estimates and assumptions used by the assessor, with the remaining difference from the consideration transferred being recorded as goodwill.

The principal considerations for our determination that performing procedures relating to the valuation of acquired tangible assets for Sunriver Environmental, LLC is a critical audit matter are (i) there was a high degree of auditor judgment and subjectivity in applying procedures relating to the fair value measurement of tangible assets acquired due to the significant amount of judgment by management when developing the estimate; (ii) significant audit effort was required in evaluating the estimate of the appraisal values of the acquired assets; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to business combination acquisition accounting, including controls over management's valuation of the tangible assets, as well as controls over the estimate of the appraisal values of the acquired property. These procedures also included, among others, reading the purchase agreement and testing management's process for estimating the fair value of the acquired tangible assets. Professionals with specialized skill and knowledge were used to assist in the evaluation of management's valuation method and the reasonableness of the estimate of the appraisal values of the acquired assets.

/s/ PricewaterhouseCoopers LLP

Portland, Oregon

March 2, 2020

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

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, 2019 and 2018, 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, 2019, 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, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

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 audits 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 2, 2020

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

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

<i>In thousands, except per share data</i>	Year Ended December 31,		
	2019	2018	2017
Operating revenues	\$ 746,372	\$ 706,143	\$ 755,038
Operating expenses:			
Cost of gas	254,911	255,519	324,795
Operations and maintenance	178,191	156,698	152,358
Environmental remediation	12,337	11,127	15,291
General taxes	32,388	32,172	30,639
Revenue taxes	30,325	30,082	—
Depreciation and amortization	91,496	85,156	81,053
Other operating expenses	3,250	3,227	—
Total operating expenses	<u>602,898</u>	<u>573,981</u>	<u>604,136</u>
Income from operations	143,474	132,162	150,902
Other income (expense), net	(22,836)	(3,601)	(295)
Interest expense, net	42,685	37,059	37,526
Income before income taxes	77,953	91,502	113,081
Income tax expense	12,642	24,191	41,008
Net income from continuing operations	65,311	67,311	72,073
Loss from discontinued operations, net of tax	(3,576)	(2,742)	(127,696)
Net income (loss)	<u>61,735</u>	<u>64,569</u>	<u>(55,623)</u>
Other comprehensive income (loss):			
Change in employee benefit plan liability, net of taxes of \$956 for 2019, (\$166) for 2018, and \$735 for 2017	(2,655)	476	(2,059)
Amortization of non-qualified employee benefit plan liability, net of taxes of (\$172) for 2019, (\$278) for 2018, and (\$374) for 2017	476	774	572
Comprehensive income (loss)	<u>\$ 59,556</u>	<u>\$ 65,819</u>	<u>\$ (57,110)</u>
Average common shares outstanding:			
Basic	29,786	28,803	28,669
Diluted	29,859	28,873	28,753
Earnings from continuing operations per share of common stock:			
Basic	\$ 2.19	\$ 2.34	\$ 2.51
Diluted	2.19	2.33	2.51
Loss from discontinued operations per share of common stock:			
Basic	\$ (0.12)	\$ (0.10)	\$ (4.45)
Diluted	(0.12)	(0.09)	(4.44)
Earnings (loss) per share of common stock:			
Basic	\$ 2.07	\$ 2.24	\$ (1.94)
Diluted	2.07	2.24	(1.93)

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL HOLDING COMPANY

CONSOLIDATED BALANCE SHEETS

<i>In thousands</i>	As of December 31,	
	2019	2018
Assets:		
Current assets:		
Cash and cash equivalents	\$ 9,648	\$ 12,633
Accounts receivable	67,137	66,970
Accrued unbilled revenue	56,192	57,827
Allowance for uncollectible accounts	(673)	(977)
Regulatory assets	41,929	41,930
Derivative instruments	6,802	9,001
Inventories	43,985	44,149
Gas reserves	15,278	16,647
Income taxes receivable	256	6,000
Other current assets	38,004	28,472
Discontinued operations - current assets	15,134	13,269
Total current assets	293,692	295,921
Non-current assets:		
Property, plant, and equipment	3,476,746	3,414,490
Less: Accumulated depreciation	1,037,847	993,118
Total property, plant, and equipment, net	2,438,899	2,421,372
Gas reserves	48,394	66,197
Regulatory assets	343,146	371,786
Derivative instruments	3,337	725
Other investments	63,333	63,558
Operating lease right of use asset	2,950	—
Assets under sales-type leases	146,310	—
Goodwill	49,929	8,954
Other non-current assets	38,464	14,149
Total non-current assets	3,134,762	2,946,741
Total assets	\$ 3,428,454	\$ 3,242,662

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL HOLDING COMPANY

CONSOLIDATED BALANCE SHEETS

<i>In thousands</i>	As of December 31,	
	2019	2018
Liabilities and equity:		
Current liabilities:		
Short-term debt	\$ 149,100	\$ 217,620
Current maturities of long-term debt	75,109	29,989
Accounts payable	113,370	115,878
Taxes accrued	11,971	11,023
Interest accrued	7,451	7,306
Regulatory liabilities	44,657	47,436
Derivative instruments	2,000	12,381
Operating lease liabilities	2,101	—
Other current liabilities	62,705	54,492
Discontinued operations - current liabilities	13,709	12,959
Total current liabilities	482,173	509,084
Long-term debt	805,955	706,247
Deferred credits and other non-current liabilities:		
Deferred tax liabilities	295,643	280,463
Regulatory liabilities	625,717	611,560
Pension and other postretirement benefit liabilities	228,129	221,886
Derivative instruments	609	3,025
Operating lease liabilities	841	—
Other non-current liabilities	123,388	147,763
Total deferred credits and other non-current liabilities	1,274,327	1,264,697
Commitments and contingencies (see Note 17 and Note 18)		
Equity:		
Common stock - no par value; authorized 100,000 shares; issued and outstanding 30,472 and 28,880 at December 31, 2019 and 2018, respectively	558,282	457,640
Retained earnings	318,450	312,182
Accumulated other comprehensive loss	(10,733)	(7,188)
Total equity	865,999	762,634
Total liabilities and equity	\$ 3,428,454	\$ 3,242,662

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL HOLDING COMPANY
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

<i>In thousands</i>	Common Stock	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Equity
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
Comprehensive income (loss)	—	61,735	(2,179)	59,556
Dividends on common stock, \$1.90 per share	—	(56,833)	—	(56,833)
Stock-based compensation	2,601	—	—	2,601
Shares issued pursuant to equity based plans	5,085	—	—	5,085
Issuance of common stock, net of issuance costs	92,956	—	—	92,956
Reclassification of tax effects from the TCJA	—	1,366	(1,366)	—
Balance at December 31, 2019	<u>\$ 558,282</u>	<u>\$ 318,450</u>	<u>\$ (10,733)</u>	<u>\$ 865,999</u>

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL HOLDING COMPANY
CONSOLIDATED STATEMENTS OF CASH FLOWS

<i>In thousands</i>	Year Ended December 31,		
	2019	2018	2017
Operating activities:			
Net income (loss)	\$ 61,735	\$ 64,569	\$ (55,623)
Adjustments to reconcile net income (loss) to cash provided by operations:			
Depreciation and amortization	91,496	85,156	81,053
Regulatory amortization of gas reserves	19,172	16,684	16,353
Deferred income taxes	6,317	14,356	(52,414)
Qualified defined benefit pension plan expense	16,497	8,108	5,364
Contributions to qualified defined benefit pension plans	(10,970)	(15,540)	(19,430)
Deferred environmental expenditures, net	(16,226)	(14,528)	(13,716)
Environmental remediation expense	12,337	11,127	15,291
Regulatory revenue deferral from the TCJA	853	7,929	—
Regulatory disallowance of pension costs	10,500	—	—
Other	13,907	1,596	2,102
Changes in assets and liabilities:			
Receivables, net	5,844	181	3,282
Inventories	(5,969)	3,207	5,600
Income and other taxes	4,528	(16,904)	6,734
Accounts payable	(16,485)	16,792	1,092
Interest accrued	145	526	807
Deferred gas costs	(23,471)	(14,395)	17,122
Decoupling mechanism	18,661	4,497	4,436
Other, net	(4,285)	(3,945)	(8,529)
Discontinued operations	712	(645)	197,180
Cash provided by operating activities	185,298	168,771	206,704
Investing activities:			
Capital expenditures	(223,471)	(214,636)	(213,325)
Acquisitions, net of cash acquired	(56,786)	(873)	—
Leasehold improvement expenditures	(18,812)	(4,415)	—
Other	(2,885)	1,898	(577)
Discontinued operations	(1,827)	573	(270)
Cash used in investing activities	(303,781)	(217,453)	(214,172)

NORTHWEST NATURAL HOLDING COMPANY
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2019	2018	2017
Financing activities:			
Repurchases related to stock-based compensation	—	—	(2,034)
Proceeds from stock options exercised	2,015	1,546	4,819
Proceeds from common stock issued	92,956	—	—
Long-term debt issued	175,000	50,000	100,000
Long-term debt retired	(30,000)	(97,000)	(40,000)
Change in short-term debt	(68,520)	163,274	900
Cash dividend payments on common stock	(53,339)	(51,311)	(53,957)
Stock purchases related to acquisitions	—	(7,951)	—
Other	(2,614)	(715)	(2,309)
Cash provided by financing activities	115,498	57,843	7,419
Increase (decrease) in cash and cash equivalents	(2,985)	9,161	(49)
Cash and cash equivalents, beginning of period	12,633	3,472	3,521
Cash and cash equivalents, end of period	<u>\$ 9,648</u>	<u>\$ 12,633</u>	<u>\$ 3,472</u>
Supplemental disclosure of cash flow information:			
Interest paid, net of capitalization	\$ 41,231	\$ 35,324	\$ 34,787
Income taxes paid (refunded)	(96)	27,370	14,780

See Notes to Consolidated Financial Statements

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

<i>In thousands</i>	Year Ended December 31,		
	2019	2018	2017
Operating revenues	\$ 739,944	\$ 705,571	\$ 755,038
Operating expenses:			
Cost of gas	255,135	255,743	325,019
Operations and maintenance	169,091	155,225	152,180
Environmental remediation	12,337	11,127	15,291
General taxes	32,075	32,086	30,602
Revenue taxes	30,325	30,082	—
Depreciation and amortization	90,405	84,986	81,024
Other operating expenses	3,230	3,223	—
Total operating expenses	592,598	572,472	604,116
Income from operations	147,346	133,099	150,922
Other income (expense), net	(22,968)	(3,599)	(198)
Interest expense, net	41,339	36,992	37,526
Income before income taxes	83,039	92,508	113,198
Income tax expense	14,065	24,459	41,478
Net income from continuing operations	68,974	68,049	71,720
Loss from discontinued operations, net of tax	—	(1,723)	(127,343)
Net income (loss)	68,974	66,326	(55,623)
Other comprehensive income (loss):			
Change in employee benefit plan liability, net of taxes of \$956 for 2019, (\$166) for 2018, and \$735 for 2017	(2,655)	476	(2,059)
Amortization of non-qualified employee benefit plan liability, net of taxes of (\$172) for 2019, (\$278) for 2018, and (\$374) for 2017	476	774	572
Comprehensive income (loss)	\$ 66,795	\$ 67,576	\$ (57,110)

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL GAS COMPANY

CONSOLIDATED BALANCE SHEETS

<i>In thousands</i>	As of December 31,	
	2019	2018
Assets:		
Current assets:		
Cash and cash equivalents	\$ 5,919	\$ 7,947
Accounts receivable	66,823	66,824
Accrued unbilled revenue	56,139	57,773
Receivables from affiliates	787	4,166
Allowance for uncollectible accounts	(672)	(975)
Regulatory assets	41,929	41,930
Derivative instruments	6,802	9,001
Inventories	43,896	44,126
Gas reserves	15,278	16,647
Other current assets	33,258	25,347
Total current assets	270,159	272,786
Non-current assets:		
Property, plant, and equipment	3,456,075	3,410,439
Less: Accumulated depreciation	1,036,593	992,855
Total property, plant, and equipment, net	2,419,482	2,417,584
Gas reserves	48,394	66,197
Regulatory assets	343,146	371,786
Derivative instruments	3,337	725
Other investments	49,837	49,922
Operating lease right of use asset	2,760	—
Assets under sales-type leases	146,310	—
Other non-current assets	38,062	13,736
Total non-current assets	3,051,328	2,919,950
Total assets	\$ 3,321,487	\$ 3,192,736

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL GAS COMPANY
CONSOLIDATED BALANCE SHEETS

<i>In thousands</i>	As of December 31,	
	2019	2018
Liabilities and equity:		
Current liabilities:		
Short-term debt	\$ 125,100	\$ 217,500
Current maturities of long-term debt	74,907	29,989
Accounts payable	111,641	114,937
Payables to affiliates	1,546	523
Taxes accrued	11,717	10,990
Interest accrued	7,441	7,273
Regulatory liabilities	44,657	47,436
Derivative instruments	2,000	12,381
Operating lease liabilities	1,979	—
Other current liabilities	61,438	53,027
Total current liabilities	442,426	494,056
Long-term debt	769,081	704,134
Deferred credits and other non-current liabilities:		
Deferred tax liabilities	309,297	294,739
Regulatory liabilities	625,717	611,560
Pension and other postretirement benefit liabilities	228,129	221,886
Derivative instruments	609	3,025
Operating lease liabilities	772	—
Other non-current liabilities	123,260	147,668
Total deferred credits and other non-current liabilities	1,287,784	1,278,878
Commitments and contingencies (see Note 17 and Note 18)		
Equity:		
Common stock	319,557	226,452
Retained earnings	513,372	496,404
Accumulated other comprehensive loss	(10,733)	(7,188)
Total equity	822,196	715,668
Total liabilities and equity	\$ 3,321,487	\$ 3,192,736

See Notes to Consolidated Financial Statements

NORTHWEST NATURAL GAS COMPANY
CONSOLIDATED STATEMENTS OF SHAREHOLDER'S EQUITY

<i>In thousands</i>	Common Stock	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Equity
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
Comprehensive income (loss)	—	68,974	(2,179)	66,795
Dividends on common stock	—	(53,372)	—	(53,372)
Capital contribution from parent	93,105	—	—	93,105
Reclassification of tax effects from the TCJA	—	1,366	(1,366)	—
Balance at December 31, 2019	\$ 319,557	\$ 513,372	\$ (10,733)	\$ 822,196

⁽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

<i>In thousands</i>	Year Ended December 31,		
	2019	2018	2017
Operating activities:			
Net income (loss)	\$ 68,974	\$ 66,326	\$ (55,623)
Adjustments to reconcile net income (loss) to cash provided by operations:			
Depreciation and amortization	90,405	84,986	81,024
Regulatory amortization of gas reserves	19,172	16,684	16,353
Deferred income taxes	4,046	12,330	15,894
Qualified defined benefit pension plan expense	16,497	8,108	5,364
Contributions to qualified defined benefit pension plans	(10,970)	(15,540)	(19,430)
Deferred environmental expenditures, net	(16,226)	(14,528)	(13,716)
Environmental remediation expense	12,337	11,127	15,291
Regulatory revenue deferral from the TCJA	853	7,929	—
Regulatory disallowance of pension costs	10,500	—	—
Other	12,317	883	2,003
Changes in assets and liabilities:			
Receivables, net	9,264	(3,920)	3,215
Inventories	(5,990)	3,212	5,601
Income and other taxes	496	(7,854)	6,730
Accounts payable	(18,548)	13,937	3,332
Interest accrued	168	500	807
Deferred gas costs	(23,471)	(14,395)	17,122
Decoupling mechanism	18,661	4,497	4,436
Other, net	(2,309)	(3,958)	(8,291)
Discontinued operations	—	3,184	126,371
Cash provided by operating activities	<u>186,176</u>	<u>173,508</u>	<u>206,483</u>
Investing activities:			
Capital expenditures	(221,380)	(214,328)	(213,325)
Leasehold improvement expenditures	(18,812)	(4,415)	—
Other	(2,885)	898	(577)
Discontinued operations	—	(20,617)	(270)
Cash used in investing activities	<u>(243,077)</u>	<u>(238,462)</u>	<u>(214,172)</u>
Financing activities:			
Repurchases related to stock-based compensation	—	—	(2,034)
Proceeds from stock options exercised	—	1,368	4,819
Long-term debt issued	140,000	50,000	100,000
Long-term debt retired	(30,000)	(97,000)	(40,000)
Change in short-term debt	(92,400)	163,300	900
Cash contributions received from parent	93,155	—	—
Cash dividend payments on common stock	(53,372)	(38,387)	(53,957)
Other	(2,510)	(1,539)	(2,309)
Discontinued operations	—	(7,951)	—
Cash provided by financing activities	<u>54,873</u>	<u>69,791</u>	<u>7,419</u>
Increase (decrease) in cash and cash equivalents	<u>(2,028)</u>	<u>4,837</u>	<u>(270)</u>
Cash and cash equivalents, beginning of period	7,947	3,110	3,380
Cash and cash equivalents, end of period	<u>\$ 5,919</u>	<u>\$ 7,947</u>	<u>\$ 3,110</u>
Supplemental disclosure of cash flow information:			
Interest paid, net of capitalization	\$ 39,927	\$ 35,305	\$ 34,787
Income taxes paid (refunded)	2,479	27,350	14,780

See Notes to Consolidated Financial Statements

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 19 for additional information.

The accompanying consolidated financial statements represent the respective, consolidated 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 regulated natural gas distribution activities are reported in the natural gas distribution (NGD) 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 activities, water businesses, and other investments 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). All prior period amounts have been retrospectively adjusted to reflect this change both in operational results and reportable segments for NW Holdings and NW Natural, respectively. 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. See Note 19 for additional information.

NW Holdings' direct and indirect wholly-owned subsidiaries as of the filing date of this report 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;
 - NW Natural Water of Oregon, LLC (NWN Water of Oregon);
 - Sunstone Water, LLC;
 - Sunstone Infrastructure, LLC;
 - Sunriver Water, LLC (Sunriver Water);
 - Sunriver Environmental, LLC (Sunriver Environmental);
- NW Natural Water of Washington, LLC (NWN Water of Washington);
 - Cascadia Water, LLC (Cascadia Water);
 - Cascadia Infrastructure, LLC;
 - Suncadia Water Company, LLC (Suncadia Water);
 - Suncadia Environmental Company, LLC (Suncadia Environmental);
- NW Natural Water of Idaho, LLC (NWN Water of Idaho);
 - Gem State Water Company, LLC (Gem State Water);
 - Gem State Infrastructure, LLC; and
- NW Natural Water of Texas, LLC (NWN Water of Texas);
 - Blue Topaz Water, LLC; and
 - Blue Topaz Infrastructure, LLC.

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 NNG Financial's investment in Kelso-Beaver Pipeline and NWN Energy's investment in Trail West Holdings, LLC (TWH), which are 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. We received regulatory approval for the sale in December 2019. 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 19 for additional information. Additionally, we reevaluated reportable segments and concluded that the remaining gas storage activities no longer met the requirements to be separately reported as a segment. Interstate Storage Services is now reported in Other under NW Natural and NW Holdings as applicable, 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.

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 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 of NW Holdings' subsidiaries own water businesses, which are regulated by the public utility commission in the state in which the water utility is located, which is currently Oregon, Washington and Idaho. 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, NW Holdings and NW Natural capitalize or defer certain costs and revenues as regulatory assets and liabilities pursuant to orders of the applicable state public utility commission, 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.

Amounts NW Natural deferred as regulatory assets and liabilities were as follows:

<i>In thousands</i>	Regulatory Assets	
	2019	2018
Current:		
Unrealized loss on derivatives ⁽¹⁾	\$ 2,000	\$ 12,381
Gas costs	20,140	2,873
Environmental costs ⁽²⁾	4,762	5,601
Decoupling ⁽³⁾	1,969	9,140
Pension balancing ⁽⁴⁾	5,939	—
Income taxes	2,209	2,218
Other ⁽⁵⁾	4,910	9,717
Total current	\$ 41,929	\$ 41,930
Non-current:		
Unrealized loss on derivatives ⁽¹⁾	\$ 609	\$ 3,025
Pension balancing ⁽⁴⁾	48,251	74,173
Income taxes	17,173	19,185
Pension and other postretirement benefit liabilities	173,262	174,993
Environmental costs ⁽²⁾	87,624	76,149
Gas costs	2,866	9,978
Decoupling ⁽³⁾	—	2,545
Other ⁽⁵⁾	13,361	11,738
Total non-current	\$ 343,146	\$ 371,786

<i>In thousands</i>	Regulatory Liabilities	
	2019	2018
Current:		
Gas costs	\$ 1,223	\$ 17,182
Unrealized gain on derivatives ⁽¹⁾	6,622	8,740
Decoupling ⁽³⁾	4,831	2,264
Income taxes ⁽⁶⁾	8,435	—
Other ⁽⁵⁾	23,546	19,250
Total current	\$ 44,657	\$ 47,436
Non-current:		
Gas costs	\$ 2,013	\$ 552
Unrealized gain on derivatives ⁽¹⁾	3,337	725
Decoupling ⁽³⁾	6,378	—
Income taxes ⁽⁶⁾	198,219	225,408
Accrued asset removal costs ⁽⁷⁾	401,893	380,464
Other ⁽⁵⁾	13,877	4,411
Total non-current	\$ 625,717	\$ 611,560

⁽¹⁾ Unrealized gains or losses on derivatives are non-cash items and, therefore, do not earn a rate of return or a 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 the Environmental Cost Deferral and Recovery table in Note 18 for a description of environmental costs.

⁽³⁾ This deferral represents the margin adjustment resulting from differences between actual and expected volumes.

⁽⁴⁾ Refer to Note 10 for information regarding the deferral of pension expenses.

⁽⁵⁾ Balances consist of deferrals and amortizations under approved regulatory mechanisms and typically earn a rate of return or carrying charge.

⁽⁶⁾ This balance represents estimated amounts associated with the Tax Cuts and Jobs Act. See Note 11.

⁽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, 2019 are prudent. All regulatory assets and liabilities are reviewed annually for recoverability, or more often if circumstances warrant. If we should determine 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.

Regulatory interest income of \$19.6 million and \$7.6 million and regulatory interest expense of \$12.3 million and \$5.9 million was recognized within other income (expense), net for the years ended December 31, 2019 and 2018, respectively.

Environmental Regulatory Accounting

See Note 18 for information about the SRRM and OPUC orders regarding implementation.

New Accounting Standards

NW Natural and NW Holdings 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 consolidated financial position or results of operations.

Recently Adopted Accounting Pronouncements

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 Tax Cuts and Jobs Act (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 but do not require 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. NW Natural adopted and applied the standard in the first quarter of 2019. NW Natural elected to reclassify the stranded tax effects of the TCJA of \$1.4 million from accumulated other comprehensive loss to retained earnings in the period of adoption. Going forward, our policy is that, in the event that regulation changes result in stranded tax effects, such amounts will be reclassified from accumulated other comprehensive income (loss) to retained earnings in the final period that the related deferred tax balance remeasurement is expected to impact income from continuing operations.

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 were effective beginning January 1, 2019 and were applied prospectively to hedging instruments. The adoption did not have an impact on the financial statements or disclosures of NW Holdings or NW Natural.

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

LEASES. On February 25, 2016, the FASB issued ASU 2016-02, "Leases," which revises the existing lease accounting guidance. Pursuant to the new standard ("ASC 842"), lessees are 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 our leasing activities.

We elected the alternative prospective transition approach for adoption 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"). There was no cumulative effect adjustment to the opening balance of retained earnings recorded as of January 1, 2019 for adoption as there were no initial direct costs or other capitalized costs related to the legacy leases that needed to be derecognized upon adoption of ASC 842.

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 ASC 840 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; 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.

In October 2017, NW Natural entered into a 20-year operating lease agreement commencing in 2020 for a new corporate operations center location in Portland, Oregon. The lease was analyzed under ASC 840 in consideration of build-to-suit lease accounting guidance with the conclusion that NW Natural was the owner of the asset during construction for accounting purposes. Under the new lease standard, ASC 842, NW Natural is no longer considered the owner of the asset during construction for accounting purposes. As such, in January 2019 we derecognized the build-to-suit asset and liability balances of \$26.0 million as of December 31, 2018 that were previously recorded within property, plant and equipment and other non-current liabilities in the consolidated balance sheet.

Upon adoption on January 1, 2019, NW Holdings recorded an operating lease right of use asset and an associated operating lease liability of approximately \$7.3 million, of which \$7.0 million was recorded at NW Natural. Lease liabilities are measured using NW Natural's incremental borrowing rate based on information available at the lease commencement date in determining the present value of lease payments. As of December 31, 2019, our lessee portfolio under the new standard consists primarily of our current leased corporate operations center, which expires in 2020. Our lessor portfolio primarily consists of our North Mist Facility which classified as a sales-type lease. See Note 7 for more information.

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 for us beginning January 1, 2020. Early adoption is permitted, and NW Holdings and NW Natural early adopted ASU 2018-15 in the quarter ended March 31, 2019 utilizing the prospective application methodology. The adoption of this ASU did not materially affect the financial statements and disclosures of NW Holdings or NW Natural.

Recently Issued Accounting Pronouncements

INCOME TAXES. On December 18, 2019, the FASB issued ASU 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes." The purpose of the amendment is to reduce cost and complexity related to accounting for income taxes by removing certain exceptions to the general principles and improving consistent application for other areas in Topic 740. The amendments in this update are effective for us beginning January 1, 2021. Early adoption is permitted. The amended presentation and disclosure guidance should be applied retrospectively. We do not expect this ASU to materially affect the financial statements and disclosures of NW Holdings or NW Natural.

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 defined benefit pension and other postretirement plans. The amendments in this update are effective for us beginning January 1, 2020. Early adoption is permitted. The amended presentation and disclosure guidance should be applied retrospectively. We do not expect this ASU to materially affect the financial statements and disclosures of NW Holdings or NW Natural.

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 for us 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. NW Holdings and NW Natural do not have either Level 3 fair value measurements or transfers between Level 1 or Level 2 in their current portfolios, and therefore, we do not expect this ASU to have an impact on the financial statements and disclosures of NW Holdings or NW Natural.

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. The majority of NW Holdings' and NW Natural's financial assets are short-term in nature, such as trade receivables, and therefore, we do not expect this ASU to materially affect our financial statements and disclosures.

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 2.9% for 2019, and 2.8% for 2018, and 2017, reflecting the approximate weighted-average economic life of the property. This includes 2019 weighted-average depreciation rates for the following asset categories: 2.6% for transmission and distribution plant, 2.2% for gas storage facilities, 5.7% for general plant, and 4.7% 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 3.9% in 2019, 5.2% in 2018, and 5.5% in 2017.

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 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 19 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, 2019 and 2018, NW Holdings had outstanding checks of approximately \$3.2 million and \$2.7 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, 2019 and 2018 was \$56.2 million and \$57.8 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 \$30.3 million, \$30.1 million, and \$19.1 million for 2019, 2018, and 2017, 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 customers, are stated at the lower of weighted-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 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 \$27.5 million and \$29.9 million at 2019 and 2018, respectively. At December 31, 2019 and 2018, NW Holdings' materials and supplies inventories, which are comprised primarily of NW Natural's materials and supplies, totaled \$16.5 million and \$14.2 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 terms 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 13.

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 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 each of the PGA years in Oregon beginning November 1, 2019, 2018, and 2017, NW Natural selected the 90% deferral of gas cost differences. In Washington, 100% of the differences between the PGA prices and actual gas costs are deferred. See Note 16.

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 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.

In addition, the fair value for certain pension trust investments is determined using Net Asset Value per share (NAV) as a practical expedient, and therefore they are not classified within the fair value hierarchy. These investments primarily consist of institutional investment products.

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 and Business Combinations

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.

As of December 31, 2019 and 2018, NW Holdings had goodwill of \$49.9 million and \$9.0 million, respectively. All of NW Holdings' goodwill was acquired in 2018 and 2019 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.

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at fair value at the acquisition date, and the fair value of any non-controlling interest in the acquiree. Acquisition-related costs are expensed as incurred. When NW Natural acquires a business, it assesses the financial assets acquired and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic circumstances and pertinent conditions as of the acquisition date. When there is substantial judgment or uncertainty around the fair value of acquired assets, we may engage a third party expert to assist in determining the fair values of certain assets or liabilities.

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.

NW Holdings files consolidated or combined income tax returns that include NW Natural. Income tax expense is allocated on a separate company basis incorporating certain consolidated return considerations. Subsidiary income taxes payable or receivable are generally settled with NW Holdings, the common agent for income tax matters.

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 11.

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 18.

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. Refer to Note 20 for our subsequent events.

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 using 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. Anti-dilutive 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:

<i>In thousands, except per share data</i>	2019	2018	2017
Net income from continuing operations	\$ 65,311	\$ 67,311	\$ 72,073
Loss from discontinued operations, net of tax	(3,576)	(2,742)	(127,696)
Net income (loss)	\$ 61,735	\$ 64,569	\$ (55,623)
Average common shares outstanding - basic	29,786	28,803	28,669
Additional shares for stock-based compensation plans (See Note 8)	73	70	84
Average common shares outstanding - diluted	29,859	28,873	28,753
Earnings from continuing operations per share of common stock:			
Basic	\$ 2.19	\$ 2.34	\$ 2.51
Diluted	2.19	2.33	2.51
Loss from discontinued operations per share of common stock:			
Basic	\$ (0.12)	\$ (0.10)	\$ (4.45)
Diluted	(0.12)	(0.09)	(4.44)
Earnings (loss) per share of common stock:			
Basic	\$ 2.07	\$ 2.24	\$ (1.94)
Diluted	2.07	2.24	(1.93)
Additional information:			
Anti-dilutive shares	—	2	13

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 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. 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 the NGD segment, 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

NW Natural's local gas distribution segment (NGD) 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. The NGD business 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 the NGD business 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.

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's activities in Other include 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. Under the Oregon sharing mechanism, NW Natural retains 80% of the pre-tax income from these services when the costs of the capacity were not included in NGD rates, or 10% of the pre-tax income when the costs have been included in these rates. The remaining 20% and 90%, respectively, are recorded to a deferred regulatory account for crediting back to NGD customers.

NW Holdings

NW Holdings' activities in Other include all remaining activities not associated with NW Natural, specifically NWN Water, which consolidates the water and wastewater utility operations and is pursuing other investments in the water sector through itself and 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 14. Other also includes corporate revenues and expenses that cannot be allocated to other operations, including certain business development activities.

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 segment and other for continuing operations. See Note 19 for information regarding discontinued operations for NW Holdings and NW Natural.

<i>In thousands</i>	NGD	Other (NW Natural)	NW Natural	Other (NW Holdings)	NW Holdings
2019					
Operating revenues	\$ 720,528	\$ 19,416	\$ 739,944	\$ 6,428	\$ 746,372
Depreciation and amortization	89,415	990	90,405	1,091	91,496
Income (loss) from operations	135,918	11,428	147,346	(3,872)	143,474
Net income (loss) from continuing operations	60,828	8,146	68,974	(3,663)	65,311
Capital expenditures	219,880	1,500	221,380	2,091	223,471
Total assets at December 31, 2019 ⁽¹⁾	3,273,835	47,652	3,321,487	91,833	3,413,320
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 ⁽¹⁾	3,141,969	50,767	3,192,736	36,657	3,229,393
2017					
Operating revenues	\$ 732,942	\$ 22,096	\$ 755,038	\$ —	\$ 755,038
Depreciation and amortization	79,734	1,290	81,024	29	81,053
Income (loss) from operations ⁽²⁾	138,450	12,472	150,922	(20)	150,902
Net income from continuing operations	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 ⁽¹⁾	2,961,326	50,471	3,011,797	14,075	3,025,872

⁽¹⁾Total assets for NW Holdings exclude assets related to discontinued operations of \$15.1 million, \$13.3 million and \$13.9 million as of December 31, 2019, 2018, and 2017, respectively. Total assets for NW Natural exclude assets related to discontinued operations of \$31.9 million as of December 31, 2017.

⁽²⁾ 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.

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 remediation expense, 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 remediation expense represents collections received from customers through environmental recovery mechanisms in Oregon and Washington as well as adjustments for the Oregon environmental earnings test when applicable. This is offset by environmental remediation expense presented 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:

<i>In thousands</i>	2019	2018	2017
NGD margin calculation:			
NGD operating revenues	\$ 720,528	\$ 680,648	\$ 732,942
Less: NGD cost of gas	255,135	255,743	325,019
Environmental remediation expense	12,337	11,127	15,291
Revenue taxes ⁽¹⁾	30,325	30,082	—
NGD margin	<u>\$ 422,731</u>	<u>\$ 383,696</u>	<u>\$ 392,632</u>

⁽¹⁾ The change in presentation of revenue taxes was a result of the adoption of ASU 2014-09 "Revenue From 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 of December 31, 2019 and 2018, NW Holdings had 100 million shares of common stock authorized. As of December 31, 2019, NW Holdings had 206,560 shares reserved for issuance of common stock under the Employee Stock Purchase Plan (ESPP) and 340,133 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 10,938 options outstanding at December 31, 2019, which were granted prior to termination of the plan.

On June 7, 2019, NW Holdings completed the issuance of 1,437,500 shares of common stock, inclusive of the overallotment option granted to the underwriters, which was exercised in full. All shares were issued on June 7, 2019 at an offering price of \$67.00 per share. The issuance resulted in proceeds to NW Holdings of \$93.0 million, net of discounts and expenses. The issuance was executed to raise funds for general corporate purposes, including for equity contributions to NW Holdings' subsidiaries, that are reflected as equity transfers on occurrence. Contributions received by NW Natural were also used, in part, to repay short-term indebtedness.

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 2022 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, 2019. 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.

The following table summarizes the changes in the number of shares of NW Holdings' common stock issued and outstanding:

<i>In thousands</i>	Shares
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
Sales to employees under ESPP	18
Stock-based compensation	83
Equity Issuance	1,438
Sales to shareholders under DRPP	53
Balance, December 31, 2019	30,472

6. REVENUE

The following table presents disaggregated revenue from continuing operations:

<i>In thousands</i>	Year ended December 31, 2019				
	NGD	Other (NW Natural)	NW Natural	Other (NW Holdings)	NW Holdings
Natural gas sales	\$ 729,296	\$ —	\$ 729,296	\$ —	\$ 729,296
Gas storage revenue, net	—	10,240	10,240	—	10,240
Asset management revenue, net	—	3,705	3,705	—	3,705
Appliance retail center revenue	—	5,471	5,471	—	5,471
Other revenue	847	—	847	6,428	7,275
Revenue from contracts with customers	730,143	19,416	749,559	6,428	755,987
Alternative revenue	(20,984)	—	(20,984)	—	(20,984)
Leasing revenue	11,369	—	11,369	—	11,369
Total operating revenues	\$ 720,528	\$ 19,416	\$ 739,944	\$ 6,428	\$ 746,372

<i>In thousands</i>	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 contains 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 by 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 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, 2019.

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 revenues from NW Natural's North Mist Storage contract with Portland General Electric (PGE) in support of PGE's 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 facility is accounted for as a sales-type lease with regulatory accounting deferral treatment. The investment is included in rate base under an established cost-of-service tariff schedule, with revenues recognized according to the tariff schedule and as such, profit upon commencement was deferred and will be amortized over the lease term. Leasing revenue also contains rental revenue from small leases of property owned by NW Natural to third parties. The majority of these transactions are accounted for as operating leases and the revenue is recognized over the term of the lease agreement. Lease revenue is excluded from revenue from contracts with customers. See Note 7.

NW Natural Other

Gas storage revenue. NW Natural's other revenue includes gas storage activity, which includes Mist 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 regulatory sharing amount refunded to NGD customers.

Asset management revenue. Revenues include the optimization of the storage assets and pipeline capacity and are provided net of the profit sharing amount refunded to NGD customers. Certain asset management revenues received are 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. Additionally, other asset management revenues may be based on a fixed rate. Generally, asset management accounts are settled on a monthly basis.

As of December 31, 2019, unrecognized revenue for the fixed component of the transaction price related to gas storage and asset management revenue was approximately \$73.4 million. Of this amount, approximately \$16.0 million will be recognized in 2020, \$18.2 million in 2021, \$14.5 million in 2022, \$11.6 million in 2023, \$7.8 million in 2024, and \$5.3 million thereafter. The amounts presented here are calculated using current contracted rates.

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 and wastewater services to customers. Water distribution and wastewater collection revenue is generally recognized over time upon delivery of the water commodity or wastewater collection service to the customer, and the amount of consideration received and recognized as revenue is dependent on the water customer rates set by the applicable state public utility commission and contractual rates for wastewater customers. 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 and wastewater collection 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, 2019.

7. LEASES

Lease Revenue

Leasing revenue primarily consists of NW Natural's North Mist natural gas storage agreement with PGE which is billed under an OPUC-approved rate schedule and includes an initial 30-year term with options to extend, totaling up to an additional 50 years upon mutual agreement of the parties. Under U.S. GAAP, this agreement is classified as a sales-type lease and qualifies for regulatory accounting deferral treatment. The investment in the storage facility is included in rate base under a separately established cost-of-service tariff, with revenues recognized according to the tariff schedule. As such, the selling profit that was calculated upon commencement as part of the sale-type lease recognition was deferred and will be amortized over the lease term. Billing rates under the cost-of-service tariff will be updated annually to reflect current information including depreciable asset levels, forecasted operating expenses, and the results of regulatory proceedings, as applicable, and revenue received under this agreement is recognized as operating revenue on the consolidated statements of comprehensive income. There are no variable payments or residual value guarantees. The lease does not contain an option to purchase the underlying assets.

NW Natural also maintains a sales-type lease for specialized compressor facilities to provide high pressure compressed natural gas (CNG) services. Lease payments are outlined in an OPUC-approved rate schedule over a 10-year term. There are no variable payments or residual value guarantees. The selling profit computed upon lease commencement was not significant.

Our lessor portfolio also contains small leases of property owned by NW Natural to third parties. These transactions are accounted for as operating leases and the revenue is recognized over the term of the lease agreement.

The components of lease revenue at NW Natural were as follows:

In thousands	Year ended December 31, 2019
Lease revenue	
Operating leases	\$ 171
Sales-type leases	11,198
Total lease revenue	\$ 11,369

Total future minimum lease payments to be received under non-cancelable leases at NW Natural at December 31, 2019 are as follows:

In thousands	Operating	Sales-Type	Total
2020	\$ 65	\$ 18,228	\$ 18,293
2021	49	17,518	17,567
2022	45	17,026	17,071
2023	45	16,557	16,602
2024	45	15,867	15,912
Thereafter	93	264,740	264,833
Total lease revenue	\$ 342	\$ 349,936	\$ 350,278
Less: imputed interest		202,319	
Total leases receivable		\$ 147,617	

The total leases receivable above is reported under the NGD segment and the short- and long-term portions are included within other current assets and assets under sales-type leases on the consolidated balance sheets, respectively. The total amount of unguaranteed residual assets at December 31, 2019 was \$4.0 million and is included in assets under sales-type leases on the consolidated balance sheets. Additionally, under regulatory accounting, the revenues and expenses associated with these agreements are presented on the consolidated statements of comprehensive income such that their presentation aligns with similar regulated activities at NW Natural.

Additionally, future minimum lease payments of \$0.5 million for each of the years ending 2020, 2021 and 2022 are to be received under non-cancelable operating leases associated with non-utility property rentals. For the year ended December 31, 2019, approximately \$0.5 million of lease revenue is presented in other income (expense), net on the consolidated statements of comprehensive income as it is non-operating income.

Lease Expense

Operating Leases

We have operating leases for land, buildings and equipment. Our primary lease is for NW Natural's operations center. Our leases have remaining lease terms of one year to 11 years. Many of our lease agreements include options to extend the lease, which we do not include in our minimum lease terms unless they are reasonably certain to be exercised. Short-term leases with a term of 12 months or less are not recorded on the balance sheet.

As most of our leases do not provide an implicit rate and are entered into by NW Natural, we use NW Natural's incremental borrowing rate based on information available at the lease commencement date in determining the present value of lease payments.

The components of lease expense, a portion of which is capitalized, were as follows:

<i>In thousands</i>	Year ended December 31, 2019		
	NW Natural	Other (NW Holdings)	NW Holdings
Operating lease expense	\$ 4,620	\$ 191	\$ 4,811
Short-term lease expense	1,146	—	1,146

Supplemental balance sheet information related to operating leases as of December 31, 2019 is as follows:

<i>In thousands</i>	NW Natural	Other (NW Holdings)	NW Holdings
Operating lease right of use assets	\$ 2,760	\$ 190	\$ 2,950
Operating lease liabilities - current liabilities	\$ 1,979	\$ 122	\$ 2,101
Operating lease liabilities - non-current liabilities	772	69	841
Total operating lease liabilities	\$ 2,751	\$ 191	\$ 2,942

As of December 31, 2019, the weighted average remaining lease term for the operating leases is one year for NW Natural. The weighted average discount rate used in the valuation of the operating lease right of use assets over the remaining lease term is 3.98% for NW Natural.

Maturities of operating lease liabilities at December 31, 2019 were as follows:

In thousands	NW Natural	Other (NW Holdings)	NW Holdings
2020	\$ 2,029	\$ 126	\$ 2,155
2021	143	52	195
2022	111	18	129
2023	88	—	88
2024	89	—	89
Thereafter	526	—	526
Total lease payments	2,986	196	3,182
Less: imputed interest	235	5	240
Total lease obligations	2,751	191	2,942
Less: current obligations	1,979	122	2,101
Long-term lease obligations	\$ 772	\$ 69	\$ 841

As of December 31, 2019, finance lease liabilities with maturities of less than one year were \$0.2 million at NW Natural.

Significant Lease Not Yet Commenced

In October 2017, NW Natural entered into a 20-year operating lease agreement for a new corporate operations center in Portland, Oregon in anticipation of the expiration of the current operations center lease in 2020. The lease commenced in the first quarter of 2020 and total estimated base rent payments over the life of the lease are approximately \$160 million. There is an option to extend the term of the lease for two additional periods of seven years.

Cash Flow Information

Supplemental cash flow information related to leases was as follows:

	Year ended December 31, 2019		
	NW Natural	Other (NW Holdings)	NW Holdings
Cash paid for amounts included in the measurement of lease liabilities			
Operating cash flows from operating leases	\$ 4,447	\$ 182	\$ 4,629
Finance cash flows from finance leases	120	—	120
Right of use assets obtained in exchange for lease obligations			
Operating leases	\$ 7,205	\$ 372	\$ 7,577
Finance leases	312	—	312

Finance Leases

NW Natural also leases building storage spaces for use as a gas meter room in order to provide natural gas to multifamily or mixed use developments. These contracts are accounted for as finance leases and typically involve a one-time upfront payment with no remaining liability. The right of use asset for finance leases was \$0.5 million at December 31, 2019.

Lease Disclosures Related to Periods Prior to the First Quarter of 2019

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 corporate operations center and underground gas storage facilities.

<i>In thousands</i>	Minimum lease payments
2019	\$ 5,368
2020	4,812
2021	7,077
2022	7,223
2023	7,304
Thereafter	149,881
Total	<u>\$ 181,665</u>

8. STOCK-BASED COMPENSATION

Stock-based compensation plans are designed to promote stock ownership in NW Holdings by employees and officers of NW Holdings and its affiliates. 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, 2019. 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, 2019, there were 510,931 shares available for issuance under any type of award. This 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, 2019 or 2018. 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

LTIP performance shares incorporate a combination of market, performance, and service-based factors. The following table summarizes performance share expense information:

<i>Dollars in thousands</i>	Shares ⁽¹⁾	Expense During Award Year ⁽²⁾	Total Expense for Award
Estimated award:			
2017-2019 grant ⁽³⁾	41,573	\$ 572	\$ 1,971
Actual award:			
2016-2018 grant	28,218	598	1,413
2015-2017 grant	18,304	(346)	1,169

⁽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 that had been previously recognized was reversed during 2017.

⁽³⁾ This represents the estimated number of shares to be awarded as of December 31, 2019 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 2020.

The aggregate number of performance shares granted and outstanding at the target and maximum levels were as follows:

<i>Dollars in thousands</i>	Performance Share Awards Outstanding		2019 Expense	Cumulative Expense December 31, 2019
	Target	Maximum		
Performance Period				
2017-19	30,234	60,468	\$ 572	\$ 1,971
2018-20	—	—	—	—
2019-21	—	—	—	—
Total	<u>30,234</u>	<u>60,468</u>	<u>\$ 572</u>	

For the 2017-2019 performance period, performance share awards are based on the achievement of EPS and Return on Invested Capital (ROIC) factors, which can be modified by a Total Shareholder Return (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. For the 2018-2020 and 2019-2021 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 and 2019-2021 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 and 2021, there is not a mutual understanding of the awards' key terms and conditions between NW Natural and the participants as of December 31, 2019, and therefore, no expense was recognized for the 2018-2020 and 2019-2021 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 is achieved for the 2018-2020 and 2019-2021 awards, NW Holdings would grant 31,825 and 35,170 shares in the first quarter of 2020 and 2021, respectively.

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. Due to there not being a mutual understanding of the 2018-2020 and 2019-2021 awards' key terms and conditions as noted above, the grant date fair value has not yet been determined and no nonvested shares existed at December 31, 2019. The weighted-average grant date fair value of nonvested shares associated with the 2017-2019 awards was \$57.05 per share at December 31, 2018. The weighted-average grant date fair value of shares vested during the year was \$57.05 per share and there were no performance shares granted during the year and no unrecognized compensation expense for accounting purposes as of December 31, 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 2019, total RSU expense was \$1.8 million compared to \$1.8 million in 2018 and \$1.6 million in 2017. As of December 31, 2019, there was \$3.4 million of unrecognized compensation cost from grants of RSUs, which is expected to be recognized over a period extending through 2024.

Information regarding the RSU activity is summarized as follows:

	Number of RSUs	Weighted - Average Price Per RSU
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
Granted	36,018	65.29
Vested	(35,778)	54.22
Forfeited	(3,187)	63.89
Nonvested, December 31, 2019	79,733	\$ 61.17

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 and exercisable, 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
Forfeited	(300)	43.29	n/a
Balance outstanding and exercisable, December 31, 2018	55,938	44.96	0.9
Exercised	(45,000)	44.79	1.0
Expired	—	—	n/a
Balance outstanding and exercisable, December 31, 2019	10,938	\$ 45.67	\$ 0.3

During 2019, cash of \$2.0 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, 2019 was 1.12 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. For the 2019-2020 ESPP period, each eligible employee may purchase up to \$21,222 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:

<i>In thousands</i>	2019	2018	2017
Operations and maintenance expense, for stock-based compensation	\$ 2,172	\$ 2,489	\$ 2,354
Income tax benefit	(575)	(659)	(930)
Net stock-based compensation effect on net income (loss)	1,597	1,830	1,424
Amounts capitalized for stock-based compensation	\$ 430	\$ 531	\$ 528

9. 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, its multi-year credit facilities, and short-term credit facilities it may enter into from time to time. 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, 2019 and 2018, NW Holdings had short-term debt outstanding of \$149.1 million and \$217.6 million, respectively. The weighted average interest rate of NW Holdings' short-term debt outstanding at December 31, 2019 and 2018 was 2.0% and 3.0%, respectively. At December 31, 2019 and 2018, NW Natural had \$125.1 million and \$217.5 million of commercial paper outstanding, respectively. The weighted average interest rate of commercial paper outstanding at December 31, 2019 and 2018 was 2.0% and 3.0%, respectively.

The carrying cost of commercial paper approximates fair value using Level 2 inputs. See Note 2 for a description of the fair value hierarchy. At December 31, 2019, NW Natural's commercial paper had a maximum remaining maturity of 22 days and an average remaining maturity of 10 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, 2019 and 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 was a \$24.0 million outstanding balance and no outstanding balances under the NW Holdings agreement at December 31, 2019 and 2018, respectively. No letters of credit were issued or outstanding under the NW Holdings agreement at December 31, 2019 and 2018. NW Holdings had \$1.0 million and \$2.8 million of letters of credit issued and outstanding in support of acquisitions of water companies, separate from the aforementioned credit agreement, at December 31, 2019 and 2018, respectively.

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, 2019 and 2018.

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, 2019 and 2018.

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 loans under the new credit agreement when ratings are changed.

Long-Term Debt

NW Holdings

At December 31, 2019 and 2018, NW Holdings had long-term debt outstanding of \$881.1 million and \$736.2 million, respectively; which included \$5.7 million and \$5.6 million of unamortized debt issuance costs at NW Natural, respectively. NW Holdings' long-term debt is primarily comprised of debt held at its wholly-owned subsidiaries NW Natural (shown below) and NWN Water. Long-term debt at NWN Water is primarily comprised of a two-year term loan agreement for \$35.0 million, due in 2021. NWN Water entered into this agreement in June 2019 and the loan carried an interest rate of 2.35% at December 31, 2019, which is based upon the one-month LIBOR rate. The loan is guaranteed by NW Holdings and 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, 2019, with a consolidated indebtedness to total capitalization ratio of 54.3%.

NW Natural

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, 2024 and thereafter are as follows:

<i>In thousands</i>	Long-term debt maturities
2020	\$ 75,000
2021	60,000
2022	—
2023	90,000
2024	—
Thereafter	624,700

The following table presents debt outstanding as of December 31:

<i>In thousands</i>	2019	2018
NW Natural		
First Mortgage Bonds:		
8.310% Series due 2019	\$ —	\$ 10,000
7.630% Series due 2019	—	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
3.141% Series due 2029	50,000	—
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
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	50,000
3.869% Series due 2049	90,000	—

Long-term debt, gross	849,700	739,700
Less: current maturities	75,000	30,000
Total long-term debt	<u>\$ 774,700</u>	<u>\$ 709,700</u>

First Mortgage Bonds

In June 2019, NW Natural issued \$140.0 million of FMBs consisting of \$50.0 million with an interest rate of 3.141%, due in 2029, and \$90.0 million with an interest rate of 3.869%, due in 2049.

In September 2018, NW Natural issued \$50.0 million of FMBs with an interest rate of 4.110%, due in 2048.

Retirements of Long-Term Debt

In September 2019, NW Natural retired \$10.0 million of FMBs with an interest rate of 8.310%, and retired \$20.0 million of FMBs with an interest rate of 7.630% in December 2019.

In March 2018, NW Natural retired \$22.0 million of FMBs with an interest rate of 6.600%, and retired \$75.0 million of FMBs with an interest rate of 1.545% in December 2018.

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 Holdings' long-term debt, including current maturities of long-term debt, using market prices in effect on the valuation date:

<i>In thousands</i>	December 31,	
	2019	2018
Gross long-term debt	\$ 886,776	\$ 741,813
Unamortized debt issuance costs	(5,712)	(5,577)
Carrying amount	\$ 881,064	\$ 736,236
Estimated fair value	\$ 957,268	\$ 762,335

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:

<i>In thousands</i>	December 31,	
	2019	2018
Gross long-term debt	\$ 849,700	\$ 739,700
Unamortized debt issuance costs	(5,712)	(5,577)
Carrying amount	\$ 843,988	\$ 734,123
Estimated fair value	\$ 919,835	\$ 760,222

10. PENSION AND OTHER POSTRETIREMENT BENEFIT COSTS

NW Natural maintains a qualified non-contributory defined benefit pension plan (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 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:

<i>In thousands</i>	Postretirement Benefit Plans			
	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
Reconciliation of change in benefit obligation:				
Obligation at January 1	\$ 455,568	\$ 486,289	\$ 28,172	\$ 28,927
Service cost	6,308	7,185	244	282
Interest cost	18,683	16,991	1,117	964
Net actuarial (gain) loss	58,269	(32,979)	1,809	(327)
Benefits paid	(23,160)	(21,918)	(1,774)	(1,674)
Obligation at December 31	<u>\$ 515,668</u>	<u>\$ 455,568</u>	<u>\$ 29,568</u>	<u>\$ 28,172</u>
Reconciliation of change in plan assets:				
Fair value of plan assets at January 1	\$ 257,797	\$ 287,925	\$ —	\$ —
Actual return on plan assets	65,104	(25,925)	—	—
Employer contributions	13,310	17,715	1,774	1,674
Benefits paid	(23,160)	(21,918)	(1,774)	(1,674)
Fair value of plan assets at December 31	<u>\$ 313,051</u>	<u>\$ 257,797</u>	<u>\$ —</u>	<u>\$ —</u>
Funded status at December 31	<u>\$ (202,617)</u>	<u>\$ (197,771)</u>	<u>\$ (29,568)</u>	<u>\$ (28,172)</u>

NW Natural's Pension Plan had a projected benefit obligation of \$477.3 million and \$420.2 million at December 31, 2019 and 2018, respectively, and fair values of plan assets of \$313.1 million and \$257.8 million, respectively. The plan had an accumulated benefit obligation of \$434.9 million and \$385.9 million at December 31, 2019 and 2018, respectively.

The following table presents amounts realized through regulatory assets or in other comprehensive loss (income) for the years ended December 31:

<i>In thousands</i>	Regulatory Assets						Other Comprehensive Loss (Income)			
	Pension Benefits			Other Postretirement Benefits			Pension Benefits			
	2019	2018	2017	2019	2018	2017	2019	2018	2017	
Net actuarial loss (gain)	\$ 10,424	\$ 14,261	\$ 12,177	\$ 1,809	\$ (327)	\$ (214)	\$ 3,595	\$ (677)	\$ 2,777	
Amortization of:										
Prior service cost	(7)	(42)	(127)	468	468	468	—	—	—	
Actuarial loss	(14,057)	(18,761)	(14,802)	(369)	(448)	(696)	(648)	(1,052)	(946)	
Total	<u>\$ (3,640)</u>	<u>\$ (4,542)</u>	<u>\$ (2,752)</u>	<u>\$ 1,908</u>	<u>\$ (307)</u>	<u>\$ (442)</u>	<u>\$ 2,947</u>	<u>\$ (1,729)</u>	<u>\$ 1,831</u>	

The following table presents amounts recognized in regulatory assets and accumulated other comprehensive loss (AOCL) at December 31:

<i>In thousands</i>	Regulatory Assets				AOCL	
	Pension Benefits		Other Postretirement Benefits		Pension Benefits	
	2019	2018	2019	2018	2019	2018
Prior service cost (credit)	\$ —	\$ 7	\$ (1,270)	\$ (1,738)	\$ —	\$ —
Net actuarial loss	166,903	170,535	7,629	6,189	14,484	11,537
Total	<u>\$ 166,903</u>	<u>\$ 170,542</u>	<u>\$ 6,359</u>	<u>\$ 4,451</u>	<u>\$ 14,484</u>	<u>\$ 11,537</u>

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:

<i>In thousands</i>	Year Ended December 31,	
	2019	2018
Beginning balance	\$ (7,188)	\$ (8,438)
Amounts reclassified to AOCL	(3,611)	642
Amounts reclassified from AOCL:		
Amortization of actuarial losses	648	1,052
Reclassification of stranded tax effects ⁽¹⁾	(1,366)	—
Total reclassifications before tax	(4,329)	1,694
Tax expense (benefit)	784	(444)
Total reclassifications for the period	(3,545)	1,250
Ending balance	\$ (10,733)	\$ (7,188)

⁽¹⁾ Reclassification of \$1.4 million of income tax effects resulting from the TCJA from accumulated other comprehensive loss to retained earnings was made pursuant to the adoption of ASU 2018-02. See Note 2.

In 2020, NW Natural will amortize an estimated \$18.3 million from regulatory assets to net periodic benefit costs, consisting of \$18.8 million of actuarial losses offset by \$0.5 million of prior service credits. A total of \$0.9 million will be amortized from AOCL to earnings related to actuarial losses in 2020.

The assumed discount rates for NW Natural's Pension Plan and other postretirement benefit plans were 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 the 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 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 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 Pension Plan asset target allocation at December 31, 2019:

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 \$38.3 million and \$35.4 million at December 31, 2019 and 2018, 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:

<i>In thousands</i>	Pension Benefits			Other Postretirement Benefits		
	2019	2018	2017	2019	2018	2017
Service cost	\$ 6,308	\$ 7,185	\$ 7,090	\$ 244	\$ 282	\$ 341
Interest cost	18,684	16,991	18,111	1,116	964	1,141
Expected return on plan assets	(20,854)	(20,639)	(20,433)	—	—	—
Amortization of prior service costs	7	43	127	(468)	(468)	(468)
Amortization of net actuarial loss	14,704	19,813	15,748	368	448	696
Net periodic benefit cost	18,849	23,393	20,643	1,260	1,226	1,710
Amount allocated to construction	(2,493)	(2,764)	(6,597)	(86)	(98)	(587)
Amount deferred to regulatory balancing account	—	(10,314)	(6,542)	—	—	—
Net periodic benefit cost charged to expense	16,356	10,315	7,504	1,174	1,128	1,123
Regulatory pension disallowance	10,500	—	—	—	—	—
Amortization of regulatory balancing account	16,841	—	—	—	—	—
Net amount charged to expense	\$ 43,697	\$ 10,315	\$ 7,504	\$ 1,174	\$ 1,128	\$ 1,123

Net periodic benefit costs are reduced by amounts capitalized to NGD plant. In addition, a certain amount of net periodic benefit costs were recorded to the regulatory balancing account, representing net periodic pension expense for the Pension Plan above the amount set in rates, as approved by the OPUC, from 2011 through October 31, 2018.

In March 2019, the OPUC issued an order concluding the NW Natural 2018 Oregon rate case. The order allowed for the application of certain deferred revenues and tax benefits from the TCJA to reduce NW Natural's pension regulatory balancing account. A corresponding total of \$12.5 million in pension expenses were recognized in operating and maintenance expense and other income (expense), net in the consolidated statements of comprehensive income in the first quarter of 2019, with offsetting benefits recorded within operating revenues and income taxes. The order also directed NW Natural to reduce the balancing account by an additional \$10.5 million, of which \$3.9 million was charged to operations and maintenance expense and \$6.6 million was charged to other income (expense), net in the consolidated statements of comprehensive income. Amortization of the remaining amount of the balancing account began in the second quarter of 2019 in accordance with the order.

Total amortization of the regulatory balancing account of \$16.8 million in 2019, of which \$6.2 million was charged to operations and maintenance expense and \$10.6 million was charged to other income (expense), net. Total deferrals of the regulatory balancing account were \$10.3 million in 2018, of which \$2.4 million was deferred from operations and maintenance expense and \$7.9 million was deferred from other income (expense), net.

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		
	2019	2018	2017	2019	2018	2017
Assumptions for net periodic benefit cost:						
Weighted-average discount rate	4.19%	3.51%	3.99%	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
Assumptions for year-end funded status:						
Weighted-average discount rate	3.16%	4.20%	3.52%	3.11%	4.13%	3.44%
Rate of increase in compensation ⁽¹⁾	3.50-6.50%	3.25-4.5%	3.25-4.5%	n/a	n/a	n/a
Expected long-term rate of return	7.25%	7.50%	7.50%	n/a	n/a	n/a

⁽¹⁾Rate assumption is 6.50% in 2020 and 3.50% thereafter. The 2020 compensation increase assumption was a result of the 2019 execution of a new collective bargaining agreement with unionized members of NW Natural effective December 1, 2019.

The assumed annual increase in health care cost trend rates used in measuring other postretirement benefits as of December 31, 2019 was 6.50%. 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 2026.

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:

<i>In thousands</i>	1% Increase	1% Decrease
Effect on net periodic postretirement health care benefit cost	\$ 49	\$ (44)
Effect on the accumulated postretirement benefit obligation	710	(640)

Mortality assumptions are reviewed annually and are updated for material changes as necessary. In 2019, mortality rate assumptions were updated from RP-2014 mortality tables using scale MP-2018 to Pri-2012 mortality tables using scale MP-2019, which partially offset increases of the projected benefit obligation.

The following table provides information regarding employer contributions and benefit payments for NW Natural's Pension Plan, non-qualified pension plans, and other postretirement benefit plans for the years ended December 31, and estimated future contributions and payments:

<i>In thousands</i>	Pension Benefits	Other Benefits
Employer Contributions:		
2018	\$ 17,715	\$ 1,674
2019	13,310	1,774
2020 (estimated)	31,338	1,756
Benefit Payments:		
2017	31,580	1,737
2018	21,918	1,674
2019	23,160	1,774
Estimated Future Benefit Payments:		
2020	23,412	1,756
2021	24,304	1,833
2022	25,094	1,848
2023	25,941	1,899
2024	26,757	1,903
2025-2029	148,000	8,945

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 July 2012, President Obama signed the Moving Ahead for Progress in the 21st Century Act

(MAP-21) into law, which changed several provisions affecting pension plans, including temporary funding relief and Pension Benefit Guaranty Corporation (PBGC) premium increases, which shifts the level of minimum required contributions from the short-term to the long-term as well as increasing the operational costs of running a pension plan. 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. MAP-21, as amended, provides for the current corridor to be in effect through 2020 and subsequently broaden on an annual basis from 2021 through 2024.

The Pension Plan was underfunded by \$164.3 million at December 31, 2019. NW Natural made cash contributions totaling \$11.0 million to its Pension Plan for 2019. During 2020, NW Natural expects to make contributions of approximately \$29.0 million to this plan.

Multiemployer Pension Plan

In addition to the NW Natural-sponsored Pension Plan 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). That 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 2019, and as of December 31, 2019 the liability balance was \$6.5 million. Contributions to the plan were \$0.6 million for each of 2018 and 2017, which was approximately 5% 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 \$7.0 million, \$6.5 million, and \$5.4 million for 2019, 2018, and 2017, 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 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:

Investments	December 31, 2019				
	Level 1	Level 2	Level 3	Non-Published NAV ⁽¹⁾	Total
US equity	\$ —	\$ —	\$ —	\$ 95,604	\$ 95,604
International / Global equity	33,168	—	—	74,337	107,505
Liability hedging	—	—	—	93,028	93,028
Opportunistic	—	—	—	9,864	9,864
Cash and cash equivalents	—	—	—	7,049	7,049
Total investments	\$ 33,168	\$ —	\$ —	\$ 279,882	\$ 313,050

Investments	December 31, 2018				
	Level 1	Level 2	Level 3	Non-Published NAV ⁽¹⁾	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,	
	2019	2018
Receivables:		
Accrued interest and dividend income	\$ 3,243	\$ 1
Due from broker for securities sold	—	—
Total receivables	3,243	1
Liabilities:		
Due to broker for securities purchased	3,242	—
Total investment in retirement trust	\$ 313,051	\$ 257,797

⁽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.

11. 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:

<i>Dollars in thousands</i>	NW Holdings			NW Natural		
	2019	2018	2017	2019	2018	2017
Income taxes at federal statutory rate	\$ 16,370	\$ 19,222	\$ 39,578	\$ 17,438	\$ 19,434	\$ 39,624
Increase (decrease):						
State income tax, net of federal	4,422	4,927	5,066	4,716	4,982	5,072
Differences required to be flowed-through by regulatory commissions	(5,772)	1,302	2,357	(5,772)	1,302	2,357
Effect of the TCJA	—	—	(3,376)	—	—	(2,956)
Deferred tax rate differential post-TCJA	—	(76)	—	—	(75)	—
Regulatory settlement	(1,129)	—	—	(1,129)	—	—
Other, net	(1,249)	(1,184)	(2,617)	(1,188)	(1,184)	(2,619)
Total provision for income taxes	\$ 12,642	\$ 24,191	\$ 41,008	\$ 14,065	\$ 24,459	\$ 41,478
Effective tax rate	16.2%	26.4%	36.3%	16.9%	26.4%	36.6%

The NW Holdings and NW Natural effective income tax rates for 2019 compared to 2018 changed primarily as a result of lower pre-tax income and amortization of excess deferred income tax benefits as ordered by regulatory commissions. 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 provision for current and deferred income taxes consists of the following at December 31:

<i>In thousands</i>	NW Holdings			NW Natural		
	2019	2018	2017	2019	2018	2017
Current						
Federal	\$ 5,530	\$ 8,953	\$ 19,345	\$ 6,755	\$ 9,127	\$ 19,304
State	1,667	3,785	5,963	2,101	3,846	5,956
	7,197	12,738	25,308	8,856	12,973	25,260
Deferred						
Federal	1,515	9,001	13,869	1,340	9,025	14,371
State	3,930	2,452	1,831	3,869	2,461	1,847
	5,445	11,453	15,700	5,209	11,486	16,218
Income tax provision	\$ 12,642	\$ 24,191	\$ 41,008	\$ 14,065	\$ 24,459	\$ 41,478

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:

<i>In thousands</i>	NW Holdings		NW Natural	
	2019	2018	2019	2018
Deferred tax liabilities:				
Plant and property	\$ 269,886	\$ 288,385	\$ 281,044	\$ 303,186
Leases receivable	40,133	—	40,133	—
Pension and postretirement obligations	22,635	27,135	22,635	27,135
Income tax regulatory asset	19,382	21,403	19,382	21,402
Other	751	1,061	410	537
Total deferred income tax liabilities	\$ 352,787	\$ 337,984	\$ 363,604	\$ 352,260
Deferred income tax assets:				
Income tax regulatory liability	\$ 54,259	\$ 57,469	\$ 54,259	\$ 57,469
Other intangible assets	2,723	—	—	—
Net operating losses and credits carried forward	162	52	48	52
Total deferred income tax assets	\$ 57,144	\$ 57,521	\$ 54,307	\$ 57,521
Total net deferred income tax liabilities	\$ 295,643	\$ 280,463	\$ 309,297	\$ 294,739

At December 31, 2019 and 2018, regulatory income tax assets of \$16.9 million and \$19.1 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, 2019 and 2018, regulatory income tax assets of \$2.5 million and \$2.3 million, respectively, were recorded by NW Natural, representing future recovery of deferred tax liabilities resulting from the equity portion of AFUDC.

At December 31, 2019 and 2018, deferred tax assets of \$54.3 million and \$57.5 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, 2019 and 2018, regulatory liability balances representing the benefit of the change in deferred taxes as a result of the TCJA of \$205.0 million and \$217.1 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 and 2019 reflecting the deferral of the estimated rate benefit for customers. The deferral period for Oregon ended on October 31, 2018 coincident with new rates beginning November 1, 2018. The deferral period for Washington ended on October 31, 2019 coincident with new rates beginning November 1, 2019. At December 31, 2019 and 2018, a regulatory liability of \$1.7 million and \$8.2 million, respectively, 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 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, 2019 will be realized.

The Company estimates it has net operating loss (NOL) carryforwards of \$0.4 million for federal taxes and \$0.4 million for Oregon taxes at December 31, 2019. We anticipate fully utilizing these NOL carryforward balances before they begin to expire in 2027 for federal and 2022 for Oregon. California alternative minimum tax (AMT) credits of \$0.1 million are also available. The AMT credits do not expire.

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, 2019, 2018, or 2017.

The federal income tax returns for tax years 2015 and earlier are closed by statute. The IRS Compliance Assurance Process (CAP) examination of the 2016 and 2017 tax years have been completed. There were no material changes to these returns as filed. The 2018 and 2019 tax years are currently under IRS CAP examination. Our 2020 CAP application has been filed. 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, 2019, income tax years 2015 through 2018 remain open for examination by the State of California. Income tax year 2018 is open for examination by the State of Idaho. The State of Oregon examined the Oregon corporate income tax returns for tax years 2015, 2016, and 2017. No material changes occurred as a result of this examination.

U.S. Federal TCJA Matters

On December 22, 2017, the TCJA was enacted and permanently lowered the U.S. federal corporate income tax rate to 21% from the previous maximum rate of 35%, effective for the tax year beginning January 1, 2018. The TCJA included specific provisions related to regulated public utilities that provide for the continued deductibility of interest expense and the elimination of bonus tax depreciation for property both acquired and placed into 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. Final U.S. Treasury Regulations were published in September of 2019 which clarified that bonus tax depreciation would not be available for regulated utility activity assets both acquired and placed in service by NW Holdings or NW Natural on or after January 1, 2018. Proposed U.S. Treasury Regulations released in September of 2019 indicated that long production period property acquired before September 27, 2017 continues to qualify for bonus depreciation in the year placed in service consistent with pre-TCJA law.

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 of 2018, 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 of 2018, 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 was complete at the end of calendar year 2018.

NW Natural previously filed applications with the OPUC and WUTC to defer the NGD net income tax benefits resulting from the TCJA. In March 2019, the OPUC issued an order addressing the regulatory amortization of the income tax benefits from the TCJA that NW Natural deferred for Oregon customers in December of 2017. Under the order, NW Natural will provide the benefit of these TCJA income tax deferrals to Oregon customers through ongoing annual credits to customer base rates and as a one-time recovery of a portion of the pension balancing account regulatory asset balance. On an annualized basis, it is anticipated that the income tax benefits from the provision of these TCJA benefits to customers should approximate the reduction to pretax income that occurs as a result of the customer base rate credits and one-time recovery of a portion of the pension balancing account.

In October 2019, the WUTC issued an order addressing the regulatory amortization of the income tax benefits from the TCJA that NW Natural deferred for Washington customers in December of 2017. Under the order, NW Natural will provide deferred income tax benefits from the TCJA to customers through base rate credits beginning November 1, 2019.

12. PROPERTY, PLANT, AND EQUIPMENT

The following table sets forth the major classifications of property, plant, and equipment and accumulated depreciation of continuing operations at December 31:

<i>In thousands</i>	2019	2018
NW Natural:		
NGD plant in service	\$ 3,302,049	\$ 3,134,122
NGD work in progress	84,965	204,978
Less: Accumulated depreciation	1,017,931	974,252
NGD plant, net	2,369,083	2,364,848
Other plant in service	63,513	66,009
Other construction work in progress	5,548	5,330
Less: Accumulated depreciation	18,662	18,603
Other plant, net ⁽¹⁾	50,399	52,736
Total property, plant, and equipment	<u>\$ 2,419,482</u>	<u>\$ 2,417,584</u>
Other (NW Holdings):		
Other plant in service	\$ 20,671	\$ 4,051
Less: Accumulated depreciation	1,254	263
Other plant, net ⁽¹⁾	19,417	3,788
NW Holdings:		
Total property, plant, and equipment	<u>\$ 2,438,899</u>	<u>\$ 2,421,372</u>
NW Natural and NW Holdings:		
Capital expenditures in accrued liabilities	\$ 32,502	\$ 23,676

⁽¹⁾ NW Natural previously reported other balances which were restated due to certain assets and liabilities now being classified as discontinued operations assets and liabilities in its balance sheets. See Note 19 for further discussion.

Accumulated depreciation does not include the accumulated provision for asset removal costs of \$401.9 million and \$380.5 million at December 31, 2019 and 2018, respectively. These accrued asset removal costs are reflected on the balance sheet as regulatory liabilities. See Note 2. During 2019 and 2018, 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 and long-lived assets that may be used to support NGD operations.

The weighted average depreciation rate for NGD assets was 2.9% during 2019 and 2.8% during 2018, and 2017. The weighted average depreciation rate for assets not related to NGD was 1.8% in 2019, 2.2% in 2018, and 1.9% in 2017.

In October 2017, NW Natural entered into a 20-year lease agreement expected to commence in 2020 for its new corporate operations center 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, the build to suit asset and liability balances at December 31, 2018 of \$26.0 million were derecognized in January 2019. The previous build to suit balances were recorded under ASC 840 within property, plant and equipment and other non-current liabilities in the consolidated balance sheet.

In May 2019, NW Natural placed its North Mist gas storage expansion facility into service and commenced storage services to the facility's single customer, PGE. Under U.S. GAAP, this agreement is classified as a sales-type lease and qualifies for regulatory accounting deferral treatment. Accordingly, the project was de-recognized from property, plant and equipment upon lease commencement and the investment balance is presented net of the current portion of scheduled billings within assets under sales-type leases on the consolidated balance sheets. A total of \$146.0 million was de-recognized from plant on the lease commencement date. The facility is included within rate base for ratemaking purposes. See Note 7 for information regarding leases, including North Mist.

13. GAS RESERVES

NW Natural has invested \$188 million through the gas reserves program in the Jonah Field located in Wyoming as of December 31, 2019. 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 has not participated 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 5%, 6% and 6% of NGD gas supplies for the years ended December 31, 2019, 2018, and 2017 respectively.

The following table outlines NW Natural's net gas reserves investment at December 31:

<i>In thousands</i>	2019		2018	
Gas reserves, current	\$	15,278	\$	16,647
Gas reserves, non-current		172,029		170,660
Less: Accumulated amortization		123,635		104,463
Total gas reserves ⁽¹⁾		63,672		82,844
Less: Deferred taxes on gas reserves		15,515		20,071
Net investment in gas reserves	\$	48,157	\$	62,773

⁽¹⁾ The net investment in additional wells included in total gas reserves was \$3.8 million and \$4.8 million at December 31, 2019 and 2018, 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.

14. 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:

<i>In thousands</i>	NW Holdings		NW Natural	
	2019	2018	2019	2018
Investments in life insurance policies	\$ 49,837	\$ 49,922	\$ 49,837	\$ 49,922
Investments in gas pipeline	13,472	13,571	—	—
Other	24	65	—	—
Total other investments	\$ 63,333	\$ 63,558	\$ 49,837	\$ 49,922

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

Trail West Pipeline, LLC (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, 2019 and 2018.

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, 2019 as the fair value of expected cash flows from planned development exceeded NW Holdings' remaining equity investment of \$13.4 million at December 31, 2019. 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.

15. BUSINESS COMBINATIONS

2019 Business Combinations

Sunriver

On May 31, 2019, NWN Water of Oregon, a wholly-owned indirect subsidiary of NW Holdings, completed the acquisition of Sunriver Water and Sunriver Environmental (collectively referred to as Sunriver), a privately-owned water utility and wastewater treatment company located in Sunriver, Oregon that serves approximately 9,400 connections. The acquisition-date fair value of the total consideration transferred, after closing adjustments, was approximately \$55.0 million in cash consideration. The transaction aligns with NW Holdings' water sector strategy as it continues to expand its water utility service territory in the Pacific Northwest and begins to pursue wastewater investment opportunities.

The Sunriver acquisition met the criteria of a business combination, and as such a preliminary allocation of the consideration to the acquired assets based on their estimated fair value as of the acquisition date was performed. In accordance with U.S. GAAP, the fair value determination was made using existing regulatory conditions for assets associated with Sunriver Water, LLC as well as existing market conditions and standard valuation approaches for assets associated with Sunriver Environmental, LLC in order to allocate value as determined by an independent third party assessor for certain assets, which involved the use of management judgment in determining the significant estimates and assumptions used by the assessor, with the remaining difference from the consideration transferred being recorded as goodwill. This allocation is considered preliminary as of December 31, 2019, as facts and circumstances that existed as of the acquisition date may be discovered as we continue to integrate Sunriver. As a result, subsequent adjustments to the preliminary valuation of tangible assets, contract assets and liabilities, tax positions, and goodwill may be required. Subsequent adjustments are not expected to be significant, and any such adjustments are expected to be completed within the one-year measurement period. The acquisition costs were expensed as incurred.

Preliminary goodwill of \$40.1 million was recognized from this acquisition. The goodwill recognized is attributable to Sunriver's regulated water utility service territory, experienced workforce, and the strategic benefits for both the water utility and wastewater services expected from growth in its service territory. No intangible assets aside from goodwill were acquired. The total amount of goodwill that is expected to be deductible for income tax purposes is approximately \$50.2 million.

The preliminary purchase price for the acquisition has been allocated to the net assets acquired as of the acquisition date and is as follows:

<i>In thousands</i>		December 31, 2019
Current assets	\$	221
Property, plant and equipment		13,819
Goodwill		40,118
Deferred tax assets		812
Current liabilities		(22)
Total net assets acquired	\$	54,948

The amount of Sunriver revenues included in NW Holdings' consolidated statements of comprehensive income is \$3.7 million for the year ended December 31, 2019. Earnings from Sunriver activities for the year ended December 31, 2019 were not material to the results of NW Holdings.

Other Acquisitions

During the year ended December 31, 2019, NWN Water completed three additional acquisitions qualifying as business combinations. The aggregate fair value of the preliminary consideration transferred for these acquisitions was approximately \$2.0 million. These business combinations were not significant to NW Holdings' results of operations.

2018 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, a privately-owned water utility in the Pacific Northwest for non-cash consideration of \$8.5 million, in the form of 125,000 shares of NW Natural common stock, which were converted to NW Holdings common stock in our October 1, 2018 reorganization. Falls Water became a wholly-owned subsidiary of NWN Water and marked its first acquisition in the water utility 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 served approximately 5,300 connections at the time of acquisition.

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 an 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 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.

Goodwill of \$6.2 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 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 \$49.9 million and \$9.0 million as of December 31, 2019 and 2018, respectively. The increase in the goodwill balance was due to additions associated with our acquisitions in the water sector. All of our goodwill is related to water and wastewater acquisitions and is included in the other category for segment reporting purposes. The annual impairment assessment of goodwill occurs in the fourth quarter of each year. There have been no impairments recognized to date.

16. 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:

<i>In thousands</i>	At December 31,	
	2019	2018
Natural gas (in therms):		
Financial	651,540	408,850
Physical	512,849	472,275
Foreign exchange	\$ 6,650	\$ 6,936

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. Rates and hedging approaches may vary between states due to different rate structures and mechanisms. In addition, as required with the Washington PGA filing, NW Natural incorporated and began implementing risk-responsive hedging strategies for the 2019-20 PGA for its Washington gas supplies. 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 2019-20 and 2018-19 gas years with forecasted sales volumes hedged at 52% and 48% in financial swap and option contracts, and 19% and 24% in physical gas supplies, respectively. Hedge contracts entered into prior to the PGA filing, in September 2019, were included in the PGA for the 2019-20 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.

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:

<i>In thousands</i>	December 31, 2019		December 31, 2018	
	Natural gas commodity	Foreign exchange	Natural gas commodity	Foreign exchange
Benefit (expense) to cost of gas	\$ 9,863	\$ 102	\$ (1,239)	\$ (284)
Operating revenues (expense)	(568)	—	1,660	—
Amounts deferred to regulatory accounts on balance sheet	(9,376)	(102)	(211)	284
Total gain (loss) in pre-tax earnings	\$ (81)	\$ —	\$ 210	\$ —

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. NW Natural realized net gains of \$17.9 million and net gains of \$7.4 million for the years ended December 31, 2019 and 2018, respectively, from the settlement of natural gas financial derivative contracts. Realized gains and losses offset the higher or lower cost of gas purchased, resulting in no incremental amounts to collect or refund to customers.

Credit Risk Management of Financial Derivatives Instruments

No collateral was posted with or by NW Natural counterparties as of December 31, 2019 or 2018. NW Natural attempts to minimize the potential exposure to collateral calls by diversifying 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 2019 or 2018. 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 upon current commodity financial swap and option contracts outstanding, which reflect unrealized gains of \$5.6 million at December 31, 2019, 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:

<i>In thousands</i>	(Current Ratings) A+/A3	Credit Rating Downgrade Scenarios			
		BBB+/Baa1	BBB/Baa2	BBB-/Baa3	Speculative
With Adequate Assurance Calls	\$ —	\$ —	\$ —	\$ —	\$ (66)
Without Adequate Assurance Calls	—	—	—	—	(66)

NW Natural's financial derivative instruments are subject to master netting arrangements; however, they are presented on a gross basis in the 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 physical and financial derivative position would result in an asset of \$9.4 million and a liability of \$1.9 million as of December 31, 2019, and an asset of \$3.6 million and a liability of \$9.3 million as of December 31, 2018.

NW Natural is exposed to derivative credit and liquidity risk primarily through securing fixed price natural gas commodity swaps with financial counterparties. 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 an investment-grade credit rating at the time the derivative instrument is entered into, and specifies limits on the contract amount and duration based on each counterparty's credit rating. NW Natural does not speculate with derivatives. Derivatives are used to hedge exposure above risk tolerance limits. Increases in market risk created by the use of derivatives is offset by the exposures they modify.

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 trading limits. NW Natural's outstanding financial derivatives at December 31, 2019 mature by October 31, 2022.

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, NW natural includes non-performance risk in calculating fair value adjustments. This includes a credit risk adjustment based on the credit spreads of NW Natural counterparties when in an unrealized gain position, or on NW Natural's own credit spread when it is in an unrealized loss position. The inputs in our 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, 2019. As of December 31, 2019 and 2018, the net fair value was an asset of \$7.5 million and a liability of \$5.7 million, respectively, using

significant other observable, or Level 2, inputs. No Level 3 inputs were used in our derivative valuations, and there were no transfers between Level 1 or Level 2 during the years ended December 31, 2019 and 2018.

17. COMMITMENTS AND CONTINGENCIES

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, or is established directly with private counterparties, as applicable. In addition, NW Natural has entered into long-term agreements to release firm pipeline capacity. NW Natural also enters into short-term and long-term gas purchase agreements.

The aggregate amounts of these agreements were as follows at December 31, 2019:

<i>In thousands</i>	Gas Purchase Agreements	Pipeline Capacity Purchase Agreements	Pipeline Capacity Release Agreements
2020	\$ 86,175	\$ 76,897	\$ 4,201
2021	2,899	70,638	3,904
2022	—	68,943	3,904
2023	—	68,563	3,904
2024	—	67,052	3,904
Thereafter	—	527,148	3,253
Total	89,074	879,241	23,070
Less: Amount representing interest	481	147,613	840
Total at present value	\$ 88,593	\$ 731,628	\$ 22,230

Total fixed charges under capacity purchase agreements were \$82.2 million for 2019, \$82.6 million for 2018, and \$85.3 million for 2017, of which \$4.3 million, \$4.3 million, and \$4.5 million, respectively, related to capacity releases. 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.

Leases

Refer to Note 7 for a discussion of lease commitments and contingencies.

Environmental Matters

Refer to Note 18 for a discussion of environmental commitments and contingencies.

18. 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 recovery mechanisms in place to collect 96.68% of remediation costs allocable to Oregon customers and 3.32% of costs allocable to Washington customers.

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.

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:

<i>In thousands</i>	Current Liabilities		Non-Current Liabilities	
	2019	2018	2019	2018
Portland Harbor site:				
Gasco/Siltronic Sediments	\$ 11,632	\$ 5,117	\$ 46,082	\$ 44,351
Other Portland Harbor	2,543	2,600	6,920	6,273
Gasco/Siltronic Upland site	14,203	13,983	43,616	44,830
Central Service Center site	—	10	—	—
Front Street site	10,847	11,402	—	3
Oregon Steel Mills	—	—	179	179
Total	\$ 39,225	\$ 33,112	\$ 96,797	\$ 95,636

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 site. 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 one hundred PRPs. NW Natural is 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; accordingly, NW Natural has not modified any of the recorded liabilities at this time as a result of the issuance of the Portland Harbor ROD.

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. In February 2020, NW Natural and the EPA reached an agreement to amend the Administrative Order on Consent to include additional remedial design activities for sediment investigation costs adjacent to the Gasco uplands. 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 cleanup range from \$57.7 million to \$350 million. NW Natural has recorded a liability of \$57.7 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 remedial design and cleanup 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 site, 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 site 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 Yakama Nation has filed two amended complaints addressing certain pleading defects and dismissing the State of Oregon. On the motion of NW Natural and certain other defendants the federal court has stayed the case pending the outcome of the non-binding allocation proceeding discussed above. 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 Cleanup Program (VCP). It is not included in the range of remedial costs for the Portland Harbor site noted 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 Remedial Assessment (RA) for this site, 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 cost. NW Natural cannot estimate the high end of the range at this time due to the uncertainty associated with the duration of running 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 could not be reasonably estimated at this time.

Central Service Center site. The investigative phase to characterize the existing site has been completed and determined by the Oregon Department of Environmental Quality (DEQ) to be sufficient to allow for the issuance of a Conditional No Further Action (cNFA). The Company is now conducting ongoing environmental monitoring activities over the next 5 years in order to meet the conditions which were included within the cNFA.

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, an 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 \$0.3 million for additional studies and design costs as well as regulatory oversight throughout the cleanup. NW Natural plans to construct the remedy in 2020.

Oregon Steel Mills site. Refer to the “Legal Proceedings,” below.

Environmental Cost Deferral and Recovery

NW Natural has authorizations in Oregon and Washington to defer costs related to remediation of properties that are owned or were previously owned by NW Natural. In Oregon, a Site Remediation and Recovery Mechanism (SRRM) is currently in place to recover prudently incurred costs allocable to Oregon customers, subject to an earnings test. On October 21, 2019 the WUTC authorized an Environmental Cost Recovery Mechanism (ECRM) for recovery of prudently incurred costs allocable to Washington customers beginning November 1, 2019.

The following table presents information regarding the total regulatory assets deferred as of December 31:

<i>In thousands</i>	2019	2018
Deferred costs and interest ⁽¹⁾	\$ 36,673	\$ 41,883
Accrued site liabilities ⁽²⁾	135,662	128,369
Insurance proceeds and interest	(79,949)	(88,502)
Total regulatory asset deferral ⁽¹⁾	\$ 92,386	\$ 81,750
Current regulatory assets ⁽³⁾	4,762	5,601
Long-term regulatory assets ⁽³⁾	87,624	76,149

- ⁽¹⁾ Includes pre-review and post-review deferred costs, amounts currently in amortization, and interest, net of amounts collected from customers. 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 owed to customers. In Washington, neither the cash paid nor insurance proceeds accrue a carrying charge.
- ⁽²⁾ Excludes 3.32% of the Front Street site liability, or \$0.4 million in 2019 and \$0.4 million in 2018, as the OPUC only allows recovery of 96.68% of costs for those sites allocable to Oregon, including those that historically served only Oregon customers.
- ⁽³⁾ Amounts included in this estimate are still subject to a prudence review by the OPUC and WUTC, and earnings test review by the OPUC. Amounts do not include the \$5.0 million tariff rider. See "Oregon SRRM" below.

Oregon SRRM

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.

In addition to the collection amount noted above, an order issued by the OPUC 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 million as a result of settlements from litigation that was dismissed in July 2014. Under a 2015 OPUC order which established the SRRM, 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 Oregon allocated 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, 2019, NW Natural has applied \$78.2 million of insurance proceeds to prudently incurred remediation costs allocated to Oregon.

OREGON 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.

Washington ECRM

WASHINGTON DEFERRAL. On October 21, 2019 the WUTC issued an order (WUTC Order) establishing the ECRM which allows for recovery of past deferred and future prudently incurred environmental remediation costs allocable to Washington customers through application of insurance proceeds and collections from customers. Environmental remediation expenses relating to sites that previously served both Oregon and Washington customers are allocated between states with Washington customers receiving 3.32% percent of the costs and insurance proceeds.

As a result of the WUTC Order, in the fourth quarter of 2019 approximately \$3.0 million of prudently incurred costs deferred from the initial deferral authorization in February 2011 through November 2018 were fully offset with insurance proceeds. In addition, approximately \$1.5 million of disallowed deferred environmental remediation expenses incurred prior to the deferral authorization were charged to environmental remediation expense.

Insurance proceeds will be fully applied to costs incurred between December 2018 and June 2019 once deemed prudent in future rate proceedings. Remaining insurance proceeds will be amortized over a 10.5 year period ending December 31, 2029. On an annual basis, NW Natural will file for a prudence determination and a request to amortize costs to the extent that remediation expenses exceed the insurance amortization. After insurance proceeds are fully amortized, if in a particular year the request to collect deferred amounts exceeds one percent of Washington normalized revenues, then the excess will be collected over three years with interest.

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 the 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 17.

19. 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. Pacific Gas and Electric Company (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 sale of Gill Ranch was approved by the CPUC in December 2019.

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.

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 separately 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 NW Holdings' continuing operations.

[Table of Contents](#)

The following table presents the carrying amounts of the major components of Gill Ranch that are classified as discontinued operations assets and liabilities on the consolidated balance sheets:

<i>In thousands</i>	NW Holdings Discontinued Operations	
	2019	2018
Assets:		
Accounts receivable	\$ 333	\$ 390
Inventories	695	685
Other current assets	457	333
Property, plant, and equipment	13,291	11,621
Less: Accumulated depreciation	7	7
Operating lease right of use asset	118	—
Other non-current assets	247	247
Total discontinued operations assets - current assets ⁽¹⁾	<u>\$ 15,134</u>	<u>\$ 13,269</u>
Liabilities:		
Accounts payable	\$ 1,250	\$ 873
Other current liabilities	848	307
Operating lease liabilities	116	—
Other non-current liabilities	11,495	11,779
Total discontinued operations liabilities - current liabilities ⁽¹⁾	<u>\$ 13,709</u>	<u>\$ 12,959</u>

⁽¹⁾ The total assets and liabilities of Gill Ranch are classified as current as of December 31, 2018 because it was probable that the sale would be completed within one year.

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:

<i>In thousands, except per share data</i>	NW Holdings Discontinued Operations		
	2019	2018	2017
Revenues	\$ 5,301	\$ 3,579	\$ 7,135
Expenses			
Operations and maintenance	8,587	5,771	7,245
General taxes	219	479	1,373
Depreciation and amortization	423	430	4,525
Other expenses and interest	931	609	975
Impairment expense	—	—	192,478
Total expenses	<u>10,160</u>	<u>7,289</u>	<u>206,596</u>
Loss from discontinued operations before income tax	(4,859)	(3,710)	(199,461)
Income tax benefit ⁽¹⁾	(1,283)	(968)	(71,765)
Loss from discontinued operations, net of tax	<u>\$ (3,576)</u>	<u>\$ (2,742)</u>	<u>\$ (127,696)</u>
Loss from discontinued operations per share of common stock:			
Basic	\$ (0.12)	\$ (0.10)	\$ (4.45)
Diluted	(0.12)	(0.09)	(4.44)

⁽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 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:

<i>In thousands, except per share data</i>	NW Natural Discontinued Operations	
	2018	2017
Revenues	\$ 3,016	\$ 7,360
Expenses		
Operations and maintenance	4,151	7,423
General taxes	448	1,410
Depreciation and amortization	420	4,555
Other expenses and interest	342	650
Impairment expense	—	192,478
Total expenses	5,361	206,516
Loss from discontinued operations before income tax	(2,345)	(199,156)
Income tax benefit ⁽¹⁾	(622)	(71,813)
Loss from discontinued operations, net of tax	\$ (1,723)	\$ (127,343)

⁽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%.

20. Subsequent Events

Suncadia Acquisition Completed

On January 31, 2020, NWN Water of Washington, a wholly-owned indirect subsidiary of NW Holdings, completed the acquisition of Suncadia Water, a privately-owned water utility, and Suncadia Environmental, a wastewater company (collectively referred to as Suncadia). The acquisition was made for preliminary cash consideration of \$18.9 million, subject to closing adjustments. Suncadia is based in Cle Elum, Washington and serves approximately 2,800 connections. A \$1.0 million letter of credit outstanding at NW Holdings as of December 31, 2019 for purposes of facilitating the acquisition was extinguished upon the close of the transaction.

The preliminary allocation of consideration to the acquired assets and assumed liabilities based on their fair value is not yet complete as valuation procedures are pending. We expect the purchase price to be primarily allocated to property, plant and equipment and goodwill. Acquisition costs were insignificant and were expensed as incurred.

See Note 2 and Note 15 for more information regarding business combinations.

NORTHWEST NATURAL HOLDING COMPANY

QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

<i>In thousands, except per share data</i>	NW Holdings			
	Quarter Ended ⁽¹⁾			
	March 31	June 30	September 30	December 31
2019				
Operating revenues	\$ 285,348	\$ 123,433	\$ 90,317	\$ 247,274
Net income (loss) from continuing operations	43,418	2,051	(18,506)	38,348
Loss from discontinued operations, net of tax	(217)	(956)	(795)	(1,608)
Net income (loss)	\$ 43,201	\$ 1,095	\$ (19,301)	\$ 36,740
Average common shares outstanding:				
Basic	28,906	29,337	30,429	30,448
Diluted	28,970	29,394	30,429	30,521
Earnings (loss) from continuing operations per share of common stock:				
Basic	\$ 1.50	\$ 0.07	\$ (0.61)	\$ 1.26
Diluted	1.50	0.07	(0.61)	1.26
Loss from discontinued operations per share of common stock:				
Basic	\$ (0.01)	\$ (0.03)	\$ (0.02)	\$ (0.05)
Diluted	(0.01)	(0.03)	(0.02)	(0.05)
Earnings (loss) per share of common stock:				
Basic	\$ 1.49	\$ 0.04	\$ (0.63)	\$ 1.21
Diluted	1.49	0.04	(0.63)	1.20
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

⁽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.

NORTHWEST NATURAL GAS COMPANY

QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

	NW Natural			
	Quarter ended			
<i>In thousands</i>	March 31	June 30	September 30	December 31
2019				
Operating revenues	\$ 284,846	\$ 122,242	\$ 87,592	\$ 245,264
Net income (loss)	\$ 43,895	\$ 3,054	\$ (17,588)	\$ 39,613
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

SCHEDULE I - CONDENSED FINANCIAL INFORMATION OF NORTHWEST NATURAL HOLDING COMPANY

NORTHWEST NATURAL HOLDING COMPANY
CONDENSED STATEMENTS OF COMPREHENSIVE INCOME
(PARENT COMPANY ONLY)

<i>In thousands</i>	Year ended December 31, 2019	Inception through December 31, 2018
Operating expenses:		
Operations and maintenance	\$ 2,747	\$ 838
Total operating expenses	2,747	838
Loss from operations	(2,747)	(838)
Earnings from investment in subsidiaries, net of tax	64,328	36,469
Other income (expense), net	(22)	36
Interest expense, net	726	53
Income before income taxes	60,833	35,614
Income tax expense (benefit)	(902)	(225)
Net income	\$ 61,735	\$ 35,839

See Notes to Condensed Financial Statements

NORTHWEST NATURAL HOLDING COMPANY
CONDENSED BALANCE SHEETS
(PARENT COMPANY ONLY)

<i>In thousands</i>	As of December 31,	
	2019	2018
Assets:		
Current assets:		
Cash and cash equivalents	\$ 119	4,011
Receivables from affiliates	1,950	2,796
Income taxes receivable	256	6,000
Other current assets	4,600	3,078
Total current assets	6,925	15,885
Non-current assets:		
Investments in subsidiaries	888,477	754,971
Other investments	24	65
Deferred tax assets	191	—
Other non-current assets	245	310
Total non-current assets	888,937	755,346
Total assets	\$ 895,862	\$ 771,231
Liabilities and equity:		
Current liabilities:		
Short-term debt	\$ 24,000	\$ —
Accounts payable	612	168
Payables to affiliates	3,697	9,166
Taxes accrued	127	—
Interest accrued	—	32
Other current liabilities	37	—
Total current liabilities	28,473	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	840,364	739,722
Retained earnings	27,025	22,137
Total equity	867,389	761,859
Total liabilities and equity	\$ 895,862	\$ 771,231

See Notes to Condensed Financial Statements

NORTHWEST NATURAL HOLDING COMPANY
CONDENSED STATEMENTS OF CASH FLOWS
(PARENT COMPANY ONLY)

<i>In thousands</i>	Year ended December 31, 2019	Inception through December 31, 2018
Operating activities:		
Net income	\$ 61,735	\$ 35,839
Adjustments to reconcile net income to cash used in operations:		
Equity in earnings of subsidiaries, net of tax	(64,328)	(36,469)
Deferred income taxes	(198)	7
Other	66	15
Changes in assets and liabilities:		
Receivables, net	846	(585)
Income and other taxes	4,325	(9,034)
Accounts payable	(5,177)	9,304
Interest accrued	(32)	32
Other, net	(346)	(44)
Cash used in operating activities	(3,109)	(935)
Investing activities:		
Contributions to subsidiaries	(157,591)	(1,804)
Cash used in investing activities	(157,591)	(1,804)
Financing activities:		
Proceeds from stock options exercised	2,015	—
Proceeds from common stock issued	92,956	—
Change in short-term debt	24,000	—
Cash dividend payments received from subsidiaries	88,439	—
Cash dividend payments on common stock	(53,339)	(12,923)
Capital contributions	—	20,000
Other	2,737	(327)
Cash provided by financing activities	156,808	6,750
Increase (decrease) in cash and cash equivalents	(3,892)	4,011
Cash and cash equivalents, beginning of period	4,011	—
Cash and cash equivalents, end of period	\$ 119	\$ 4,011

See Notes to Condensed Financial Statements

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 including earnings from NW Natural were \$64.3 million and \$35.6 million for the years ended December 31, 2019 and 2018.

Cash dividends paid to NW Holdings from wholly-owned subsidiaries were \$88.4 million for the year ended December 31, 2019. No cash dividends were paid from subsidiaries to NW Holdings in 2018.

2. DEBT

For information concerning NW Holdings' debt obligations, see Note 9 to the consolidated financial statements included in Item 8 of this report.

NORTHWEST NATURAL HOLDING COMPANY
SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS AND RESERVES

COLUMN A	COLUMN B	COLUMN C		COLUMN D	COLUMN E
		Additions		Deductions	
<i>In thousands (year ended December 31)</i>	Balance at beginning of period	Charged to costs and expenses	Charged to other accounts	Net write-offs	Balance at end of period
2019					
Reserves deducted in balance sheet from assets to which they apply:					
Allowance for uncollectible accounts	\$ 977	\$ 450	\$ —	\$ 754	\$ 673
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

NORTHWEST NATURAL GAS COMPANY
SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS AND RESERVES

COLUMN A	COLUMN B	COLUMN C		COLUMN D	COLUMN E
		Additions		Deductions	
<i>In thousands (year ended December 31)</i>	Balance at beginning of period	Charged to costs and expenses	Charged to other accounts	Net write-offs	Balance at end of period
2019					
Reserves deducted in balance sheet from assets to which they apply:					
Allowance for uncollectible accounts	\$ 975	\$ 450	\$ —	\$ 753	\$ 672
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

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, 2019 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 31.1, Exhibit 31.2, Exhibit 31.3, and Exhibit 31.4 should be considered in light of, and read together with, the information set forth in this Item 9(a).

ITEM 9B. OTHER INFORMATION

This disclosure is intended to satisfy any obligation of ours to provide disclosures pursuant to Item 5.02 of Form 8-K. As previously disclosed, NW Natural has executed a double-trigger severance agreement with each named executive officer (NEO) for changes of control of either NW Holdings or NW Natural (CIC Agreements). On February 27, 2020, the Boards of Directors of NW Holdings and NW Natural amended these agreements to remove a provision that reduces the level of benefits provided under the CIC Agreements beginning at age 62 and completely eliminates benefits when the NEOs reach age 65. The Form of CIC Agreement approved to be entered into with each NEO is attached hereto as Exhibit 10q.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The "Information Concerning Nominees and Continuing Directors" and "Corporate Governance" contained in NW Holdings' definitive Proxy Statement for the 2020 Annual Meeting of Shareholders is hereby incorporated by reference.

EXECUTIVE OFFICERS

Name	Age at Dec. 31, 2019	Positions held during last five years ⁽¹⁾
David H. Anderson*	58	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*	55	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).
James R. Downing	50	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*	47	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	50	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	57	Vice President, Engineering and Utility Operations (2018-); Senior Director, Utility Operations (2014-2018); Director, Utility Operations (2013-2014); Process Director (2007-2013).
Justin Palfreyman	41	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	54	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, Point B (2014-2015); Director, Executive Development Center, Willamette University (2011-2015).
MardiLyn Saathoff*	63	Senior Vice President, Regulation and General Counsel ⁽³⁾ (2016-); Senior Vice President and General Counsel (2014-2016); Vice President, Legal, Risk and Compliance (2013-2014); Deputy General Counsel (2010-2013); Chief Governance Officer and Corporate Secretary (2008-2014).
David A. Weber	60	Vice President, Gas Supply and Utility Support Services (2019-); President and Chief Executive Officer, NW Natural Gas Storage, LLC and Gill Ranch Storage, LLC (2011-).
Kathryn M. Williams	44	Vice President, Public Affairs (2019-); Government and Community Affairs Director (2018-2019); State Affairs Manager, Port of Portland (2015-2018); Business and Rail Relations Manager, Port of Portland (2007-2015).
Brody J. Wilson*	40	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).

DIRECTOR (NORTHWEST NATURAL GAS COMPANY ONLY)**

Name	Age at Dec. 31, 2019	Positions held during last five years ⁽¹⁾
Steven E. Wynne**	67	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 2020 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. 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 2020 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.

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 2020 Annual Meeting of Shareholders is hereby incorporated by reference. Information related to Executive Officers as of December 31, 2019 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 24, 2020, 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, 2019 (see Note 8 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:			
Long Term Incentive Plan (LTIP) ⁽¹⁾⁽²⁾	176,962	n/a	510,931
Restated Stock Option Plan	10,938	\$ 45.67	—
Employee Stock Purchase Plan	20,992	58.95	185,568
Equity compensation plans not approved by security holders:			
Executive Deferred Compensation Plan (EDCP) ⁽³⁾	1,026	n/a	n/a
Directors Deferred Compensation Plan (DDCP) ⁽³⁾	41,064	n/a	n/a
Deferred Compensation Plan for Directors and Executives (DCP) ⁽⁴⁾	206,505	n/a	n/a
Total	457,487		696,499

- ⁽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 79,733 Restricted Stock Units and 97,229 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, 2019, the number of shares shown in column (a) would increase by 97,229 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, 2019.
- ⁽³⁾ 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.
- ⁽⁴⁾ 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 NW Natural.

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 2020 Annual Meeting of Shareholders is incorporated herein by reference.

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 2020 Annual Meeting of Shareholders is hereby incorporated by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

NW Holdings

The information captioned "2019 and 2018 Audit Firm Fees" in NW Holdings' definitive Proxy Statement for the 2020 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 2019 and 2018:

<i>In thousands</i>	2019	2018
Audit Fees	\$ 1,222	\$ 1,379
Audit-Related Fees	31	30
Tax Fees	22	34
All Other Fees	3	4
Total	<u>\$ 1,278</u>	<u>\$ 1,447</u>

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 2019 and 2018, 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 2019 and 2018 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 report:

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 page 146.

ITEM 16. FORM 10-K SUMMARY

None.

NORTHWEST NATURAL HOLDING COMPANY NORTHWEST NATURAL GAS COMPANY

Exhibit Index to Annual Report on Form 10-K
For the Fiscal Year Ended December 31, 2019

Exhibit Number	Document
*3a.	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).
*3b.	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).
*3c.	Amended and Restated Bylaws of Northwest Natural Holding Company (incorporated by reference to Exhibit 3.1 to the Form 8-K dated May 30, 2019, File No. 1-38681).
*3d.	Amended and Restated Bylaws of Northwest Natural Gas Company (incorporated by reference to Exhibit 3.2 to the Form 8-K filed May 30, 2019, File No. 1-15973).
*4a.	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).
*4b.	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).
*4c.	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).
*4d.	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).
*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).
*4f.	Copy of Indenture, dated as of June 1, 1991, between Northwest Natural Gas Company and Bankers Trust Company (to whom Deutsche 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).
*4g.	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 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).
*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).
*4i.	Credit Agreement, dated as of June 27, 2019, among NW Natural Water Company, LLC, Northwest Natural Holding Company, the lenders party thereto, and Bank of Montreal, as administrative agent (incorporated by reference to Exhibit 4.1 to the Form 10-Q for the quarter ended June 30, 2019, File No. 1-38681).



4j.	Description of securities registered under Section 12 of the Exchange Act of 1934.
*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).
*10.1	Letter agreement, dated December 10, 2019, between NW Natural Gas Storage, LLC and SENSEA Holdings LLC, amending the Purchase and Sale Agreement, dated June 20, 2018 (incorporated by reference to Exhibit 10.1 to the Form 8-K dated December 13, 2019, File No. 1-38681).
*10.2	Letter agreement, dated February 26, 2020, between NW Natural Gas Storage LLC and SENSEA Holdings LLC, amending the Purchase and Sale Agreement, dated June 28, 2018, as amended (incorporated by reference to Exhibit 10.1 to the Form 8-K dated March 2, 2020, File No. 1-38681).
21.	Subsidiaries of Northwest Natural Holding Company.
23a.	Consent of PricewaterhouseCoopers LLP - NW Holdings.
23b.	Consent of PricewaterhouseCoopers LLP - NW Natural.
31.1	Certification of Principal Executive Officer of Northwest Natural Gas Company Pursuant to Rule 13a-14(a)/15d-14(a), Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Principal Financial Officer of Northwest Natural Gas Company Pursuant to Rule 13a-14(a)/15d-14(a), Section 302 of the Sarbanes-Oxley Act of 2002.
31.3	Certification of Principal Executive Officer of Northwest Natural Holding Company Pursuant to Rule 13a-14(a)/15d-14(a), Section 302 of the Sarbanes-Oxley Act of 2002.
31.4	Certification of Principal Financial Officer of Northwest Natural Holding Company Pursuant to Rule 13a-14(a)/15d-14(a), Section 302 of the Sarbanes-Oxley Act of 2002.
**32.1	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.
**32.2	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.
101.	The following materials formatted in Inline Extensible Business Reporting Language (Inline XBRL): <ul style="list-style-type: none">(i) Consolidated Statements of Income;(ii) Consolidated Balance Sheets;(iii) Consolidated Statements of Cash Flows; and(iv) Related notes.
104.	The cover page from the Company's Annual Report on Form 10-K for the year ended December 31, 2019, formatted in Inline XBRL and contained in Exhibit 101.
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 of Northwest Natural Gas Company, 2018 Restatement, as amended July 25, 2019 (incorporated by reference to Exhibit 10.1 to the Form 10-Q for the quarter ended June 30, 2019, File No. 1-15973).

*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).
*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.	Form of Indemnity Agreement as entered into between Northwest Natural Gas Company and each director and certain executive officers (incorporated by reference to Exhibit 10l. to Form 10-K for 2018, File No. 1-38681).
*10l.	Form of Indemnity Agreement as entered into between Northwest Natural Holding Company and each director and certain executive officers (incorporated by reference to Exhibit 10m. to Form 10-K for 2018, File No. 1-38681).
*10m.	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).
*10n.	Executive Annual Incentive Plan, effective January 1, 2019 (incorporated by reference to Exhibit 10q. to Form 10-K for 2018, File No. 1-15973).
10o.	Executive Annual Incentive Plan, effective January 1, 2020.
*10p.	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).
10q.	Form of Change in Control Severance Agreement between Northwest Natural Gas Company and each executive officer, as amended and restated as of March 1, 2020.
*10r.	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).
*10s.	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).
*10t.	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).
*10u.	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).

[Table of Contents](#)

*10v.	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).
*10w.	Form of Long Term Incentive Award Agreement under Long Term Incentive Plan (2019-2021) (incorporated by reference to Exhibit 10z. to Form 10-K for 2018, File No. 1-38681).
10x.	Form of Long Term Incentive Award Agreement under Long Term Incentive Plan (2020-2022).
*10y.	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).
*10z.	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).
10aa.	Form of Restricted Stock Unit Award Agreement under Long Term Incentive Plan (2020).
*10bb.	Form of Restricted Stock Unit Award Agreement under Long Term Incentive Plan (2019) (incorporated by reference to Exhibit 10cc. to Form 10-K for 2018, File No. 1-38681).
*10cc.	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).
*10dd.	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).
*10ee.	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).
*10ff.	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).
*10gg.	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).
*10hh.	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).
*10ii.	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).
*10jj.	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).
*10kk.	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).
10ll.	Annual Incentive Plan for NW Natural Gas Storage, LLC, as amended effective January 1, 2020.
*10mm.	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 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.

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 2, 2020

NORTHWEST NATURAL GAS COMPANY

By: /s/ David H. Anderson
David H. Anderson
President and Chief Executive Officer
Date: March 2, 2020

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
<u>/s/ David H. Anderson</u> David H. Anderson President and Chief Executive Officer	Principal Executive Officer and Director	March 2, 2020
<u>/s/ Frank H. Burkhartsmeier</u> Frank H. Burkhartsmeier Senior Vice President and Chief Financial Officer	Principal Financial Officer	March 2, 2020
<u>/s/ Brody J. Wilson</u> Brody J. Wilson Vice President, Treasurer, Chief Accounting Officer and Controller	Principal Accounting Officer	March 2, 2020
<u>/s/ Timothy P. Boyle</u> Timothy P. Boyle	Director)))
<u>/s/ Martha L. Byorum</u> Martha L. Byorum	Director)))
<u>/s/ John D. Carter</u> John D. Carter	Director)))
<u>/s/ Mark S. Dodson</u> Mark S. Dodson	Director)))
<u>/s/ Monica Enand</u> Monica Enand	Director)))
<u>/s/ C. Scott Gibson</u> C. Scott Gibson	Director	March 2, 2020))
<u>/s/ Tod R. Hamachek</u> Tod R. Hamachek	Director)))
<u>/s/ Jane L. Peverett</u> Jane L. Peverett	Director)))
<u>/s/ Kenneth Thrasher</u> Kenneth Thrasher	Director)))
<u>/s/ Malia H. Wasson</u> Malia H. Wasson	Director)))
<u>/s/ Charles A. Wilhoite</u> Charles A. Wilhoite	Director))

NORTHWEST NATURAL GAS COMPANY

Signature	Title	Date
<u>/s/ David H. Anderson</u> David H. Anderson President and Chief Executive Officer	Principal Executive Officer and Director	March 2, 2020
<u>/s/ Frank H. Burkhartsmeier</u> Frank H. Burkhartsmeier Senior Vice President and Chief Financial Officer	Principal Financial Officer	March 2, 2020
<u>/s/ Brody J. Wilson</u> Brody J. Wilson Vice President, Treasurer, Chief Accounting Officer and Controller	Principal Accounting Officer	March 2, 2020
<u>/s/ Timothy P. Boyle</u> Timothy P. Boyle	Director)))
<u>/s/ Martha L. Byorum</u> Martha L. Byorum	Director)))
<u>/s/ John D. Carter</u> John D. Carter	Director)))
<u>/s/ Mark S. Dodson</u> Mark S. Dodson	Director)))
<u>/s/ Monica Enand</u> Monica Enand	Director)))
<u>/s/ C. Scott Gibson</u> C. Scott Gibson	Director)))
<u>/s/ Tod R. Hamachek</u> Tod R. Hamachek	Director	March 2, 2020))
<u>/s/ Jane L. Peverett</u> Jane L. Peverett	Director)))
<u>/s/ Kenneth Thrasher</u> Kenneth Thrasher	Director)))
<u>/s/ Malia H. Wasson</u> Malia H. Wasson	Director)))
<u>/s/ Charles A. Wilhoite</u> Charles A. Wilhoite	Director)))
<u>/s/ Steven E. Wynne</u> Steven E. Wynne	Director))

**DESCRIPTION OF NORTHWEST NATURAL HOLDING COMPANY'S SECURITIES
REGISTERED PURSUANT TO SECTION 12
OF THE SECURITIES EXCHANGE ACT OF 1934**

General

The following is a summary of certain rights and privileges of the common stock of Northwest Natural Holding Company (NW Holdings), which is registered under Section 12(b) of the Securities Exchange Act of 1934, as amended, and is traded on the New York Stock Exchange under the symbol "NWN".

This summary description does not purport to be complete. Reference is made to NW Holdings' Amended and Restated Articles of Incorporation (Amended and Restated Articles of Incorporation) and NW Holdings' Amended and Restated Bylaws that are filed as exhibits to the Annual Report on Form 10-K to which this is filed as an exhibit. The following also summarizes certain applicable provisions of the laws of the State of Oregon, and reference is made to those laws.

Under NW Holdings' Amended and Restated Articles of Incorporation, NW Holdings is authorized to issue 100,000,000 shares of common stock and 3,500,000 shares of preferred stock.

Dividends and Liquidation Rights

Except as hereinafter stated, the common stock is entitled to receive such dividends as are declared by the Board of Directors (Board) out of funds legally available for the payment of dividends and to receive ratably on liquidation any assets which remain after payment of liabilities. NW Holdings has an authorized class of senior capital stock, referred to as "preferred stock," none of which is currently outstanding. NW Holdings' preferred stock would be entitled, in preference to the common stock, (1) to cumulative dividends at the annual rate fixed for each series by the Board, and (2) in voluntary and involuntary liquidation, to the amounts fixed for each series by the Board, plus in each case, unpaid accumulated dividends.

Dividend Limitations

Should dividends on any preferred stock be in arrears, no dividends on the common stock may be paid or declared. Future series of the preferred stock could contain sinking fund, purchase or redemption obligations under which no dividends on the common stock may be paid or declared while such obligations are in default. Common stock dividends also may be restricted by the provisions of future instruments pursuant to which NW Holdings may issue long-term debt.

Voting Rights

Except as provided by law or by resolutions establishing any series of preferred stock, only the common stock has voting rights. Cumulative voting is permitted by the Amended and Restated Articles of Incorporation to holders of common stock at elections of directors.

Classification of the Board of Directors

The Board may consist of not less than nine nor more than thirteen persons, as determined by the Board, divided into three classes as nearly equal in number as possible. One class is elected for a three-year term at each annual meeting of shareholders. Vacancies, including those resulting from an increase in the size of the Board, may be filled by a majority vote of the directors then in office, to serve until the next annual meeting of shareholders. One or more of the directors may be removed, with or without cause, by the affirmative vote of the holders of not less than two-thirds of the shares entitled to vote thereon; provided, however, that if fewer than all of the directors should be candidates for removal, no one of them shall be removed if the votes cast against such director's removal would be sufficient to elect such director if then cumulatively voted at an election of the class of directors of which such director shall be a part. Except for those persons nominated by the Board, no person shall be eligible for election as a director unless a request from a shareholder entitled to vote in the election of directors that such person be nominated and such person's consent thereto shall be delivered to the Secretary of NW Holdings within the time period specified in advance of the meeting at which such election shall be held. The foregoing provisions may not be amended or repealed except by the affirmative vote of the holders of not less than two-thirds of the shares entitled to vote at an election of directors.

Business Transactions with Related Persons

NW Holdings shall not enter into any business transaction with a related person or in which a related person shall have an interest (except proportionately as a shareholder of NW Holdings) without first obtaining both (1) the affirmative vote of the holders of not less than two-thirds of the outstanding shares of the capital stock of NW Holdings not held by such related person, and (2) the determination of a majority of the continuing directors that the cash or fair market value of the property, securities or other consideration to be received per share by the holders, other than such related person, of the shares of each class or series of the capital stock of NW Holdings in such business transaction shall not be less than the highest purchase price paid by such related person in acquiring any of its holdings of shares of the same class or series, unless the continuing directors by a majority vote shall either (a) have expressly approved the acquisition of the shares of the capital stock of NW Holdings that caused such related person to become a related person, or (b) have expressly approved such business transaction. As used in this paragraph: a "business transaction" includes a merger, consolidation, plan of exchange or recapitalization, a purchase, sale, lease, exchange, transfer, mortgage or other disposition of all or a substantial part (10% or more of the fair market value of the assets) of the property and assets of NW Holdings or a related person, an issuance, sale, exchange or other disposition of securities of NW Holdings and a liquidation, spin-off or dissolution; a "related person" includes a person, organization or group thereof owning 10% or more of the capital stock of NW Holdings; "continuing directors" are those directors who were directors of NW Holdings on the date the Amended and Restated Articles of Incorporation first became effective or whose nominations have been approved by a majority of the then continuing directors. The foregoing provisions may not be amended or repealed except by the affirmative vote of the holders of not less than two-thirds of the shares of the capital stock of NW Holdings (other than shares held by related persons).

Preemptive Rights

The holders of the common stock have no preemptive rights.

Certain Anti-Takeover Matters

NW Holdings' Amended and Restated Articles of Incorporation and Amended and Restated Bylaws include a number of provisions that may have the effect of discouraging persons from acquiring large blocks of its stock or delaying or preventing a change in its control. The material provisions that may have such an effect include:

- establishment of a classified Board, whereby approximately only one-third of the board stands for election each year;
- limitations on certain business transactions (including mergers, consolidations, plans of exchange) with any person or entity and any persons or entities related thereto who beneficially own 10% or more of the capital stock of NW Holdings;
- authorization for the Board (subject to any applicable law) to issue preferred stock in series and to fix rights and preferences of the series;
- advance notice procedures with respect to nominations of directors or proposals other than those adopted or recommended by the Board; and
- requirement that holders of not less than two-thirds of the shares entitled to vote are required to remove directors or to amend certain provisions of the Amended and Restated Articles of Incorporation.

NW Holdings is subject to the provisions of sections 60.825 to 60.845 of the Oregon Business Corporation Act (Oregon Business Combinations Act) which generally provide that in the event a person or entity acquires 15% or more of NW Holdings' voting stock (Interested Shareholder), NW Holdings and such Interested Shareholder and any affiliate may not engage in the following business combinations for a period of three years following the date that person became an Interested Shareholder:

- a merger or plan of share exchange;
- any sale, lease, mortgage or other disposition of the assets of the corporation where the assets have an aggregate market value equal to 10% or more of the aggregate market value of NW Holdings' assets or outstanding capital stock; and
- transactions that result in the issuance of capital stock to the shareholder that acquired 15% or more of the voting stock.

These restrictions do not apply if:

- the Board of Directors approved either the business combination or the share acquisition that resulted in the person becoming an Interested Shareholder before the time such person became an Interested Shareholder;
- as a result of the share acquisition, the person became an Interested Shareholder and 85% owner of the outstanding voting stock, excluding shares owned by persons who are directors and also officers and shares owned by certain employee benefit plans; or
- on or after the date the person became an Interested Shareholder, the business combination transaction is approved by the Board of Directors and authorized by the affirmative vote of at least two-thirds of the outstanding voting stock not owned by the Interested Shareholder.

NW Holdings is also subject to the provisions of Sections 60.801 to 60.816 of the Oregon Business Corporation Act (Oregon Control Share Act), which generally provide that a person who acquires voting stock in a transaction which results in such person holding more than 20%, 33-1/3% or 50% of the total voting power cannot vote the shares it acquires in the acquisition unless voting rights are accorded to such control shares by the holders of a majority of the outstanding voting shares, excluding the control shares

held by such person and shares held by officers and inside directors, and by the holders of a majority of the outstanding voting shares, including the control shares held by such person and shares held by officers and inside directors. This vote would be required at the time an acquiring person's holdings exceed 20% of the total voting power, and again at the time the acquiring person's holdings exceed 33-1/3% and 50%, respectively. The acquiring person may, but is not required to, submit to NW Holdings an "acquiring person statement" setting forth certain information about the acquiring person and its plans with respect to NW Holdings. The acquiring person statement may also request that NW Holdings call a special meeting of shareholders to determine whether the control shares will be allowed to retain voting rights. If the acquiring person does not request a special meeting of shareholders, the issue of voting rights of control shares will be considered at the next annual meeting or special meeting of shareholders that is held more than 60 days after the date of the acquisition of control shares. Shares are not deemed to be acquired in a control share acquisition if, among other things, they are acquired from the issuing corporation, or are issued pursuant to a plan of merger or exchange effected in compliance with the Oregon Business Corporation Act and the issuing corporation is a party to the merger or exchange agreement.

The Oregon Control Share Act and the Oregon Business Combinations Act have anti-takeover effects because they will encourage any potential acquirer to negotiate with NW Holdings' Board of Directors and will also discourage potential acquirers unwilling to comply with the provisions of these laws. An Oregon corporation may provide in its articles of incorporation or bylaws that the laws described above do not apply to its shares. NW Holdings has not adopted such a provision.

NW Holdings is also subject to Oregon Revised Statutes Chapter 757.511 which generally provides that no person, directly or indirectly, shall acquire the power to exercise any substantial influence over the policies and actions of a public utility without first securing from the Oregon Public Utility Commission (OPUC) an order authorizing such acquisition if such person is, or by such acquisition would become, an "affiliated interest" with such public utility as defined by Oregon law. Any applicant requesting such an order bears the burden of showing that granting the application is in the public interest. This provision of Oregon law may have anti-takeover effects by subjecting potential acquisitions to OPUC review and approval.

RESTRICTED STOCK UNIT AWARD AGREEMENT

This Agreement is entered into as of February __, 2020, between Northwest Natural Holding Company, an Oregon corporation (the “Company”), and _____ (“Recipient”).

On February 26, 2020, the Organization and Executive Compensation Committee (the “Committee”) of the Company’s Board of Directors (the “Board”) awarded restricted stock units to Recipient pursuant to Section 6 of the Company’s Long Term Incentive Plan (the “Plan”). Recipient desires to accept the award subject to the terms and conditions of this Agreement.

NOW, THEREFORE, the parties agree as follows:

1. Grant of Restricted Stock Units; Dividend Equivalents. Subject to the terms and conditions of this Agreement, the Company hereby grants to the Recipient _____ restricted stock units (the “RSUs”). The grant of RSUs obligates the Company, upon vesting in accordance with this Agreement, to deliver to the Recipient one share of Common Stock of the Company (a “Share”) for each RSU. Upon vesting of each RSU, the Company also agrees to make a dividend equivalent cash payment with respect to each vested RSU in an amount equal to the total amount of dividends paid per share of Company Common Stock for which the dividend record dates occurred after the date of this Agreement and before the date of delivery of the underlying Shares. The RSUs are subject to forfeiture as set forth in Sections 2.1 and 2.10 below.

2. Vesting; Forfeiture Restriction.

2.1 Vesting Schedule.

(a) All of the RSUs shall initially be unvested. Subject to Sections 2.3, 2.4, 2.5, 2.10 and 5.2, the RSUs shall vest as follows:

- (1) one-fourth of the RSUs shall vest on March 1, 2021 if the Performance Threshold (as defined in Section 2.2 below) is satisfied for 2020;
- (2) an additional one-fourth of the RSUs shall vest on March 1, 2022 if the Performance Threshold is satisfied for 2021;
- (3) an additional one-fourth of the RSUs shall vest on March 1, 2023 if the Performance Threshold is satisfied for 2022; and
- (4) the final one-fourth of the RSUs shall vest on March 1, 2024 if the Performance Threshold is satisfied for 2023.

(b) If the Performance Threshold is not satisfied for any year set forth in (1), (2), (3) or (4) above, the RSUs that would have vested if the Performance Threshold had been satisfied for that year (the “Performance Year”) shall be forfeited to the Company effective as of the last day of the Performance Year. For example, if the Performance Threshold is not

satisfied for 2020, all RSUs that were scheduled to vest on March 1, 2021 shall be forfeited effective as of December 31, 2020.

(c) If a Change in Control (as defined in Section 2.6 below) occurs, the Performance Threshold shall be deemed to be satisfied for all Performance Years that were not completed prior to the Change in Control, with the effect that the RSUs outstanding at the time of the Change of Control shall vest upon completion of the applicable time periods in Section 2.1(a).

2.2 Performance Threshold.

(a) For purposes of this Agreement, the “Performance Threshold” for any year shall be satisfied if the ROE (as defined below) for that year is greater than the 5 Yr Avg Cost of LT Debt (as defined below) for that year.

(b) The “ROE” for any year shall be calculated by dividing the Company’s Adjusted Net Income (as defined below) for the year by the Average Equity (as defined below) for the year. Subject to adjustment in accordance with Section 2.2(c) below, the Company’s “Adjusted Net Income” for any year shall be equal to the Company’s net income attributable to common shareholders for the year, as set forth in the audited consolidated statement of income of the Company and its subsidiaries for the year. Subject to adjustment in accordance with Section 2.2(c) below, “Average Equity” for any year shall mean the average of the Company’s total common stock equity as of the last day of the year and the Company’s total common stock equity as of the last day of the prior year, in each case as set forth on the audited consolidated balance sheet of the Company and its subsidiaries as of the applicable date.

(c) The Committee may, at any time, approve adjustments to the calculation of ROE to take into account such unanticipated circumstances or significant, non-recurring or unplanned events as the Committee may determine in its sole discretion, and such adjustments may increase or decrease ROE. Possible circumstances that may be the basis for adjustments shall include, but not be limited to, any change in applicable accounting rules or principles; any gain or loss on the disposition of a business; impairment of assets; dilution caused by Board approved business acquisition; tax changes and tax impacts of other changes; changes in applicable laws and regulations; changes in rate case timing; changes in the Company’s structure; and any other circumstances outside of management’s control.

(d) The “5 Yr Avg Cost of LT Debt” for any year shall mean the average of five numbers consisting of the Avg Cost of LT Debt (as defined below) for that year and for each of the four preceding years. The “Avg Cost of LT Debt” for any year shall be equal to the sum of the Weighted Costs (as defined below) calculated for each series or tranche of long-term debt of the Company outstanding on the last day of the year. The “Weighted Cost” for a series or tranche of long-term debt as of any date shall be calculated by multiplying the Effective Interest Rate (as defined below) on the debt as of that date by the outstanding principal balance of the debt on that date, and then dividing the resulting amount by the Company’s total outstanding principal balance of long-term debt as of that date. The “Effective Interest Rate” for a series or tranche of long-term debt as of any date shall be the yield calculated based on the

settlement date for the original issuance of the series or tranche, the maturity date of the series or tranche, the stated annual interest rate of the series or tranche in effect on that date, the number of interest payments per year under the terms of the series or tranche, the initial borrowing of an amount equal to the principal balance net of Debt Issuance Costs (as defined below) for the series or tranche, and the repayment of principal at maturity or otherwise according to the terms of the series or tranche. The “Debt Issuance Costs” for a series or tranche of long-term debt shall include the fees, commissions and expenses of issuance of such debt, any other purchase discount from the face amount of such debt, and any premiums, write-offs of unamortized debt issuance costs and other costs incurred in connection with retiring debt refinanced with the proceeds of such debt, all as reflected in the Company’s accounting records. For purposes of this Section 2.2(d), the Company’s long term debt and the interest rates and outstanding principal balances of the outstanding series or tranches of long-term debt as of any date shall be those amounts as set forth in the audited consolidated financial statements of the Company and its subsidiaries for the year ending on that date, and shall in all cases include the current portion of any long-term debt and exclude borrowings under a revolving credit facility. For the avoidance of doubt, the Effective Interest Rate for purposes of this Agreement of each series of fixed-rate long-term debt outstanding as of the date of this Agreement is set forth on Exhibit A hereto.

2.3 Effect of Retirement, Death, or Disability.

(a) If Recipient’s employment by the Company or any parent or subsidiary of the Company (the “Employer”) terminates because of Retirement (as defined below), death or physical disability (within the meaning of Section 22(e)(3) of the Code and a Change in Control has not previously occurred, all outstanding RSUs shall remain outstanding and subject to potential future vesting upon satisfaction of the Performance Threshold for the applicable years.

(b) If Recipient’s employment by the Employer terminates because of Retirement, death or physical disability and a Change in Control subsequently occurs, all outstanding RSUs shall immediately vest. If a Change in Control occurs and Recipient’s employment by the Employer subsequently terminates because of Retirement, death or physical disability, all outstanding RSUs shall immediately vest.

(c) The term “Retirement” means termination of employment (1) on or after the first anniversary of the date of this Agreement, and (2) after the Recipient is (i) age 62 with at least five years of service as an employee of the Company or a parent or subsidiary of the Company, or (ii) age 55 with age plus years of service (including fractions) as an employee of the Company or a parent or subsidiary of the Company totaling at least 70; provided, however, that a termination of Recipient’s employment by the Employer for Cause (as defined in Section 2.8 below) shall not constitute a Retirement.

2.4 CIC Acceleration if Party to a Severance Agreement. If Recipient is a party to a Change in Control Severance Agreement with the Company or a parent or subsidiary of the Company, all outstanding RSUs shall immediately vest if Recipient becomes entitled to a Change in Control Severance Benefit (as defined below). A “Change in Control Severance Benefit” means the severance benefit provided for in Recipient’s Change in Control Severance

Agreement with the Company or a parent or subsidiary of the Company; provided, however, that such severance benefit is a “Change in Control Severance Benefit” for purposes of this Agreement only if, under the terms of Recipient’s Change in Control Severance Agreement, Recipient becomes entitled to the severance benefit (a) after a change in control of the Company has occurred, (b) because Recipient’s employment with the Employer has been terminated by Recipient for good reason in accordance with the terms and conditions of the Change in Control Severance Agreement or by the Employer other than for cause, and (c) because Recipient has satisfied any other conditions or requirements specified in the Change in Control Severance Agreement and necessary for Recipient to become entitled to receive the severance benefit. For purposes of this Section 2.4, the terms “change in control,” “good reason,” “cause” and “disability” shall have the meanings set forth in Recipient’s Change in Control Severance Agreement.

2.5 CIC Acceleration if Not a Party to a Severance Agreement. If Recipient is not a party to a Change in Control Severance Agreement with the Company or a parent or subsidiary of the Company, all outstanding RSUs shall immediately vest if a Change in Control (as defined in Section 2.6 below) occurs and at any time after the earlier of Shareholder Approval (as defined in Section 2.7 below), if any, or the Change in Control and on or before the second anniversary of the Change in Control, (a) Recipient’s employment is terminated by the Employer (or its successor) without Cause (as defined in Section 2.8 below), or (b) Recipient’s employment is terminated by Recipient for Good Reason (as defined in Section 2.9 below).

2.6 Change in Control. For purposes of this Agreement, a “Change in Control” of the Company shall mean the occurrence of any of the following events:

(a) The consummation of:

(1) any consolidation, merger or plan of share exchange involving the Company (a “Merger”) as a result of which the holders of outstanding securities of the Company ordinarily having the right to vote for the election of directors (“Voting Securities”) immediately prior to the Merger do not continue to hold at least 50% of the combined voting power of the outstanding Voting Securities of the surviving corporation or a parent corporation of the surviving corporation immediately after the Merger, disregarding any Voting Securities issued to or retained by such holders in respect of securities of any other party to the Merger; or

(2) any consolidation, merger, plan of share exchange or other transaction involving Northwest Natural Gas Company (“NW Natural”) as a result of which the Company does not continue to hold, directly or indirectly, at least 50% of the outstanding securities of NW Natural ordinarily having the right to vote for the election of directors; or

(3) any sale, lease, exchange or other transfer (in one transaction or a series of related transactions) of all, or substantially all, the assets of the Company or NW Natural;

(b) At any time during a period of two consecutive years, individuals who at the beginning of such period constituted the Board (“Incumbent Directors”) shall cease

for any reason to constitute at least a majority thereof; provided, however, that the term “Incumbent Director” shall also include each new director elected during such two-year period whose nomination or election was approved by two-thirds of the Incumbent Directors then in office; or

(c) Any person (as such term is used in Section 14(d) of the Securities Exchange Act of 1934, other than the Company or any employee benefit plan sponsored by the Company or NW Natural) shall, as a result of a tender or exchange offer, open market purchases or privately negotiated purchases from anyone other than the Company, have become the beneficial owner (within the meaning of Rule 13d-3 under the Securities Exchange Act of 1934), directly or indirectly, of Voting Securities representing twenty percent (20%) or more of the combined voting power of the then outstanding Voting Securities.

2.7 Shareholder Approval. For purposes of this Agreement, “Shareholder Approval” shall be deemed to have occurred if the shareholders of the Company approve an agreement entered into by the Company, the consummation of which would result in the occurrence of a Change in Control.

2.8 Cause. For purposes of this Agreement, “Cause” shall mean (a) the willful and continued failure by Recipient to perform substantially Recipient’s assigned duties with the Employer (other than any such failure resulting from incapacity due to physical or mental illness) after a demand for substantial performance is delivered to Recipient by the Employer which specifically identifies the manner in which Recipient has not substantially performed such duties, (b) willful commission by Recipient of an act of fraud or dishonesty resulting in economic or financial injury to the Company or Employer, (c) willful misconduct by Recipient that substantially impairs the business or reputation of the Company or Employer, or (d) willful gross negligence by Recipient in the performance of his or her duties.

2.9 Good Reason. For purposes of this Agreement, “Good Reason” shall mean the occurrence after Shareholder Approval, if applicable, or the Change in Control, of any of the following circumstances, but only if (x) Recipient gives notice to Employer of Recipient’s intent to terminate employment for Good Reason within 30 days after the later of (1) notice to Recipient of such circumstances, or (2) the Change in Control, and (y) such circumstances are not fully corrected by the Employer within 90 days after Recipient’s notice:

(a) the assignment to Recipient of a different title, job or responsibilities that results in a decrease in the level of Recipient’s responsibility; provided that Good Reason shall not exist if Recipient continues to have the same or a greater general level of responsibility for the former Employer operations after the Change in Control as Recipient had prior to the Change in Control even though such responsibilities have necessarily changed due to the former Employer operations becoming a subsidiary or division of the surviving company;

(b) a reduction by the Employer in Recipient’s base salary as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control;

(c) the failure by Employer to continue in effect any employee benefit or incentive plan in which Recipient is participating immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control (or plans providing Recipient with at least substantially similar benefits) other than as a result of the normal expiration of any such plan in accordance with its terms as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control, or the taking of any action, or the failure to act, by Employer which would adversely affect Recipient's continued participation in any of such plans on at least as favorable a basis to Recipient as is the case immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control or which would materially reduce Recipient's benefits in the future under any of such plans or deprive Recipient of any material benefit enjoyed by Recipient immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control;

(d) the failure by the Employer to provide and credit Recipient with the number of paid vacation days to which Recipient is then entitled in accordance with the Employer's normal vacation policy as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control; or

(e) the Employer's requiring Recipient to be based more than 30 miles from where Recipient's office is located immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control except for required travel on the Employer's business to an extent substantially consistent with the business travel obligations which Recipient undertook on behalf of the Employer prior to the earlier of Shareholder Approval, if applicable, or the Change in Control.

2.10 Forfeiture; Possible Restoration. If Recipient ceases to be employed by the Employer for any reason or for no reason, with or without cause, other than because of Retirement, death or physical disability (within the meaning of Section 22(e)(3) of the Code), any RSUs that did not vest pursuant to this Section 2 or Section 5.2 at or prior to the time of such termination of employment shall be forfeited to the Company; provided, however, that if Recipient's employment is terminated by the Employer without Cause or by the Recipient for Good Reason after Shareholder Approval but before a Change in Control, any RSUs that are forfeited under this sentence shall be restored to the Recipient and vested if a Change in Control subsequently occurs within two years.

3. Certification and Delivery. As soon as practicable following the completion of each Performance Year, the Company shall calculate the ROE and the 5 Yr Avg Cost of LT Debt for that Performance Year, and shall submit those calculations to the Committee. At or prior to the regularly scheduled meeting of the Committee held in February of the year immediately following each Performance Year (each, a "Certification Meeting"), the Committee shall certify in writing (which may consist of approved minutes of the meeting) whether or not the Performance Threshold was satisfied for that Performance Year. Unless otherwise required under this Agreement as a result of the occurrence of a Change in Control, no amounts shall be delivered or paid unless the Committee certifies that the Performance Threshold has been satisfied for the applicable Performance Year. Subject to applicable tax withholding, on a date (a

“Payment Date”) that is on or as soon as practicable after the date any of the RSUs become vested or, if later, five business days following the Certification Meeting relating to those RSUs, the Company shall deliver to Recipient (a) the number of Shares underlying the RSUs that vested (rounded down to the nearest whole share), and (b) the dividend equivalent cash payment determined under Section 1 with respect to the number of Shares that are delivered; provided, however, that if accelerated vesting of the RSUs occurs pursuant to Section 2.3(b) as a result of Recipient’s Retirement after a Change in Control has previously occurred, the Payment Date shall be delayed until a date that is on or as soon as practicable after the earlier of (x) the date the RSUs would have vested under Section 2.1, or (y) the date that is six months after Recipient’s separation from service (within the meaning of Section 409A of the Internal Revenue Code). Notwithstanding the foregoing provisions of this Section 3, if Recipient shall have made a valid election to defer receipt of the Shares and dividend equivalent cash payment pursuant to the terms of Northwest Natural’s Deferred Compensation Plan for Directors and Executives (the “DCP”), payment of RSUs that vest shall be made in accordance with that election.

4. Tax Withholding.

4.1 Recipient acknowledges that, on any Payment Date when Shares are delivered to Recipient, the Value (as defined below) on that date of the Shares so delivered (as well as the amount of the related dividend equivalent cash payment) will be treated as ordinary compensation income for federal and state income and FICA tax purposes, and that the Employer will be required to withhold taxes on these income amounts. To satisfy the required withholding amount, the Employer shall first withhold all or part of the dividend equivalent cash payment, and if that is insufficient, the Employer shall withhold the number of Shares having a Value equal to the remaining withholding amount. For purposes of this Section 4, the “Value” of a Share shall be equal to the closing market price for Company Common Stock on the last trading day preceding the Payment Date.

4.2 Recipient acknowledges that under current tax law, the Employer is required to withhold FICA taxes with respect to the RSUs at the earlier of (a) the issuance of shares underlying the RSUs or (b) the date after a Change in Control on which Recipient becomes eligible for Retirement (or the date of the Change in Control if Recipient is eligible for Retirement at the time of the Change in Control). To satisfy the required minimum FICA withholding in the event that subsection (b) applies, Recipient shall, immediately upon notification of the amount due, pay to the Company in cash or by check amounts necessary to satisfy applicable FICA withholding requirements. If Recipient fails to pay the amount demanded, the Company may withhold that amount from other amounts payable to Recipient, including salary, subject to applicable law.

4.3 Notwithstanding the foregoing, Recipient may elect not to have Shares withheld to cover taxes by giving notice to the Company in writing prior to the Payment Date, in which case the Shares shall be issued or acquired in Recipient’s name on the Payment Date thereby triggering the tax consequences, but the Company shall retain the certificate for the Shares as security until Recipient shall have paid to the Company in cash any required tax withholding not covered by withholding of the dividend equivalent cash payment.

5. Sale of the Company. If there shall occur a merger, consolidation or plan of exchange involving the Company pursuant to which the outstanding shares of Common Stock of the Company are converted into cash or other stock, securities or property, or a sale, lease, exchange or other transfer (in one transaction or a series of related transactions) of all, or substantially all, the assets of the Company, then either:

5.1 the unvested RSUs shall be converted into restricted stock units for stock of the surviving or acquiring corporation in the applicable transaction, with the amount and type of shares subject thereto to be conclusively determined by the Committee, taking into account the relative values of the companies involved in the applicable transaction and the exchange rate, if any, used in determining shares of the surviving corporation to be held by the former holders of the Company's Common Stock following the applicable transaction, and disregarding fractional shares; or

5.2 all of the unvested RSUs shall immediately vest and the underlying Shares and related dividend equivalent cash payment shall be delivered simultaneously with the closing of the applicable transaction such that Recipient will participate as a shareholder in receiving proceeds from such transaction with respect to those Shares.

6. Changes in Capital Structure. If, prior to the full vesting of all of the RSUs granted under this Agreement, the outstanding Common Stock of the Company is increased or decreased or changed into or exchanged for a different number or kind of shares or other securities of the Company by reason of any stock split, combination of shares or dividend payable in shares, recapitalization or reclassification, appropriate adjustment shall be made by the Committee in the number and kind of shares subject to the unvested RSUs so that Recipient's proportionate interest before and after the occurrence of the event is maintained. Notwithstanding the foregoing, the Committee shall have no obligation to effect any adjustment that would or might result in the issuance of fractional shares, and any fractional shares resulting from any adjustment may be disregarded or provided for in any manner determined by the Committee. Any such adjustments made by the Committee shall be conclusive.

7. Recoupment On Misconduct.

7.1 If at any time before a Change in Control and within three years after any date on which any RSUs vested, (a) the Company's financial statements for the corresponding Performance Year are the subject of a restatement due to the Misconduct (as defined below) of any person (whether or not Recipient was personally involved in such Misconduct), and (b) based on the Company's financial statements as restated, the Performance Threshold was not satisfied for that Performance Year, then Recipient shall repay to the Company the Shares (the "Excess Shares") and dividend equivalent cash payment (the "Excess Dividends") that vested under this Agreement on that vesting date. If any Excess Shares are sold by Recipient prior to the Company's demand for repayment (including any shares withheld for taxes under Section 4 of this Agreement), Recipient shall repay to the Company 100% of the proceeds of such sale or sales. The Committee may, in its sole discretion, reduce the amount to be repaid by Recipient to take into account the tax consequences of such repayment for Recipient.

7.2 If the Committee determines that Recipient engaged in any Misconduct after the date of this Agreement and prior to a sale of any of the Shares (the “Tainted Shares”), and this determination is made before a Change in Control and within three years after the vesting of the Tainted Shares, Recipient shall repay to the Company the Excess Proceeds (as defined below). The Committee may, in its sole discretion, reduce the amount of Excess Proceeds to be repaid by Recipient to take into account the tax consequences of such repayment or any other factors. The return of Excess Proceeds is in addition to and separate from any other relief available to the Company due to Recipient’s Misconduct.

7.3 “Misconduct” shall mean (a) willful commission of an act of fraud or dishonesty resulting in economic or financial injury to the Company, (b) willful misconduct that substantially impairs the Company’s business or reputation, or (c) willful gross negligence in the performance of the person’s duties; provided, however, that such acts shall only constitute Misconduct if the Committee determines that such acts contributed to an obligation to restate the Company’s financial statements for any quarter or year or otherwise had (or will have when publicly disclosed) an adverse impact on the market price of the Company Common Stock.

7.4 “Excess Proceeds” shall mean the excess of (a) the actual aggregate sales proceeds from Recipient’s sales of Tainted Shares, over (b) the aggregate sales proceeds Recipient would have received from sales of Tainted Shares at a price per share determined appropriate by the Committee in its discretion to reflect what the market price of the Company Common Stock would have been if the restatement had occurred or other Misconduct had been disclosed prior to such sales.

7.5 If any portion of the Excess Shares and Excess Dividends was deferred under the DCP, that portion shall be recovered by canceling the amounts so deferred under the DCP and any dividends or other earnings credited under the DCP with respect to such cancelled amounts. The Company may seek direct repayment from Recipient of any Excess Shares, Excess Dividends and Excess Proceeds not so recovered and may, to the extent permitted by applicable law, offset such amounts against any compensation or other amounts owed by the Company to Recipient. In particular, such amounts may be recovered by offset against the after-tax proceeds of deferred compensation payouts under the DCP, Northwest Natural’s Executive Supplemental Retirement Income Plan or Northwest Natural’s Supplemental Executive Retirement Plan at the times such deferred compensation payouts occur under the terms of those plans. Amounts that remain unpaid for more than 60 days after demand by the Company shall accrue interest at the rate used from time to time for crediting interest under the DCP.

8. Approvals. The obligations of the Company under this Agreement are subject to the approval of state and federal authorities or agencies with jurisdiction in the matter. The Company will use its best efforts to take steps required by state or federal law or applicable regulations, including rules and regulations of the Securities and Exchange Commission and any stock exchange on which the Company’s shares may then be listed, in connection with the award under this Agreement. The foregoing notwithstanding, the Company shall not be obligated to issue or deliver Common Stock under this Agreement if such issuance or delivery would violate applicable state or federal law.

9. No Right to Employment. Nothing contained in this Agreement shall confer upon Recipient any right to be employed by the Employer or to continue to provide services to the Employer or to interfere in any way with the right of the Employer to terminate Recipient's services at any time for any reason, with or without cause.

10. Miscellaneous.

10.1 Entire Agreement; Amendment. This Agreement constitutes the entire agreement of the parties with regard to the subjects hereof and may be amended only by written agreement between the Company and Recipient.

10.2 Notices. Any notice required or permitted under this Agreement shall be in writing and shall be deemed sufficient when delivered personally to the party to whom it is addressed or when deposited into the United States Mail as registered or certified mail, return receipt requested, postage prepaid, addressed to the Company, Attention: Corporate Secretary, at its principal executive offices, or to Employer, Attention: Corporate Secretary, at its principal executive offices, or to Recipient at the address of Recipient in the Company's records, or at such other address as such party may designate by ten (10) days' advance written notice to the other party.

10.3 Assignment; Rights and Benefits. Recipient shall not assign this Agreement or any rights hereunder to any other party or parties without the prior written consent of the Company. The rights and benefits of this Agreement shall inure to the benefit of and be enforceable by the Company's successors and assigns and, subject to the foregoing restriction on assignment, be binding upon Recipient's heirs, executors, administrators, successors and assigns.

10.4 Further Action. The parties agree to execute such further instruments and to take such further action as may reasonably be necessary to carry out the intent of this Agreement.

10.5 Applicable Law; Attorneys' Fees. The terms and conditions of this Agreement shall be governed by the laws of the State of Oregon. In the event either party institutes litigation hereunder, the prevailing party shall be entitled to reasonable attorneys' fees to be set by the trial court and, upon any appeal, the appellate court.

10.6 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

NORTHWEST NATURAL HOLDING COMPANY

By _____

Title _____

RECIPIENT

EFFECTIVE INTEREST RATES OF OUTSTANDING LONG-TERM DEBT

The outstanding series or tranches of long-term debt of the Company outstanding as of the date of this Agreement and the Effective Interest Rate of each such series or tranche are as follows:

<u>Series</u>	<u>Effective Interest Rate</u>
Corp 5000:	
5.370 % Series due 2020	7.327%
9.050 % Series due 2021	9.163%
3.176 % Series due 2021	3.319%
3.542 % Series due 2023	3.696%
5.620 % Series due 2023	6.360%
7.720 % Series due 2025	8.336%
6.520 % Series due 2025	6.589%
7.050 % Series due 2026	7.121%
3.211 % Series due 2026	3.383%
7.000 % Series due 2027	7.062%
6.650 % Series due 2027	6.714%
2.822 % Series due 2027	2.966%
6.650 % Series due 2028	6.727%
3.141 % Series due 2029	3.275%
7.740 % Series due 2030	8.433%
7.850 % Series due 2030	8.551%
5.820 % Series due 2032	5.913%
5.660 % Series due 2033	5.723%
5.250 % Series due 2035	5.316%
4.000 % Series due 2042	4.062%
4.136 % Series due 2046	4.226%
3.685 % Series due 2047	3.754%
4.110 % Series due 2048	4.145%
3.869 % Series due 2049	3.938%
Corp 6000:	
3.250 % weighted rate Notes	3.250%
5.000 % Note due 2028	5.000%
LIBOR Loan – weighted rate	2.747%

ANNUAL INCENTIVE PLAN
NW Natural Gas Storage LLC
(“company”, or “the company”)

PURPOSE

The purpose of the Annual Incentive Plan (AIP) is to recognize and reward Non-Bargaining Unit (NBU) employees who have performed well and contributed to successful company performance as measured by key performance indicators.

PROGRAM TERM

This Plan is an annual incentive plan and each new calendar year commences a new Program Term. Each Program Term will begin on January 1 and conclude on December 31.

PARTICIPATION

All NBU regular employees of the company are eligible to participate in the Annual Incentive Plan. For all purposes of this AIP, a person who is an employee of Northwest Natural Gas Company (NW Natural) on full-time assignment to the company and designated by the Company Board of Directors (BOD) shall be considered to be a regular employee of the company during the period of that full-time assignment. In these situations, a designated participant in this AIP shall not be eligible for incentive compensation from NW Natural.

NW Natural Oversight

If the President of NWNGS is considered by NW Natural to be an executive officer of NW Natural for purposes of public disclosure, any decision of the BOD under this AIP that affects an award to the President shall be subject to and conditioned upon the approval of that decision by the Board of Directors of NW Natural or as delegated by the Board of Directors of NW Natural to the Organization and Executive Compensation Committee.

To be eligible for an award the Participant must have been employed by the company in an NBU role for at least one month during the Program Term. In addition, the Participant must

be employed on the date of the plan payout to be eligible for any award for the Program Term unless the Participants' employment is terminated prior to the payout date of the Program Term due to one of the following: retirement(*), disability or death, Board approved exception due disposition of an affiliated business which results in the participant's termination of employment with NWNGS. Prorated awards will be determined by prorating the Participant's final award by the number of days employed during the Program Term. In the case of a Board approved exception due to disposition of an affiliated business occurring during the Program Term, the participant's prorated award will be based upon their target award and not actual Company performance for the Program Term. Such award will be paid within thirty (30) days following the completion of the transition period as defined by the Board. The disposition of Gill Ranch Storage qualifies as Board approved and the Board will define the end of the transition period. However, participating employees with Company approved Retention Agreements, will be eligible for prorated AIP awards consistent with such agreements.

Employees who transfer to or from employment or full-time assignment to Northwest Natural or another subsidiary will be eligible for a prorated award based upon the number of days they were eligible to participate in the AIP.

(*) Retirement is defined as a minimum of 5 years of service (with the company or with an affiliate company) and age and service equals 70.

INCENTIVE TARGETS

Target incentive award opportunities will be established by salary grade for each Plan Year and approved by the Board of Directors. The target incentive levels for each salary grade are shown in Exhibit I to the Plan document for the Plan Year. The target incentive opportunity is assigned by salary grade and calculated by multiplying the Target Incentive percentage times the following for each employee category:

NBU Salary Paid/Exempt – Annual Base Salary as of December 31st of the plan year

NBU Hourly Paid/Non-Exempt – Actual eligible earnings, including regular pay, overtime pay, & lump sum merit payments

INCENTIVE FORMULA

The formula for calculating the incentive award for the Program Term is as follows:

Participant Award =

Target Award X ((CPF X CPF Factor Weight) + (IPF X IPF Factor Weight))

COMPANY PERFORMANCE FACTOR (CPF)

The company performance goals in the Plan are intended to align the interest of Participants with those of the company. The goals and the formula for determining the Company Performance Factor will be established by the NW Natural Gas Storage, LLC Board of Directors (the “Board of Directors”) at the start of each Program Term and set forth as Exhibit IIa and Exhibit IIb. After the goals and formula are established for a Program Term, the Board of Directors retains discretion to modify the goals and formula, including adjusting the calculation of any financial or other goal to eliminate the effects of significant extraordinary, non-recurring or unplanned items.

INDIVIDUAL PERFORMANCE FACTOR (IPF)

The IPF weight used in calculating the Individual Performance Factor will be established for each Participant by the President, subject to the approval of the Board of Directors at the beginning of the Program Term. Individual goals for each Participant will be established by the Participant’s leader (subject to the approval of the President, and for the President subject to the approval of the Board of Directors) at the beginning of each Program Term. Performance against these goals will be assessed by the Participant’s leader at the end of the Program Term (subject to the approval of the President, and for the President subject to the approval of the Board of Directors). This assessment will result in a rating on a scale of 0 to 1.5 (the “Individual

Performance Factor”). The Participant will not receive an award if the Individual Performance Factor is less than 0.5.

ADMINISTRATION

Awards will be calculated and paid no later than March 15 following the end of the Program Term. Awards are subject to tax withholding unless the Participant made a prior election to defer the Award under the terms of the NW Natural Gas Company Deferred Compensation Plan for Directors and Executives if they are eligible for this plan. All awards shall be audited and approved by the Board of Directors prior to payment.

The Plan shall be administered by the Board of Directors. Except to the extent provided under “NW Natural Oversight” above. The Board of Directors shall have the exclusive authority and responsibility for all matters in connection with the operation and administration of the Plan. Except to the extent provided under “NW Natural Oversight: above. Decisions by the Board of Directors shall be final and binding upon all parties affected by the Plan, including the beneficiaries of Participants.

The Board of Directors may rely on information and recommendations provided by management. The Board of Directors may delegate to management the responsibility for decisions that it may make or actions that it may take under the terms of the Plan, subject to the Board of Directors reserved right to review such decisions or actions and modify them when necessary or appropriate under the circumstances. The Board of Directors shall not allow any employee to obtain control over decisions or actions that affect that employee’s Plan benefits.

AMENDMENTS AND TERMINATION

The Board of Directors has the power to terminate this Plan at any time or to amend this Plan at any time and in any manner that it may deem advisable.

NORTHWEST NATURAL GAS COMPANY
EXECUTIVE ANNUAL INCENTIVE PLAN

This amended Executive Annual Incentive Plan (the “Plan”) is executed by Northwest Natural Gas Company, an Oregon corporation (the “Company”), effective October 1, 2018. Effective October 1, 2018, the Company became a wholly-owned subsidiary of Northwest Natural Holding Company (“Parent”) and holders of Company common stock became holders of Parent common stock (“Parent Common Stock”).

PURPOSE OF PLAN

The success of the Company is dependent upon its ability to attract and retain the services of key executives of the highest competence and to provide incentives for superior performance. The purpose of the plan is to advance the interests of the Company and its shareholders through an incentive compensation program that will attract and retain key executives and motivate them to achieve performance goals.

PROGRAM TERM

This Plan is an annual incentive plan and each new calendar year commences a new Program Term. Each Program Term will begin on January 1 and conclude on December 31.

PARTICIPATION

All executive officers of the company and any other highly compensated employees as designated by the Company’s Organization and Executive Compensation Committee (the “Committee”) are eligible to receive awards (“Awards”) under the Executive Annual Incentive Plan.

At the beginning of each Program Term, the Committee shall determine eligibility for Awards and establish for each participant, the target incentive level as a percentage of year-end annualized based salary (“Target Award”). This information will be set forth in Exhibit I of the Plan document for the Program Term. Each such participating employee shall be referred to as a “Participant.”

To be eligible for payout of an Award the Participant must have a minimum of three months of service during the Program Term. If the Participant is a new employee or is newly eligible to participate in the Plan, that Participant must be in an eligible position on or before September 30 of the Program Term and will receive a prorated Award. In addition, the Participant must be employed by the Company or Parent on December 31 of the Program Term to be eligible for payout of the Award for the Program Term unless the Participant is eligible for a prorated Award as provided in the next sentence. Eligibility for a prorated Award occurs when a Participant has three or more months of participation in the Program Term but the Participant’s employment is terminated prior to December 31 of the Program Term due to one of the following: Retirement (unless such Retirement

results from a termination of the Participant's employment by the Company or Parent for Cause), disability and death. Prorated Awards will be determined by prorating the Participant's final Award by the number of days employed during the Program Term.

"Retirement" shall mean termination of employment after Participant is (a) age 62 with at least five years of service as an employee of the Company and Parent, or (b) age 55 with age plus years of service (including fractions) as an employee of the Company and Parent totaling at least 70.

"Cause" shall mean (a) the willful and continued failure by a Participant to perform substantially the Participant's assigned duties with the Company or Parent (other than any such failure resulting from incapacity due to physical or mental illness) after a demand for substantial performance is delivered to the Participant by the Company or Parent which specifically identifies the manner in which the Participant has not substantially performed such duties, (b) willful commission by a Participant of an act of fraud or dishonesty resulting in economic or financial injury to the Company or Parent, (c) willful misconduct by a Participant that substantially impairs the Company's or Parent's business or reputation, or (d) willful gross negligence by a Participant in the performance of his or her duties.

In the event of a change in job position during the Program Term, the Committee may, in its discretion, increase or decrease the amount of a Participant's Award to reflect such change.

INCENTIVE FORMULA

The formula for calculating Awards for each Program Term is as follows:

$$\text{Target Award} \times \left[\left(\frac{\text{Company Performance Factor (CPF)}}{\text{Company Performance Factor (CPF)}} \times \text{CPF Factor Weight} \right) + \left(\frac{\text{Priority/Individual Performance Factor (IPF)}}{\text{Priority/Individual Performance Factor (IPF)}} \times \text{P/IPF Factor Weight} \right) \right] = \text{Participant Award}$$

COMPANY PERFORMANCE FACTOR

The Company performance goals in the Plan are intended to align the interest of Participants with those of the shareholders. The goals and the formula for determining the Company Performance Factor will be established by the Committee at the start of each Program Term and set forth as Exhibit II. The Committee may, at any time, approve adjustments to the calculation of the results under any Company performance goal to take into account such unanticipated circumstances or significant, non-recurring or unplanned events as the Committee may determine in its sole discretion, and such adjustments may increase or decrease the results. Possible circumstances that may be the basis for adjustments shall include, but not be limited to, any change in applicable accounting rules or principles; any gain or loss on the disposition of a business; impairment of assets; dilution caused by acquiring a business; tax changes and tax impacts of other changes; changes in applicable laws and regulations; changes in rate case timing; changes in the Company's structure; and any other circumstances outside of management's control.

PRIORITY/INDIVIDUAL PERFORMANCE FACTOR

The P/IPF weight used in calculating the Priority/Individual Performance Factor will be established for each Participant by the Committee at the beginning of the Program Term and set forth as part of Exhibit I. Also included in Exhibit I will be the CPF Factor Weight for the Company Performance Factor. Priority/Individual goals for each Participant will be established at the beginning of each Program Term and performance against these goals will be assessed by the Participant's superior and approved by the C.E.O. at the end of the Program Term. This assessment will result in a rating on a scale of 0% to 175%. This rating is called the Priority/Individual Performance Factor. The Participant will not receive a payout under the Priority/Individual Performance component of an Award if the Priority/Individual Performance Factor is less than 50%.

ADMINISTRATION

Award payouts will be calculated and paid no later than the March 15 following the end of the Program Term. Award payouts are subject to tax withholding unless the Participant made a prior election to defer the Award payout under the terms of the Deferred Compensation Plan for Directors and Executives ("DCP").

All Award payouts shall be audited by the Internal Audit department and approved by the Committee prior to payment.

The Plan shall be administered by the Committee. The Committee shall have the exclusive authority and responsibility for all matters in connection with the operation and administration of the Plan. Decisions by the Committee shall be final and binding upon all parties affected by the Plan, including the beneficiaries of Participants.

The Committee may rely on information and recommendations provided by management. The Committee may delegate to management the responsibility for decisions that it may make or actions that it may take under the terms of the Plan, subject to the Committee's reserved right to review such decisions or actions and modify them when necessary or appropriate under the circumstances. The Committee shall not allow any employee to obtain control over decisions or actions that affect that employee's Plan benefits.

RECOUPMENT ON EARNINGS RESTATEMENT

If at any time before a Change in Control and within three years after the payout of Awards for a Program Term, Parent's financial statements for that Program Term are the subject of a restatement due to the Misconduct of any person, each Participant who received an Award payout for that Program Term (whether or not such Participant was personally involved in such Misconduct) shall repay to the Company the Excess Bonus Compensation (as defined below). For purposes of the Plan, "Excess Bonus Compensation" for any Participant means the positive difference, if any, between (i) the Participant's Award payout as originally calculated, and (ii) the Participant's Award payout as recalculated with the results for Company performance goals being based on Parent's financial statements as restated. Excess Bonus Compensation shall not include any amounts in respect of any individual performance goals or in respect of Company performance goals that are not measured in whole or in part on financial results reported in Parent's financial statements. The

Committee may, in its sole discretion, reduce the amount of Excess Bonus Compensation to be repaid by any Participant to take into account the tax consequences of such repayment for the Participant.

If any portion of an Award payout was deferred under the DCP, any Excess Bonus Compensation to be repaid with respect to that Award shall first be recovered by canceling all or a portion of the amount so deferred under the DCP and any interest credited under the DCP with respect to such cancelled amount. The Company may seek direct repayment from the Participant of any Excess Bonus Compensation not so recovered and may, to the extent permitted by applicable law, offset such Excess Bonus Compensation against any compensation or other amounts owed by the Company to the Participant. In particular, Excess Bonus Compensation may be recovered by offset against the after-tax proceeds of deferred compensation payouts under the DCP, the Company's Executive Supplemental Retirement Income Plan or the Company's Supplemental Executive Retirement Plan at the times such deferred compensation payouts occur under the terms of those plans. Excess Bonus Compensation that remains unpaid for more than 60 days after demand by the Company shall accrue interest at the rate used from time to time for crediting interest under the DCP.

"Misconduct" shall mean (a) willful commission by any person of an act of fraud or dishonesty or (b) willful gross negligence by any person in the performance of his or her duties.

"Change in Control" shall mean the occurrence of any of the following events:

(a) The consummation of:

(i) any consolidation, merger or plan of share exchange involving Parent (a "Merger") as a result of which the holders of outstanding securities of Parent ordinarily having the right to vote for the election of directors ("Voting Securities") immediately prior to the Merger do not continue to hold at least 50% of the combined voting power of the outstanding Voting Securities of the surviving corporation or a parent corporation of the surviving corporation immediately after the Merger, disregarding any Voting Securities issued to or retained by such holders in respect of securities of any other party to the Merger;

(ii) any consolidation, merger, plan of share exchange or other transaction involving the Company as a result of which Parent does not continue to hold, directly or indirectly, at least 50% of the outstanding securities of the Company ordinarily having the right to vote for the election of directors; or

(iii) any sale, lease, exchange or other transfer (in one transaction or a series of related transactions) of all, or substantially all, the assets of Parent or the Company;

(b) At any time during a period of two consecutive years, individuals who at the beginning of such period constituted Parent's Board of Directors ("Incumbent Directors") shall cease for any reason to constitute at least a majority thereof; provided, however, that the term "Incumbent Director" shall also include each new director elected during such two-year period whose nomination or election was approved by two-thirds of the Incumbent Directors then in office; or

(c) Any person (as such term is used in Section 14(d) of the Securities Exchange Act of 1934, other than Parent or any employee benefit plan sponsored by Parent) shall, as a result of a tender or exchange offer, open market purchases or privately negotiated purchases from anyone other than Parent, have become the beneficial owner (within the meaning of Rule 13d-3 under the Securities Exchange Act of 1934), directly or indirectly, of Voting Securities representing twenty percent (20%) or more of the combined voting power of the then outstanding Voting Securities.

AMENDMENTS AND TERMINATION

The Board has the power to terminate this Plan at any time or to amend this Plan at any time and in any manner that it may deem advisable.

IN WITNESS WHEREOF this Plan was duly amended effective as of October 1, 2018.

NORTHWEST NATURAL GAS COMPANY

By: /s/ DAVID H. ANDERSON
David H. Anderson
President and Chief Executive Officer

Exhibit I
Effective January 1, 2020

Participants, Target Awards and Individual Performance

Program Term: January 1, 2020 – December 31, 2020

Exhibit II

**Company Performance Factor
Program Term: January 1, 2020 – December 31, 2020**

Company Performance Factor Formula:

$$\left(\begin{array}{|c|c|} \hline \text{Net Income} \\ \text{Component} \\ \hline \end{array} \begin{array}{|c|} \hline \text{X 71.43\%} \\ \hline \end{array} \right) + \left(\begin{array}{|c|c|} \hline \text{Operations} \\ \text{Component} \\ \hline \end{array} \begin{array}{|c|} \hline \text{X 28.57\%} \\ \hline \end{array} \right) = \begin{array}{|c|} \hline \text{Company} \\ \text{Performance Factor} \\ \hline \end{array}$$

Net Income Component:

The Net Income (NI) Component will be determined using the formula in Note 1 below using Holding Company consolidated NI results. The table shows values rounded.

2020 NI Results	NI Performance Component
	0%
	50%
	100%
	175%

Notes on NI Component:

- 1) Values between those shown above will be interpolated using the formula shown below:
 Regression Interpolation Line for NI between \$ _____ and \$ _____ is $y = \text{_____}x - \text{_____}$ and line for NI between \$ _____ and \$ _____ is $y = \text{_____}x - \text{_____}$ where X is the NI results for the year.
- 2) Final NI Number will be rounded to two places to the right of the decimal. This will be the same number as reported to shareholders before any approved exceptions.

Operations Component:

The Operations Component (previously called Expanded Key Goals which aligns with BU and NBU incentive goals) for 2020 will be determined using the following formula and table:

$$\text{Sum of } \left(\text{Goal Performance Rating} \times \text{Goal Weight} \right) = \text{Operations Component Factor(1)}$$

2020 Operational Goals

Goals	Goal Performance Rating	Goal Weight
Customer Satisfaction (_____)	Cust. Sat. Rating _____ 0% _____ 50% _____ 100% _____ 150% _____ 200%	16.667%
Customer Satisfaction (Staff Interaction)	Cust. Sat. Rating _____ % 0% _____ % 100% _____ % 200%	16.667%
Market Share & Growth (Total New Meter Sets)	Total New Rating Meter Sets _____ 0% _____ 100% _____ 200%	16.667%
Public Safety - Damages (% of calls w/response time less than 45 minutes)	% Call Rsp. Rating _____ % 0% _____ % 100% _____ % 200%	16.667%
Public Safety - Odor Response (% of calls w/response time less than 45 minutes)	% Call Rsp. Rating _____ % 0% _____ % 100% _____ % 200%	16.667%
Employee Safety Each factor weighted 50%	DART Rate Rating _____ % 0% _____ % 100% _____ % 200%	16.667%
DART Rate Days Away Restricted Time		
PMVC No. of Preventable Motor Vehicle Collison (There will be no payout under this metric in the event of an on the job employee fatality due to a preventable safety incident)	PMVC Rating _____ 0% _____ 100% _____ 200%	
TOTAL		100%

Notes on Operations Goals:

- 1) Goal ratings will be interpolated between amounts shown.
- 2) The Goal Performance Rating for each goal is limited to 200%.
- 3) The Operations Component is limited to 200% and the aggregate performance from this component for use in the EAIP is limited to 175%.

Final Notes on Company Performance Factor and General:

- 1) Final EAIP Participant Awards to participants will be rounded up to the nearest \$1,000.
- 2) Final NI results for 2020 could be adjusted for the impact of certain events as determined by the OECC.

_____, 20__

Re: Change in Control Severance Agreement

Dear _____ :

Northwest Natural Gas Company, an Oregon corporation (the "Company"), a wholly-owned subsidiary of Northwest Natural Holding Company, an Oregon corporation ("Parent"), considers the establishment and maintenance of a sound and vital management to be essential to protecting and enhancing the best interests of the Company. In this connection, the Company recognizes that, as is the case with many publicly held corporations like Parent, the possibility of a change in control may exist and that such possibility, and the uncertainty and questions which it may raise among management, may result in the departure or distraction of management personnel to the detriment of the Company, its customers and its shareholders. Accordingly, the Board of Directors of the Company (the "Board") has determined that appropriate steps should be taken to reinforce and encourage the continued attention and dedication of members of the Company's management to their assigned duties without distraction in circumstances arising from the possibility of a change in control of Parent or the Company.

In order to induce you to remain in the employ of the Company, this letter agreement, which has been approved by the Board, sets forth severance benefits which the Company agrees will be provided to you in the event your employment with the Company is terminated in connection with a Change in Control (as defined in Section 3 hereof) under the circumstances described below. The Company and you have entered into a prior letter agreement regarding change in control severance benefits dated _____, 20___. Upon your signature of this letter agreement, the prior agreement shall be amended and restated in its entirety in the form of this agreement.

1. Agreement to Provide Services; Right to Terminate.

(i) Except as otherwise provided in paragraph (ii) below, the Company or you may terminate your employment at any time, subject to the Company's providing the benefits hereinafter specified in accordance with the terms hereof.

(ii) In the event of a Potential Change in Control (as defined in Section 3 hereof), you agree that you will not leave the employ of the Company (other than as a result of Disability, as such term is hereinafter defined) and will render the services contemplated in the recitals to this Agreement until the earliest of (a) a date which is 270 days from the occurrence of such Potential Change in Control, or (b) a termination of your employment pursuant to which you become entitled under this Agreement to receive the benefits provided in Section 5(iii) below.

2. Term of Agreement. This Agreement shall commence on the date hereof and shall continue in effect until December 31, 2020; provided, however, that commencing on January 1, 2021 and each January 1 thereafter, the term of this Agreement shall automatically be extended for one additional year unless at least 90 days prior to such January 1 date, the Company or you shall have given notice that this Agreement shall not be extended (provided that no such notice may be given by the Company during the pendency of

a Potential Change in Control); and provided, further, that this Agreement shall continue in effect for a period of twenty-four (24) months beyond the term provided herein if a Change in Control shall have occurred during such term. Notwithstanding anything in this Section 2 to the contrary, this Agreement shall terminate automatically if you or the Company terminate your employment prior to the earlier of Shareholder Approval (as defined in Section 3 hereof), if applicable, or the Change in Control. In addition, the Company may terminate this Agreement during your employment if, prior to the earlier of Shareholder Approval, if applicable, or the Change in Control, you cease to hold your current position with the Company, except by reason of a promotion.

3. Change in Control; Potential Change in Control; Shareholder Approval; Person.

(i) For purposes of this Agreement, a “Change in Control” shall mean the occurrence of any of the following events:

(A) The consummation of:

(1) any consolidation, merger or plan of share exchange involving Parent (a “Merger”) as a result of which the holders of outstanding securities of Parent ordinarily having the right to vote for the election of directors (“Voting Securities”) immediately prior to the Merger do not continue to hold at least 50% of the combined voting power of the outstanding Voting Securities of the surviving corporation or a parent corporation of the surviving corporation immediately after the Merger, disregarding any Voting Securities issued to or retained by such holders in respect of securities of any other party to the Merger;

(2) any consolidation, merger, plan of share exchange or other transaction involving the Company as a result of which Parent does not continue to hold, directly or indirectly, at least 50% of the outstanding securities of the Company ordinarily having the right to vote for the election of directors; or

(3) any sale, lease, exchange or other transfer (in one transaction or a series of related transactions) of all, or substantially all, the assets of Parent or the Company;

(B) At any time during a period of two consecutive years, individuals who at the beginning of such period constituted the board of directors of Parent (“Incumbent Directors”) shall cease for any reason to constitute at least a majority thereof; provided, however, that the term “Incumbent Director” shall also include each new director elected during such two-year period whose nomination or election was approved by two-thirds of the Incumbent Directors then in office; or

(C) Any Person (as hereinafter defined) shall, as a result of a tender or exchange offer, open market purchases or privately negotiated purchases from anyone other than Parent, have become the beneficial owner (within the meaning of Rule 13d-3 under the Securities Exchange Act of 1934), directly or indirectly, of Voting Securities representing twenty percent (20%) or more of the combined voting power of the then outstanding Voting Securities.

Notwithstanding anything in the foregoing to the contrary, unless otherwise determined by the Board, no Change in Control shall be deemed to have occurred for purposes of this Agreement if (1) you acquire (other than on the same basis as all other holders of shares of Common Stock of Parent or the Company) an equity interest in an entity that acquires Parent or the Company in a Change in Control otherwise described under subparagraph (A) above, or (2) you are part of a group that constitutes a Person which becomes a beneficial

owner of Voting Securities in a transaction that otherwise would have resulted in a Change in Control under subparagraph (C) above.

(ii) For purposes of this Agreement, a “Potential Change in Control” shall be deemed to have occurred if:

(A) Parent or the Company enters into an agreement, the consummation of which would result in the occurrence of a Change in Control;

(B) any Person (including Parent or the Company) publicly announces an intention to take or to consider taking actions which if consummated would constitute a Change in Control; or

(C) the Board adopts a resolution to the effect that, for purposes of this Agreement, a Potential Change in Control has occurred.

(iii) For purposes of this Agreement, “Shareholder Approval” shall be deemed to have occurred if the shareholders of Parent approve an agreement entered into by Parent, the consummation of which would result in the occurrence of a Change in Control.

(iv) For purposes of this Agreement, the term “Person” shall mean and include any individual, corporation, partnership, group, association or other “person,” as such term is used in Section 14(d) of the Securities Exchange Act of 1934 (the “Exchange Act”), other than Parent or the Company or any employee benefit plan sponsored by Parent or the Company.

4. Termination Following Shareholder Approval or Change in Control. If a Change in Control occurs, you shall be entitled to the benefits provided in Section 5(iii) hereof in the event that (x) a Date of Termination (as defined in Section 4(v) below) of your employment with the Company occurred or occurs after the earlier of Shareholder Approval, if applicable, or the Change in Control and no later than twenty-four (24) months after the Change in Control, or (y) your employment with the Company is terminated by you for Good Reason (as defined below) based on an event occurring concurrent with or subsequent to the earlier of Shareholder Approval, if applicable, or the Change in Control and your Notice of Termination (as defined in Section 4(iv) below) in connection therewith shall have been given no later than twenty-four (24) months after the Change in Control; provided, however, that if any such termination is (a) because of your death, (b) by the Company for Cause (as defined below) or Disability, or (c) by you other than for Good Reason based on an event occurring concurrent with or subsequent to the earlier of Shareholder Approval, if applicable, or the Change in Control, then you shall not be entitled to the benefits provided in Section 5(iii) hereof.

(i) Disability. Termination by the Company of your employment based on “Disability” shall mean termination because of your absence from your duties with the Company on a full-time basis for one hundred eighty (180) consecutive days as a result of your incapacity due to physical or mental illness, unless within thirty (30) days after Notice of Termination is given to you following such absence you shall have returned to the full-time performance of your duties.

(ii) Cause. Termination by the Company of your employment for “Cause” shall mean termination upon (a) the willful and continued failure by you to perform substantially your assigned duties with the Company (other than any such failure resulting from your incapacity due to physical or mental illness) after a demand for substantial performance is delivered to you by the Chairman of the Board or Chief Executive Officer of the Company which specifically identifies the manner in which such executive believes that you have not substantially performed your duties or (b) the willful engaging by you in illegal conduct

which is materially and demonstrably injurious to the Company. For purposes of this paragraph (ii), no act, or failure to act, on your part shall be considered “willful” unless done, or omitted to be done, by you in knowing bad faith and without reasonable belief that your action or omission was in, or not opposed to, the best interests of the Company. Any act, or failure to act, based upon authority given pursuant to a resolution duly adopted by the Board or based upon the advice of counsel for the Company shall be conclusively presumed to be done, or omitted to be done, by you in good faith and in the best interests of the Company. Notwithstanding the foregoing, you shall not be deemed to have been terminated for Cause unless and until there shall have been delivered to you a copy of a resolution duly adopted by the affirmative vote of not less than three-quarters of the entire membership of the Board at a meeting of the Board called and held for the purpose (after reasonable notice to you and an opportunity for you, together with your counsel, to be heard before the Board), finding that in the good faith opinion of the Board you were guilty of the conduct set forth above in (a) or (b) of this paragraph (ii) and specifying the particulars thereof in detail.

(iii) Good Reason. Termination by you of your employment with the Company for “Good Reason” shall mean termination by you of your employment with the Company based on any of the following events provided you give Notice of Termination after the occurrence of any of the following events and no later than 30 days after the later of (1) notice to you of such event, or (2) the Change in Control:

(A) a change in your status, title, position(s) or responsibilities as an officer of the Company which does not represent a promotion from your status, title, position(s) and responsibilities as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control, or the assignment to you of any duties or responsibilities which are inconsistent with such status, title or position(s), or any removal of you from or any failure to reappoint or reelect you to such position(s), except in connection with the termination of your employment for Cause or Disability or as a result of your death or by you other than for Good Reason;

(B) a reduction by the Company in your base salary as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control;

(C) the failure by the Company or Parent, as applicable, to continue in effect any Plan (as hereinafter defined) in which you are participating immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control (or Plans providing you with at least substantially similar benefits) other than as a result of the normal expiration of any such Plan in accordance with its terms as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control, or the taking of any action, or the failure to act, by the Company or Parent which would adversely affect your continued participation in any of such Plans on at least as favorable a basis to you as is the case immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control or which would materially reduce your benefits in the future under any of such Plans or deprive you of any material benefit enjoyed by you immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control;

(D) the failure by the Company to provide and credit you with the number of paid vacation days to which you are then entitled in accordance with the Company’s normal vacation policy as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control;

(E) the Company’s requiring you to be based more than 30 miles from where your office is located immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control except for required travel on the Company’s business to an extent substantially consistent with the business travel obligations which you undertook on behalf of the Company prior to the earlier of Shareholder Approval, if applicable, or the Change in Control;

(F) the failure by the Company to obtain from any Successor (as hereinafter defined) the assent to this Agreement contemplated by Section 7 hereof;

(G) any purported termination by the Company of your employment which is not effected pursuant to a Notice of Termination satisfying the requirements of paragraph (iv) below (and, if applicable, paragraph (ii) above); and for purposes of this Agreement, no such purported termination shall be effective; or

(H) the failure by the Company to pay you any portion of your current compensation, to credit your account under any deferred compensation plan in accordance with your previous election, or to pay you any portion of an installment of deferred compensation under any Plan in which you participated, within seven (7) days of the date such compensation is due.

For purposes of this Agreement, "Plan" shall mean any compensation plan such as an incentive, stock option or restricted stock plan or any employee benefit plan such as a savings, pension, profit sharing, deferred compensation, medical, disability, accident, life insurance, or relocation plan or policy or any other plan, program or policy of the Company or Parent intended to benefit employees of the Company.

(iv) Notice of Termination. Any purported termination by the Company or by you (other than termination due to your death, which shall terminate your employment automatically) following the earlier of Shareholder Approval, if applicable, or a Change in Control shall be communicated by Notice of Termination to the other party hereto. For purposes of this Agreement, a "Notice of Termination" shall mean a notice which shall indicate the specific termination provision in this Agreement relied upon and shall set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination of your employment under the provision so indicated.

(A) With respect to any Notice of Termination given by you for Good Reason, such Notice of Termination may indicate that such termination for Good Reason shall be conditioned upon, and postponed until, the date on which it is finally determined, either by mutual written agreement of the parties or by the arbitrators in a proceeding as provided in Section 13 hereof, that Good Reason exists for such termination. If a Notice of Termination given by you for Good Reason indicates that such termination shall be so conditioned and postponed, then, if the Company disputes the existence of Good Reason, the Company shall, within thirty (30) days after the Notice of Termination is given, notify you that a dispute exists concerning the termination, whereupon Section 13 hereof shall apply to such dispute. If no such notice is given by the Company within such 30-day period, then a final determination that Good Reason exists shall be deemed to have occurred on the date thirty (30) days after the Notice of Termination for Good Reason is given.

(B) Notwithstanding anything to the contrary in this Agreement:

(1) if, at any time before the Date of Termination determined pursuant to this Agreement with respect to any purported termination by you of your employment with the Company, there exists a basis for the Company to terminate your employment for Cause, then the Company may, regardless of whether or not you have given Notice of Termination for Good Reason and regardless of whether or not Good Reason exists, terminate your employment for Cause, in which event you shall not be entitled to the benefits provided in Section 5(iii) hereof, and

(2) if you die or your employment is terminated based on Disability after you have given Notice of Termination for Good Reason and before the Date of Termination determined

under this Agreement with respect to that Notice of Termination, and it is subsequently finally determined that Good Reason existed at the time your employment terminated, then termination of your employment shall be deemed to have occurred for Good Reason (and not due to your death or Disability) and you shall be entitled to the benefits provided in Section 5(iii) hereof.

(v) Date of Termination. “Date of Termination” shall mean the date your employment with the Company is terminated following the earlier of Shareholder Approval, if applicable, or a Change in Control, which date shall be determined as follows:

(A) if your employment is to be terminated for Disability, thirty (30) days after Notice of Termination is given (provided that, if you shall have returned to the performance of your duties on a full-time basis during such thirty (30) day period, then the termination for Disability contemplated by the Notice of Termination shall not occur),

(B) if your employment is terminated due to your death, the date of your death,

(C) if your employment is to be terminated by the Company other than for Disability, or if your employment is to be terminated by you without a claim of Good Reason, the date specified in the Notice of Termination, and

(D) if your employment is to be terminated by you for Good Reason, the date ninety (90) days after the date on which a Notice of Termination is given, unless either:

(1) an earlier date has been agreed to by the Company either in advance of, or after, receiving such Notice of Termination (in which case such earlier date shall be the Date of Termination),

(2) pursuant to and in accordance with Section 4(iv) you have indicated in your Notice of Termination that you are conditioning your termination upon (and postponing such termination until) the date on which it is finally determined that Good Reason exists for such termination (in which case the later of such date as determined in accordance with Section 4(iv) above, or the date otherwise determined under this Section 4(v)(D), shall be the Date of Termination),

(3) the Company shall not have notified you within fifteen (15) days after a Notice of Termination for Good Reason is given that it intends to fully correct the circumstances giving rise to Good Reason (in which case the date fifteen (15) days after the Notice of Termination shall be the Date of Termination), or

(4) if the Company gives notice as provided in Section 4(v)(D)(3) and if the circumstances giving rise to Good Reason are fully corrected on or prior to the date that is ninety (90) days after such Notice of Termination was given, then the termination for Good Reason contemplated by such Notice of Termination shall not occur.

(E) You shall not be obligated to perform any services after the Date of Termination that would prevent the termination of your employment on such Date of Termination from qualifying as a “separation from service” as defined in Treasury Regulations §1.409A-1(h).

5. Compensation Upon Termination or During Disability.

(i) During any period following the earlier of Shareholder Approval, if applicable, or a Change in Control that you fail to perform your duties as a result of incapacity due to physical or mental illness, you shall continue to receive your full base salary at the rate then in effect and any benefits or awards under any Plans shall continue to accrue during such period, to the extent not inconsistent with such Plans, until your employment is terminated pursuant to and in accordance with Sections 4(i) and 4(v) hereof. Thereafter, your benefits shall be determined in accordance with the Plans then in effect.

(ii) If your employment shall be terminated for Cause or as a result of death following the earlier of Shareholder Approval, if applicable, or a Change in Control, the Company shall pay you your full base salary through the Date of Termination at the rate in effect just prior to the time a Notice of Termination is given plus any benefits or awards which pursuant to the terms of any Plans have been earned or become payable, but which have not yet been paid to you. Thereupon the Company shall have no further obligations to you under this Agreement.

(iii) If a Change in Control occurs and either (a) after the earlier of Shareholder Approval, if applicable, or the Change in Control and no later than twenty-four (24) months after the Change in Control, a Date of Termination of your employment with the Company occurred or occurs as a result of a termination by the Company other than for Cause or Disability, or (b) your employment with the Company is terminated by you for Good Reason based on an event occurring concurrent with or subsequent to the earlier of Shareholder Approval, if applicable, or the Change in Control and your Notice of Termination in connection therewith shall have been given no later than twenty-four (24) months after the Change in Control, then, by no later than the fifth day following the later of the Date of Termination or the Change in Control (except as may otherwise be provided), you shall be entitled, without regard to any contrary provisions of any Plan, to a severance benefit as follows:

(A) the Company shall pay your full base salary through the Date of Termination at the rate in effect just prior to the time a Notice of Termination is given plus any benefits or awards which pursuant to the terms of any Plans have been earned or become payable, but which have not yet been paid to you; provided, however, that with respect to a termination of your employment for Good Reason based on a reduction by the Company in your base salary as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control, the Company shall pay your full base salary through the Date of Termination at the rate in effect just prior to such reduction plus any benefits or awards which pursuant to the terms of any Plans have been earned or become payable, but which have not yet been paid to you;

(B) as severance pay and in lieu of any further salary for periods subsequent to the Date of Termination, the Company shall pay to you in a single payment an amount in cash equal to _____ times the sum of (1) the greater of (i) your annual rate of base salary in effect on the Date of Termination or (ii) your annual rate of base salary in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control and (2) the greater of (i) the average of the last three annual bonuses (annualized in the case of any bonus paid with respect to a partial year) paid to you preceding the Date of Termination or (ii) the average of the last three annual bonuses (annualized in the case of any bonus paid with respect to a partial year) paid to you preceding the earlier of Shareholder Approval, if applicable, or the Change in Control; and

(C) for a twenty-four (24) month period after the Date of Termination (specifically including a Date of Termination that occurs after Shareholder Approval and prior to a Change in Control), the Company shall arrange to provide you, your spouse and your dependents with life,

accident and health insurance benefits substantially similar to those which you were receiving immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control. Notwithstanding the foregoing, the Company shall not provide any benefit otherwise receivable by you pursuant to this subparagraph (C) to the extent that a similar benefit is actually received by you from a subsequent employer during such twenty-four (24) month period, and any such benefit actually received by you shall be reported to the Company.

(iv) The amount of any payment provided for in this Section 5 shall not be reduced, offset or subject to recovery by the Company by reason of any compensation earned by you as the result of employment by another employer after the Date of Termination, or otherwise. Your entitlements under Section 5(iii) are in addition to, and not in lieu of, any rights, benefits or entitlements you may have under the terms or provisions of any Plan.

6. Parachute Payments. Notwithstanding any other provision in this Agreement or any other agreement or arrangement between the Company or Parent and you with respect to compensation or benefits (each an "Other Arrangement"), in the event that the provisions of Sections 280G and 4999 of the Internal Revenue Code of 1986, as amended, or any successor provisions (the "Code"), would cause you to receive a greater after-tax benefit from the Capped Benefit (as defined below) than from the amounts (including the monetary value of any non-cash benefits) otherwise payable pursuant to this Agreement or any Other Arrangement (the "Specified Benefits"), the Capped Benefit shall be paid to you in lieu of the Specified Benefits. The "Capped Benefit" shall equal the Specified Benefits, reduced by the amount necessary to prevent any portion of the Specified Benefits from being a "parachute payment" as defined in Section 280G(b)(2) of the Code. The Capped Benefit would therefore equal 2.99 multiplied by your applicable "base amount" as defined in Section 280G(b)(3) of the Code. For purposes of determining whether you would receive a greater after-tax benefit from the Capped Benefit than from the Specified Benefits, there shall be taken into account any excise tax that would be imposed under Section 4999 of the Code and all federal, state and local taxes required to be paid by you in respect of the receipt of such payments. The parties acknowledge that the application of Section 280G is uncertain in many respects and agree that the Company shall make all calculations and determinations under this section (including application and interpretation of the Code and related regulatory, administrative and judicial authorities) in good faith, which calculations and determinations shall be conclusive absent manifest error. The Company shall provide you with a reasonable opportunity to review and comment on the Company's calculations of the Capped Benefit and to request which of the Specified Benefits shall be reduced. If, after payment of any amount under this Agreement or any Other Arrangement, it is determined that the calculation of the Capped Benefit was calculated incorrectly, the amount of the Capped Benefit will be adjusted, the Company shall pay to you any additional amount that should have been paid to you, and you shall repay to the Company any amount that should not have been paid to you, in each case with interest at the discount rate applicable under Section 280G(d)(4) of the Code.

7. Successors: Binding Agreement.

(i) Upon your written request, the Company will seek to have any Successor (as hereinafter defined), by agreement in form and substance satisfactory to you, assent to the fulfillment by the Company of its obligations under this Agreement. For purposes of this Agreement, "Successor" shall mean any Person that succeeds to, or has the practical ability to control (either immediately or with the passage of time), the Company's business directly, by merger, consolidation or purchase of assets, or indirectly, by purchase of Parent's or the Company's Voting Securities or otherwise.

(ii) This Agreement shall inure to the benefit of and be enforceable by your personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees. If you should die while any amount would still be payable to you hereunder if you had continued to live, all such

amounts, unless otherwise provided herein, shall be paid in accordance with the terms of this Agreement to your devisee, legatee or other designee or, if there be no such designee, to your estate.

8. Fees and Expenses. The Company shall pay to you all legal fees and related expenses incurred by you in good faith as a result of (i) your termination following the earlier of Shareholder Approval, if applicable, or a Change in Control (including all such fees and expenses, if any, incurred in contesting or disputing in good faith any such termination) or (ii) your seeking to obtain or enforce in good faith any right or benefit provided by this Agreement.

9. Survival. The respective obligations of, and benefits afforded to, the Company and you as provided in Sections 5, 6, 7(ii), 8 and 13 of this Agreement shall survive termination of this Agreement, but only with respect to a Change in Control occurring during the term of this Agreement.

10. Notice. For the purposes of this Agreement, notices and all other communications provided for in this Agreement shall be in writing and shall be deemed to have been duly given when delivered or mailed by United States registered mail, return receipt requested, postage prepaid and addressed to the address of the respective party set forth on the first page of this Agreement, provided that all notices to the Company shall be directed to the attention of the Chairman of the Board or Chief Executive Officer of the Company, with a copy to the Secretary of the Company, or to such other address as either party may have furnished to the other in writing in accordance herewith, except that notice of change of address shall be effective only upon receipt.

11. Miscellaneous. No provision of this Agreement may be modified, waived or discharged unless such modification, waiver or discharge is agreed to in a writing signed by you and the Chairman of the Board or Chief Executive Officer of the Company. No waiver by either party hereto at any time of any breach by the other party hereto of, or of compliance with, any condition or provision of this Agreement to be performed by such other party shall be deemed a waiver of similar or dissimilar provisions or conditions at the same or at any prior or subsequent time. No agreements or representations, oral or otherwise, express or implied, with respect to the subject matter hereof have been made by either party which are not expressly set forth in this Agreement. The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of Oregon.

12. Validity. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, which shall remain in full force and effect.

13. Arbitration. Any dispute or controversy arising under or in connection with this Agreement shall be settled exclusively by arbitration in Portland, Oregon by three arbitrators in accordance with the rules of the American Arbitration Association then in effect. Judgment may be entered on the arbitrators' award, which award shall be a final and binding determination of the dispute or controversy, in any court having jurisdiction; provided, however, that you shall be entitled to seek specific performance of your right to be paid until the Date of Termination during the pendency of any dispute or controversy arising under or in connection with this Agreement. The Company shall bear all costs and expenses of the arbitrators arising in connection with any arbitration proceeding pursuant to this Section 13.

14. Related Agreements. To the extent that any provision of any other agreement between the Company or any of its subsidiaries and you shall limit, qualify or be inconsistent with any provision of this Agreement, then for purposes of this Agreement, while the same shall remain in force, the provision of this Agreement shall control and such provision of such other agreement shall be deemed to have been superseded,

and to be of no force or effect, as if such other agreement had been formally amended to the extent necessary to accomplish such purpose.

15. Counterparts. This Agreement may be executed in several counterparts, each of which shall be deemed to be an original, but all of which together will constitute one and the same instrument.

If this letter correctly sets forth our agreement on the subject matter hereof, kindly sign and return to the Company the enclosed copy of this letter which will then constitute our agreement on this subject.

Sincerely,

NORTHWEST NATURAL GAS COMPANY

By:

Agreed to this ____ day
of _____, 20__.

PERFORMANCE SHARE LONG TERM INCENTIVE AGREEMENT

This Agreement is entered into as of February __, 2020, between Northwest Natural Holding Company, an Oregon corporation (the “Company”), and _____ (“Recipient”).

On February 26, 2020, the Organization and Executive Compensation Committee (the “Committee”) of the Company’s Board of Directors (the “Board”) authorized a performance-based stock award (the “Award”) to Recipient pursuant to Section 6 of the Company’s Long Term Incentive Plan (the “Plan”). Recipient desires to accept the Award subject to the terms and conditions of this Agreement.

NOW, THEREFORE, the parties agree as follows:

1. Award. Subject to the terms and conditions of this Agreement, the Company shall issue or otherwise deliver to the Recipient the number of shares of Common Stock of the Company (the “Performance Shares”) determined under this Agreement based on (a) the performance of the Company during the three-year period from January 1, 2020 to December 31, 2022 (the “Award Period”) as described in Section 2 and (b) Recipient’s continued employment during the Award Period as described in Section 3. If the Company issues or otherwise delivers Performance Shares to Recipient, the Company shall also pay to Recipient the amount of cash determined under Section 4 (the “Dividend Equivalent Cash Award”). Recipient’s “Target Share Amount” for purposes of this Agreement is _____ shares.

2. Performance Conditions.

2.1 Payout Factor. Subject to possible reduction under Section 3, the number of Performance Shares to be issued or otherwise delivered to Recipient shall be determined by multiplying the Payout Factor (as defined below) by the Target Share Amount. The “Payout Factor” shall be equal to (a) the TSR Modifier as determined under Section 2.2, multiplied by (b) the EPS Payout Factor as determined under Section 2.3 below; provided, however, that the Payout Factor shall not be greater than 200% and the Payout Factor shall be 0% if the ROIC Performance Threshold (as defined in Section 2.4 below) is not satisfied. Notwithstanding the foregoing, if a Change in Control (as defined in Section 3.7) occurs before the last day of the Award Period, the Payout Factor shall be 100%.

2.2 TSR Modifier.

(a) The “TSR Modifier” shall be determined under the table below based on the TSR Percentile Rank (as defined below) of the Company:

TSR Percentile Rank	TSR Modifier
less than 25%	75%
25% to 75%	100%
more than 75%	125%

(b) To determine the Company’s “TSR Percentile Rank,” the TSR of the Company and each of the Peer Group Companies (as defined below) shall be calculated, and the Peer Group Companies shall be ranked based on their respective TSR’s from lowest to

highest. If the Company's TSR is equal to the TSR of any other Peer Group Company, the Company's TSR Percentile Rank shall be equal to the number of Peer Group Companies with a lower TSR divided by the number that is one less than the total number of Peer Group Companies, with the resulting amount expressed as a percentage and rounded to the nearest tenth of a percentage point. If the Company's TSR is between the TSRs of any two Peer Group Companies, the TSR Percentile Ranks of those two Peer Group Companies shall be determined as set forth in the preceding sentence, and the Company's TSR Percentile Rank shall be interpolated as follows. The excess of the Company's TSR over the TSR of the lower Peer Group Company shall be divided by the excess of the TSR of the higher Peer Group Company over the TSR of the lower Peer Group Company. The resulting fraction shall be multiplied by the difference between the TSR Percentile Ranks of the two Peer Group Companies. The product of that calculation shall be added to the TSR Percentile Rank of the lower Peer Group Company, and the resulting sum (rounded to the nearest tenth of a percentage point) shall be the Company's TSR Percentile Rank. The intent of this definition of TSR Percentile Rank is to produce the same result as calculated using the PERCENTRANK function in Microsoft Excel to determine the rank of the Company's TSR within the array consisting of the TSRs of the Peer Group Companies.

(c) The "Peer Group Companies" consist of those companies that were components of the Russell 2500 Utilities Index on October 1, 2019 and that continue to be components of the Russell 2500 Utilities Index through December 31, 2022. If the Russell 2500 Utilities Index ceases to be published prior to December 31, 2022, the Peer Group Companies shall consist of those companies that were components of the Russell 2500 Utilities Index on October 1, 2019 and that continued to have publicly-traded common stock through December 31, 2022.

(d) The "TSR" for the Company and each Peer Group Company shall be calculated by (1) assuming that \$100 is invested in the common stock of the company at a price equal to the average of the closing market prices of the stock for the period from October 1, 2019 to December 31, 2019, (2) assuming that for each dividend paid on the stock during the Award Period, the amount equal to the dividend paid on the assumed number of shares held is reinvested in additional shares at a price equal to the closing market price of the stock on the ex-dividend date for the dividend, and (3) determining the final dollar value of the total assumed number of shares based on the average of the closing market prices of the stock for the period from October 1, 2022 to December 31, 2022. The "TSR" shall then equal the amount determined by subtracting \$100 from the foregoing final dollar value, dividing the result by 100 and expressing the resulting fraction as a percentage.

(e) If during the Award Period any Peer Group Company enters into an agreement pursuant to which all or substantially all of the stock or assets of the Peer Group Company will be acquired by a third party (a "Signed Acquisition"), and if the Signed Acquisition is not completed by the end of the Award Period, then that company shall not be a Peer Group Company. If a Signed Acquisition of a Peer Group Company is terminated (other than in connection with the execution of another Signed Acquisition) before the end of the Award Period, then that company shall remain a Peer Group Company, and the TSR for that Peer Group Company shall be calculated as provided in Section 2.2(d), except that if the announcement of

the termination of the Signed Acquisition occurs during the last three months of the Award Period, for purposes of determining the final dollar value under clause (3) of Section 2.2(d), the three-month period for which closing market prices are averaged shall be shortened to exclude any trading days preceding the announcement of the termination of the Signed Acquisition.

2.3 EPS Payout Factor.

(a) The “EPS Payout Factor” shall be determined under the table below based on the Cumulative EPS Achievement Percentage (as defined below) achieved by the Company for the Award Period:

Cumulative EPS Achievement Percentage	EPS Payout Factor
	0%
	40%
	100%
	185%

If the Company’s Cumulative EPS Achievement Percentage is between any two data points set forth in the first column of the above table, the EPS Payout Factor shall be interpolated as follows. The excess of the Company’s Cumulative EPS Achievement Percentage over the Cumulative EPS Achievement Percentage of the lower data point shall be divided by the excess of the Cumulative EPS Achievement Percentage of the higher data point over the Cumulative EPS Achievement Percentage of the lower data point. The resulting fraction shall be multiplied by the difference between the EPS Payout Factors in the above table corresponding to the two data points. The product of that calculation shall be rounded to the nearest hundredth of a percentage point and then added to the EPS Payout Factor in the above table corresponding to the lower data point, and the resulting sum shall be the EPS Payout Factor.

(b) The Company’s “Cumulative EPS Achievement Percentage” for the Award Period shall equal the Cumulative EPS (as defined below) divided by the Cumulative EPS Target (as defined below), expressed as a percentage and rounded to the nearest tenth of a percentage point.

(c) The Company’s “Cumulative EPS” for the Award Period shall equal the sum of the Company’s diluted earnings per share of common stock (“EPS”) for each of the three years in the Award Period. Subject to adjustment in accordance with Section 2.5 below, the Company’s diluted earnings per share of common stock for any year shall be as set forth in the audited consolidated financial statements of the Company and its subsidiaries for that year. After giving effect to any adjustments required by Section 2.5, the EPS for each year shall be rounded to the nearest penny.

(d) The Company’s “Cumulative EPS Target” for the Award Period shall equal the sum of the EPS targets approved by the Committee for each of the three years in the Award Period. The EPS target for the first year of the Award Period as approved by the Committee is \$_____. Within the first 90 days of the second year of the Award Period, the



Committee shall approve the EPS target for that year. Within the first 90 days of the third year of the Award Period, the Committee shall approve the EPS target for that year.

2.4 ROIC Performance Threshold.

(a) For purposes of this Agreement, the “ROIC Performance Threshold” shall be satisfied if the Company’s Average ROIC (as defined below) for the Award Period is greater than or equal to _____%.

(b) The Company’s “Average ROIC” for the Award Period shall equal the simple average of the Company’s ROIC (as defined below) for each of the three years in the Award Period, rounded to the nearest hundredth of a percentage point. The Company’s “ROIC” for any year shall be calculated by dividing the Company’s Adjusted Net Income (as defined below) for the year by the Company’s Average Long Term Capital (as defined below) for the year, and rounding the result to the nearest hundredth of a percentage point. Subject to adjustment in accordance with Section 2.5 below, the Company’s “Adjusted Net Income” for any year shall be equal to the Company’s net income for the year, increased by the Company’s interest expense, net for the year and reduced by the Company’s interest income (including net interest on deferred regulatory accounts) for the year, in each case as set forth in the Company’s Annual Report on Form 10-K for that year. “Average Long Term Capital” for any year shall mean the average of the Company’s Long Term Capital (as defined below) as of the last day of the year and the Company’s Long Term Capital as of the last day of the prior year. Subject to adjustment in accordance with Section 2.5 below, “Long Term Capital” as of any date shall equal the sum of the Company’s total shareholders’ equity as of that date and the Company’s long-term debt (including current maturities) as of that date, in each case as set forth on the audited consolidated balance sheet of the Company as of that date.

2.5 EPS and ROIC Adjustments. The Committee may, at any time, approve adjustments to the calculation of Cumulative EPS and/or Average ROIC to take into account such unanticipated circumstances or significant, non-recurring or unplanned events as the Committee may determine in its sole discretion, and such adjustments may increase or decrease Cumulative EPS and/or Average ROIC. Possible circumstances that may be the basis for adjustments shall include, but not be limited to, any change in applicable accounting rules or principles; any gain or loss on the disposition of a business; impairment of assets; dilution caused by Board approved business acquisition; tax changes and tax impacts of other changes; changes in applicable laws and regulations; changes in rate case timing; changes in the Company’s structure; and any other circumstances outside of management’s control.

3. Employment Condition.

3.1 Except as provided in Sections 3.2, 3.3 or 7.2, in order to receive a payout of Performance Shares, Recipient must be employed by the Company or any parent or subsidiary of the Company (the “Employer”) on the last day of the Award Period.

3.2 If Recipient’s employment by the Employer is terminated at any time prior to the end of the Award Period because of death, physical disability (within the meaning of Section 22(e)(3) of the Internal Revenue Code of 1986 (the “Code”)), or Retirement (unless such

Retirement results from a termination of Recipient's employment by the Employer for Cause), Recipient shall be entitled to receive a pro-rated award. The number of Performance Shares to be issued or otherwise delivered as a pro-rated award under this Section 3.2 shall be determined by multiplying the number of Performance Shares determined under Section 2 by a fraction, the numerator of which is the number of days Recipient was employed by Employer during the Award Period and the denominator of which is the number of days in the Award Period. If Recipient's employment by the Employer terminates because of Retirement, death or physical disability and a Change in Control subsequently occurs before the end of the Award Period, the number of Performance Shares determined under Section 3.3 shall immediately be paid to Recipient. If a Change in Control occurs and Recipient's employment by the Employer subsequently terminates before the end of the Award Period because of Retirement, death or physical disability, the number of Performance Shares determined under Section 3.3 shall immediately be paid to Recipient.

3.3 CIC Acceleration.

(a) If Recipient is a party to a Change in Control Severance Agreement with the Company or a parent or subsidiary of the Company, Recipient shall immediately be paid a pro-rated award if Recipient becomes entitled to a Change in Control Severance Benefit (as defined below). The number of Performance Shares to be issued or otherwise delivered as a pro-rated award under this Section 3.3 shall be determined by multiplying the Target Share Amount by a fraction, the numerator of which is the number of days Recipient was employed by the Employer during the Award Period and the denominator of which is the number of days in the Award Period. A "Change in Control Severance Benefit" means the severance benefit provided for in Recipient's Change in Control Severance Agreement with the Company or a parent or subsidiary of the Company; provided, however, that such severance benefit is a "Change in Control Severance Benefit" for purposes of this Agreement only if, under the terms of Recipient's Change in Control Severance Agreement, Recipient becomes entitled to the severance benefit (i) after a Change in Control of the Company has occurred, (ii) because Recipient's employment with the Employer has been terminated by Recipient for good reason in accordance with the terms and conditions of the Change in Control Severance Agreement or by the Employer other than for cause, and (iii) because Recipient has satisfied any other conditions or requirements specified in the Change in Control Severance Agreement and necessary for Recipient to become entitled to receive the severance benefit. For purposes of this Section 3.3(a), the terms "change in control," "good reason," "cause" and "disability" shall have the meanings set forth in Recipient's Change in Control Severance Agreement.

(b) If Recipient is not a party to a Change in Control Severance Agreement with the Company or a parent or subsidiary of the Company, Recipient shall immediately be paid a pro-rated award in the amount stated in Section 3.3(a) if a Change in Control (as defined in Section 3.7 below) occurs and at any time after the earlier of Shareholder Approval (as defined in Section 3.8 below), if any, or the Change in Control and on or before the second anniversary of the Change in Control, (i) Recipient's employment is terminated by the

Employer (or its successor) without Cause (as defined in Section 3.6 below), or (b) Recipient's employment is terminated by Recipient for Good Reason (as defined in Section 3.9 below).

3.4 If Recipient's employment by the Employer is terminated at any time prior to the end of the Award Period and Section 3.2, 3.3 or 7.2 does not apply to such termination, Recipient shall not be entitled to receive any Performance Shares.

3.5 "Retirement" shall mean termination of employment (a) on or after the first anniversary of the date of this Agreement, and (b) after Recipient is (1) age 62 with at least five years of service as an employee of the Company or a parent or subsidiary of the Company, or (2) age 60 with age plus years of service (including fractions) as an employee of the Company or a parent or subsidiary of the Company totaling at least 70.

3.6 "Cause" shall mean (a) the willful and continued failure by Recipient to perform substantially Recipient's assigned duties with the Employer (other than any such failure resulting from incapacity due to physical or mental illness) after a demand for substantial performance is delivered to Recipient by the Employer which specifically identifies the manner in which Recipient has not substantially performed such duties, (b) willful commission by Recipient of an act of fraud or dishonesty resulting in economic or financial injury to the Company or Employer, (c) willful misconduct by Recipient that substantially impairs the business or reputation of the Company or Employer, or (d) willful gross negligence by Recipient in the performance of his or her duties.

3.7 For purposes of this Agreement, a "Change in Control" of the Company shall mean the occurrence of any of the following events:

(a) The consummation of:

(1) any consolidation, merger or plan of share exchange involving the Company (a "Merger") as a result of which the holders of outstanding securities of the Company ordinarily having the right to vote for the election of directors ("Voting Securities") immediately prior to the Merger do not continue to hold at least 50% of the combined voting power of the outstanding Voting Securities of the surviving corporation or a parent corporation of the surviving corporation immediately after the Merger, disregarding any Voting Securities issued to or retained by such holders in respect of securities of any other party to the Merger; or

(2) any consolidation, merger, plan of share exchange or other transaction involving Northwest Natural Gas Company ("NW Natural") as a result of which the Company does not continue to hold, directly or indirectly, at least 50% of the outstanding securities of NW Natural ordinarily having the right to vote for the election of directors; or

(3) any sale, lease, exchange or other transfer (in one transaction or a series of related transactions) of all, or substantially all, the assets of the Company or NW Natural;

(b) At any time during a period of two consecutive years, individuals who at the beginning of such period constituted the Board ("Incumbent Directors") shall cease

for any reason to constitute at least a majority thereof; provided, however, that the term “Incumbent Director” shall also include each new director elected during such two-year period whose nomination or election was approved by two-thirds of the Incumbent Directors then in office; or

(c) Any person (as such term is used in Section 14(d) of the Securities Exchange Act of 1934, other than the Company or any employee benefit plan sponsored by the Company or NW Natural) shall, as a result of a tender or exchange offer, open market purchases or privately negotiated purchases from anyone other than the Company, have become the beneficial owner (within the meaning of Rule 13d-3 under the Securities Exchange Act of 1934), directly or indirectly, of Voting Securities representing twenty percent (20%) or more of the combined voting power of the then outstanding Voting Securities.

3.8 For purposes of this Agreement, “Shareholder Approval” shall be deemed to have occurred if the shareholders of the Company approve an agreement entered into by the Company, the consummation of which would result in the occurrence of a Change in Control.

3.9 For purposes of this Agreement, “Good Reason” shall mean the occurrence after Shareholder Approval, if applicable, or the Change in Control, of any of the following circumstances, but only if (x) Recipient gives notice to Employer of Recipient’s intent to terminate employment for Good Reason within 30 days after the later of (1) notice to Recipient of such circumstances, or (2) the Change in Control, and (y) such circumstances are not fully corrected by the Employer within 90 days after Recipient’s notice:

(a) the assignment to Recipient of a different title, job or responsibilities that results in a decrease in the level of Recipient’s responsibility; provided that Good Reason shall not exist if Recipient continues to have the same or a greater general level of responsibility for the former Employer operations after the Change in Control as Recipient had prior to the Change in Control even though such responsibilities have necessarily changed due to the former Employer operations becoming a subsidiary or division of the surviving company;

(b) a reduction by the Employer in Recipient’s base salary as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control;

(c) the failure by Employer to continue in effect any employee benefit or incentive plan in which Recipient is participating immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control (or plans providing Recipient with at least substantially similar benefits) other than as a result of the normal expiration of any such plan in accordance with its terms as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control, or the taking of any action, or the failure to act, by Employer which would adversely affect Recipient’s continued participation in any of such plans on at least as favorable a basis to Recipient as is the case immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control or which would materially reduce Recipient’s benefits in the future under any of such plans or deprive Recipient of any material benefit enjoyed by Recipient immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control;

(d) the failure by the Employer to provide and credit Recipient with the number of paid vacation days to which Recipient is then entitled in accordance with the Employer's normal vacation policy as in effect immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control; or

(e) the Employer's requiring Recipient to be based more than 30 miles from where Recipient's office is located immediately prior to the earlier of Shareholder Approval, if applicable, or the Change in Control except for required travel on the Employer's business to an extent substantially consistent with the business travel obligations which Recipient undertook on behalf of the Employer prior to the earlier of Shareholder Approval, if applicable, or the Change in Control.

4. Dividend Equivalent Cash Award. The amount of the Dividend Equivalent Cash Award shall be determined by multiplying the number of Performance Shares deliverable to Recipient as determined under Sections 2 and 3 by the total amount of dividends paid per share of the Company's Common Stock for which the dividend record date occurred after the beginning of the Award Period and before the date of delivery of the Performance Shares.

5. Certification and Payment. At the regularly scheduled meeting of the Committee held in February of the year immediately following the final year of the Award Period (the "Certification Meeting"), the Committee shall review the Company's results for the Award Period. Prior to the Certification Meeting, the Company shall calculate the number of Performance Shares deliverable and the amount of the Dividend Equivalent Cash Award payable to Recipient, and shall submit these calculations to the Committee. At or prior to the Certification Meeting, the Committee shall certify in writing (which may consist of approved minutes of the Certification Meeting) the number of Performance Shares deliverable to Recipient and the amount of the Dividend Equivalent Cash Award payable to Recipient. Subject to applicable tax withholding, the amounts so certified shall be delivered or paid (as applicable) on a date (the "Payment Date") that is the later of March 1, 2023 or five business days following the Certification Meeting, and no amounts shall be delivered or paid prior to certification. No fractional shares shall be delivered and the number of Performance Shares deliverable shall be rounded to the nearest whole share. Notwithstanding the foregoing, if Recipient shall have made a valid election to defer receipt of Performance Shares or the Dividend Equivalent Cash Award pursuant to the terms of Northwest Natural's Deferred Compensation Plan for Directors and Executives (the "DCP"), payment of the award shall be made in accordance with that election.

6. Tax Withholding. Recipient acknowledges that, on the Payment Date when the Performance Shares are issued or otherwise delivered to Recipient, the Value (as defined below) on that date of the Performance Shares (as well as the amount of the Dividend Equivalent Cash Award) will be treated as ordinary compensation income for federal and state income and FICA tax purposes, and that the Employer will be required to withhold taxes on these income amounts. To satisfy the required withholding amount, the Employer shall first withhold all or part of the Dividend Equivalent Cash Award, and if that is insufficient, the Employer shall withhold the number of Performance Shares having a Value equal to the remaining withholding amount. For purposes of this Section 6, the "Value" of a Performance Share shall be equal to the closing market price for Company Common Stock on the last trading day preceding the Payment Date.

Notwithstanding the foregoing, Recipient may elect not to have Performance Shares withheld to cover taxes by giving notice to the Company in writing prior to the Payment Date, in which case the Performance Shares shall be issued or acquired in the Recipient's name on the Payment Date thereby triggering the tax consequences, but the Company shall retain the certificate for the Performance Shares as security until Recipient shall have paid to the Company in cash any required tax withholding not covered by withholding of the Dividend Equivalent Cash Award.

7. Sale of the Company. If there shall occur before the Payment Date a merger, consolidation or plan of exchange involving the Company pursuant to which the outstanding shares of Common Stock of the Company are converted into cash or other stock, securities or property, or a sale, lease, exchange or other transfer (in one transaction or a series of related transactions) of all, or substantially all, the assets of the Company (either, a "Company Sale"), then either:

7.1 the unvested Performance Shares shall be converted into restricted stock units for stock of the surviving or acquiring corporation in the applicable transaction, with the amount and type of shares subject thereto to be conclusively determined by the Committee, taking into account the relative values of the companies involved in the applicable transaction and the exchange rate, if any, used in determining shares of the surviving corporation to be held by the former holders of the Company's Common Stock following the applicable transaction, and disregarding fractional shares; or

7.2 a pro-rated number of Performance Shares and the related dividend equivalent cash payment shall be delivered simultaneously with the closing of the applicable transaction such that Recipient will participate as a shareholder in receiving proceeds from such transaction with respect to those shares. The number of Performance Shares to be delivered as a pro-rated award under this Section 7.2 shall be determined by multiplying the Target Share Amount by a fraction, the numerator of which is the number of days of the Award Period elapsed prior to the closing of the transaction and the denominator of which is the number of days in the Award Period.

8. Changes in Capital Structure. If the outstanding Common Stock of the Company is hereafter increased or decreased or changed into or exchanged for a different number or kind of shares or other securities of the Company by reason of any stock split, combination of shares or dividend payable in shares, recapitalization or reclassification, appropriate adjustment shall be made by the Committee in the number and kind of shares subject to this Agreement so that the Recipient's proportionate interest before and after the occurrence of the event is maintained.

9. Recoupment On Misconduct.

9.1 If at any time before a Change in Control and within three years after the Payment Date, the Committee determines that Recipient engaged in any Misconduct (as defined below) during the Award Period that contributed to an obligation to restate the Company's financial statements for any quarter or year in the Award Period or that otherwise has had (or will have when publicly disclosed) an adverse impact on the Company's common stock price, Recipient shall repay to the Company the Excess LTIP Compensation (as defined below). The term "Excess LTIP Compensation" means the excess of (a) the number of Performance Shares

and the amount of the Dividend Equivalent Cash Award as originally calculated and certified under Section 5 of this Agreement, over (b) the number of Performance Shares and the amount of the Dividend Equivalent Cash Award as recalculated (1) for the TSR Modifier, assuming that the average of the closing market prices of the Company's common stock for the period from October 1, 2022 to December 31, 2022 was an amount determined appropriate by the Committee in its discretion to reflect what the Company's common stock price would have been if the restatement had occurred or other Misconduct had been disclosed prior to October 1, 2022, and (2) for the EPS Payout Factor and the ROIC Performance Threshold, based on the Company's financial statements for all years of the Award Period as restated. The Committee may, in its sole discretion, reduce the amount of Excess LTIP Compensation to be repaid by Recipient to take into account the tax consequences of such repayment or any other factors. If any Performance Shares included in the Excess LTIP Compensation are sold by Recipient prior to the Company's demand for repayment (including any shares withheld for taxes under Section 6 of this Agreement), Recipient shall repay to the Company 100% of the proceeds of such sale or sales. The return of Excess LTIP Compensation is in addition to and separate from any other relief available to the Company due to Recipient's Misconduct.

9.2 "Misconduct" shall mean (a) willful commission by Recipient of an act of fraud or dishonesty resulting in economic or financial injury to the Company, (b) willful misconduct by Recipient that substantially impairs the Company's business or reputation, or (c) willful gross negligence by Recipient in the performance of his or her duties.

9.3 If any portion of the Performance Shares or the Dividend Equivalent Cash Award was deferred under the DCP, the Excess LTIP Compensation shall first be recovered by canceling all or a portion of the amounts so deferred under the DCP and any dividends or other earnings credited under the DCP with respect to such cancelled amounts. The Company may seek direct repayment from Recipient of any Excess LTIP Compensation not so recovered and may, to the extent permitted by applicable law, offset such Excess LTIP Compensation against any compensation or other amounts owed by the Company to Recipient. In particular, Excess LTIP Compensation may be recovered by offset against the after-tax proceeds of deferred compensation payouts under the DCP, Northwest Natural's Executive Supplemental Retirement Income Plan or Northwest Natural's Supplemental Executive Retirement Plan at the times such deferred compensation payouts occur under the terms of those plans. Excess LTIP Compensation that remains unpaid for more than 60 days after demand by the Company shall accrue interest at the rate used from time to time for crediting interest under the DCP.

10. Approvals. The obligations of the Company under this Agreement are subject to the approval of state and federal authorities or agencies with jurisdiction in the matter. The Company will use its best efforts to take steps required by state or federal law or applicable regulations, including rules and regulations of the Securities and Exchange Commission and any stock exchange on which the Company's shares may then be listed, in connection with the award under this Agreement. The foregoing notwithstanding, the Company shall not be obligated to issue or deliver Common Stock under this Agreement if such issuance or delivery would violate applicable state or federal law.

11. No Right to Employment. Nothing contained in this Agreement shall confer upon Recipient any right to be employed by the Employer or to continue to provide services to the Employer or to interfere in any way with the right of the Employer to terminate Recipient's services at any time for any reason, with or without cause.

12. Miscellaneous.

12.1 Entire Agreement; Amendment. This Agreement constitutes the entire agreement of the parties with regard to the subjects hereof and may be amended only by written agreement between the Company and Recipient.

12.2 Notices. Any notice required or permitted under this Agreement shall be in writing and shall be deemed sufficient when delivered personally to the party to whom it is addressed or when deposited into the United States Mail as registered or certified mail, return receipt requested, postage prepaid, addressed to the Company, Attention: Corporate Secretary, at its principal executive offices, or to Employer, Attention: Corporate Secretary, at its principal executive offices, or to Recipient at the address of Recipient in the Company's records, or at such other address as such party may designate by ten (10) days' advance written notice to the other party.

12.3 Assignment; Rights and Benefits. Recipient shall not assign this Agreement or any rights hereunder to any other party or parties without the prior written consent of the Company. The rights and benefits of this Agreement shall inure to the benefit of and be enforceable by the Company's successors and assigns and, subject to the foregoing restriction on assignment, be binding upon Recipient's heirs, executors, administrators, successors and assigns.

12.4 Further Action. The parties agree to execute such further instruments and to take such further action as may reasonably be necessary to carry out the intent of this Agreement.

12.5 Applicable Law; Attorneys' Fees. The terms and conditions of this Agreement shall be governed by the laws of the State of Oregon. In the event either party institutes litigation hereunder, the prevailing party shall be entitled to reasonable attorneys' fees to be set by the trial court and, upon any appeal, the appellate court.

12.6 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

NORTHWEST NATURAL HOLDING COMPANY

By _____

Title _____

RECIPIENT

SUBSIDIARIES OF NORTHWEST NATURAL HOLDING COMPANY

an Oregon Corporation

Name of Subsidiary	Jurisdiction Organized
Northwest Natural Gas Company (dba NW Natural)	Oregon
Northwest Energy Corporation ⁽¹⁾	Oregon
NWN Gas Reserves LLC ⁽¹⁾	Oregon
Gill Ranch Storage, LLC	Oregon
NW Natural Energy, LLC	Oregon
NW Natural Gas Storage, LLC	Oregon
NNG Financial Corporation	Oregon
Trail West Holdings, LLC	Delaware
Trail West Pipeline, LLC	Delaware
BL Credit Holdings, LLC	Delaware
Northwest Biogas, LLC	Oregon
KB Pipeline Company	Oregon
NW Natural Water Company, LLC	Oregon
NW Natural Water Company of Oregon, LLC	Oregon
Sunstone Water, LLC	Oregon
Sunstone Infrastructure, LLC	Oregon
Sunriver Water LLC	Oregon
Sunriver Environmental LLC	Oregon
NW Natural Water Company of Washington, LLC	Washington
Cascadia Water, LLC	Washington
Cascadia Infrastructure, LLC	Washington
Suncadia Water Company, LLC	Washington
Suncadia Environmental Company, LLC	Washington

NW Natural Water Company of Idaho, LLC	Idaho
Gem State Water Company, LLC	Idaho
Gem State Infrastructure, LLC	Idaho
NW Natural Water of Texas, LLC	Texas
Blue Topaz Water, LLC	Texas
Blue Topaz Infrastructure, LLC	Texas
Salmon Valley Water Company	Oregon
Falls Water Co., Inc.	Idaho
(1) Subsidiary of Northwest Natural Gas Company	

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-187005-01, 333-180350-01, 333-134973-01, 333-100885-01, 333-139819-01, 333-221347-01, 333-227687, and 333-234539) and Form S-3 (No. 333-227662) of Northwest Natural Holding Company of our report dated March 2, 2020 relating to the financial statements, financial statement schedules and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Portland, Oregon
March 2, 2020

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (No. 333-221347) and Form S-3 (No. 333-227662-01) of Northwest Natural Gas Company of our report dated March 2, 2020 relating to the financial statements and financial statement schedule which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Portland, Oregon
March 2, 2020

CERTIFICATION

I, David H. Anderson, certify that:

1. I have reviewed this annual report on Form 10-K for the year ended December 31, 2019 of Northwest Natural Gas Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 2, 2020

/s/ David H. Anderson

David H. Anderson
President and Chief Executive Officer

CERTIFICATION

I, Frank H. Burkhartsmeier, certify that:

1. I have reviewed this annual report on Form 10-K for the year ended December 31, 2019 of Northwest Natural Gas Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 2, 2020

/s/ Frank H. Burkhartsmeier

Frank H. Burkhartsmeier

Senior Vice President and Chief Financial Officer

CERTIFICATION

I, David H. Anderson, certify that:

1. I have reviewed this annual report on Form 10-K for the year ended December 31, 2019 of Northwest Natural Holding Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 2, 2020

/s/ David H. Anderson

David H. Anderson
President and Chief Executive Officer

CERTIFICATION

I, Frank H. Burkhartsmeier, certify that:

1. I have reviewed this annual report on Form 10-K for the year ended December 31, 2019 of Northwest Natural Holding Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 2, 2020

/s/ Frank H. Burkhartsmeier

Frank H. Burkhartsmeier

Senior Vice President and Chief Financial Officer

NORTHWEST NATURAL GAS COMPANY

Certificate Pursuant to Section 906 of Sarbanes – Oxley Act of 2002

Each of the undersigned, DAVID H. ANDERSON, Chief Executive Officer, and FRANK H. BURKHARTSMEYER, the Chief Financial Officer, of NORTHWEST NATURAL GAS COMPANY (the Company), DOES HEREBY CERTIFY that:

1. The Company's Annual Report on Form 10-K for the year ended December 31, 2019 (the Report) fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. Information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, each of the undersigned has caused this instrument to be executed this second day of March 2020.

/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

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to Northwest Natural Gas Company and will be retained by Northwest Natural Gas Company and furnished to the Securities and Exchange Commission or its staff upon request.

NORTHWEST NATURAL HOLDING COMPANY

Certificate Pursuant to Section 906 of Sarbanes – Oxley Act of 2002

Each of the undersigned, DAVID H. ANDERSON, Chief Executive Officer, and FRANK H. BURKHARTSMEYER, the Chief Financial Officer, of NORTHWEST NATURAL HOLDING COMPANY (the Company), DOES HEREBY CERTIFY that:

1. The Company's Annual Report on Form 10-K for the year ended December 31, 2019 (the Report) fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. Information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, each of the undersigned has caused this instrument to be executed this second day of March 2020.

/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

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to Northwest Natural Holding Company and will be retained by Northwest Natural Holding Company and furnished to the Securities and Exchange Commission or its staff upon request.