

# Safety and Reliability

Safe, reliable delivery of natural gas is our greatest responsibility to our customers, our employees and the communities we serve. In 2020, we invested nearly \$280 million<sup>2</sup> in our natural gas infrastructure to support system reliability, growth, and improvements.

Pictured employees were part of the team that removed the last bare steel from NW Natural's system in 2015

## 2020 FEDERAL REPORTS

# ZERO

- Reportable pipeline incidents
- Corrective action orders
- Safety-related condition reports
- Notices of probable violation

<sup>2</sup> Cap-ex is on an accrual basis

Not to be used for investment purposes—see NW Natural and NW Natural Holdings most recent Form 10-Ks as updated by the most recent 10-Q for information relevant to investment decisions.

## Modern, Tight System

In the 1980s, NW Natural worked with our public utility commissions to proactively create a pipeline replacement program, and by 2015 the company had replaced all its cast iron and bare steel pipe. We believe we are the first pure-play local distribution company to completely remove these legacy pipelines, and **today we operate one of the tightest, most modern natural gas systems in the nation.**

Among U.S. natural gas utilities, NW Natural consistently has one of the lowest ratios of leaks per mile of pipe.

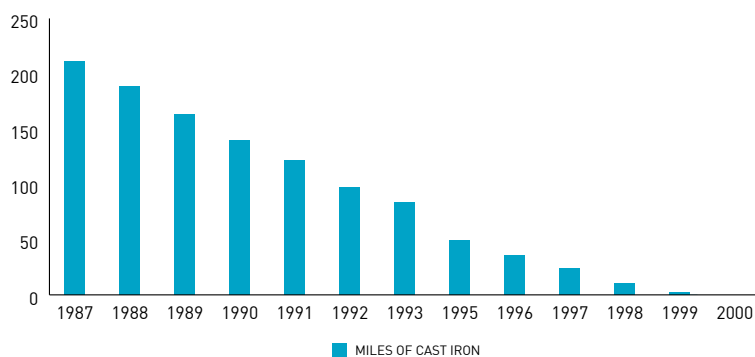
## Continuous Inspection and Monitoring

Completing our pipeline replacement program created a tighter system with fewer leaks and advanced our efforts to distribute natural gas in a safe and environmentally responsible manner. In addition, we vigilantly manage our 736 miles of transmission pipelines and approximately 14,000 miles of distribution pipeline, performing preventative maintenance and proactive monitoring, investigating and repairing potential issues. Our employees performed approximately 210,000 routine field visits in 2020. We operate a 24/7 emergency hotline so we can immediately dispatch nearby responders if there is a problem, and on average, we respond to damage and odor calls across our service territory in about 30 minutes or less.

**In 2020, we performed safety inspections on our transmission system at nearly three times the rate required by federal and state regulations.** We use a combination of direct assessments and technologically advanced inline inspection tools that internally assess the integrity of transmission pipelines while in service. Our modern system makes it possible to perform a majority of our inspections through an inline approach, the best available today as it is done from the inside of the pipe. At the end of 2020, we had inspected 78% of our transmission system—577 miles—primarily through inline inspection.

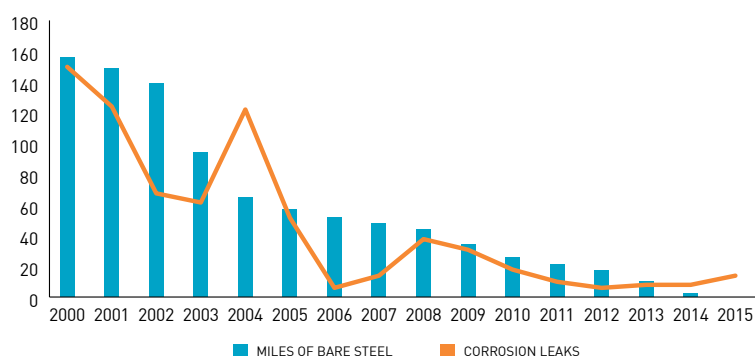
NW Natural consistently **leads the industry in the lowest number of leaks per mile of distribution pipeline**—a ratio of approximately

CAST IRON PIPE REPLACEMENT COMPLETED IN 2000



Source: Annual Department of Transportation (DOT) reports

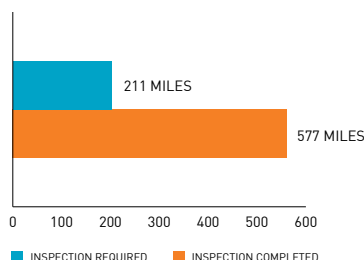
BARE STEEL PIPE REPLACEMENT COMPLETED IN 2015



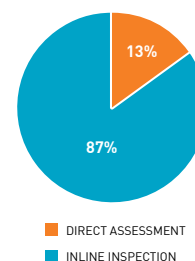
Source: Annual DOT reports

0.80 leaks per 100 miles in 2020. For comparison, the industry average was 7.65 leaks per 100 miles in 2019, based on DOT Annual Report data for natural gas operators reporting more than 7,000 miles of distribution main. We add another layer of safety by vigilantly monitoring gas distribution lines. We strive to perform a leak survey on 20% of our gas mains annually, with every gas main surveyed at least every five years. We also perform leakage and atmospheric corrosion surveys every three years on residential service lines and annually in business districts and high-occupancy buildings. We believe a proactive and prevention-based approach is the foundation of a safe and environmentally responsible system.

EXCEEDED TRANSMISSION INSPECTION REQUIREMENTS



MAJORITY OF TRANSMISSION PIPELINE INSPECTED USING INLINE APPROACH



## System Improvements

We continuously work to upgrade the system to ensure safety and reliability for current customers and accommodate future growth. In 2020, NW Natural completed a slate of projects, investing nearly \$280 million on capital expenditures on an accrual basis. Major upgrades and new installations in six cities in our service area can help improve the company's ability to perform inline inspections of transmission pipelines and maintain adequate pressure for delivering gas during periods of cold weather and high demand. In addition, a large project to replace and modernize dehydration equipment at our Mist gas storage facility supports continued reliable gas supply to our region during peak demand times.



## Reliability and Resiliency

Reliable delivery of natural gas when it's needed is essential to public safety and well-being. NW Natural has developed a risk-based method for determining what resources we need to keep serving our customers without interruption when demand is highest. This modeling is done through a process of evaluating different energy-demand scenarios and resource-acquisition strategies, as outlined in our [Integrated Resource Plan \(IRP\)](#). We plan thoroughly, looking at near- and long-term potential scenarios, so we can be prepared and diversified and thus keep costs low for customers.

To mitigate the risk of interruptions to our supply, we purchase natural gas from geographically varied sources and maintain a diversified portfolio of supply contracts. We also own and contract with natural gas storage facilities. Through our planning process, we project the day of highest demand to be approximately 10 million therms. We expect to meet about 56% of this projected requirement with gas from storage in or near our service area. For example, 20 Bcf of underground gas stored at NW Natural's facility near Mist, Oregon can supply natural gas to the Portland metro and surrounding area for approximately one month during an average winter.

## Resilient Infrastructure

Below-ground natural gas infrastructure is more resilient than above-ground infrastructure and less vulnerable to hurricanes, fires and other natural disasters, according to a 2019 [study](#) by the consulting firm ICF. A [study](#) by Portland State University's Center for Public Service released in 2019 suggests the natural gas system could be a crucial resource in the event of a major disaster that disrupts power to the Pacific Northwest. Disaster recovery efforts could take advantage of NW Natural's modern natural gas distribution system, which includes resilient pipeline materials protected underground, a significant amount of existing regional storage capacity, and the potential for renewable gas production at multiple locations.

Our operations and training center in Oregon is built to function even after a major earthquake, so that in the event of a disaster we can operate critical business functions, including gas control and emergency response. The center meets the same seismic standards as essential facilities such as emergency operation centers, hospitals, and police and fire stations. The new headquarters for our core operations, which opened in March 2020, is also designed to function after a major earthquake and support operational resilience.

## Cybersecurity

Reliable service requires investing in technology to protect our critical systems and customer data. Along with our comprehensive physical-safety efforts we have an equally vigorous cybersecurity program that diligently follows best practices to help us minimize the risk of cyberattack, detect and respond to threats and avoid disrupting natural gas delivery.

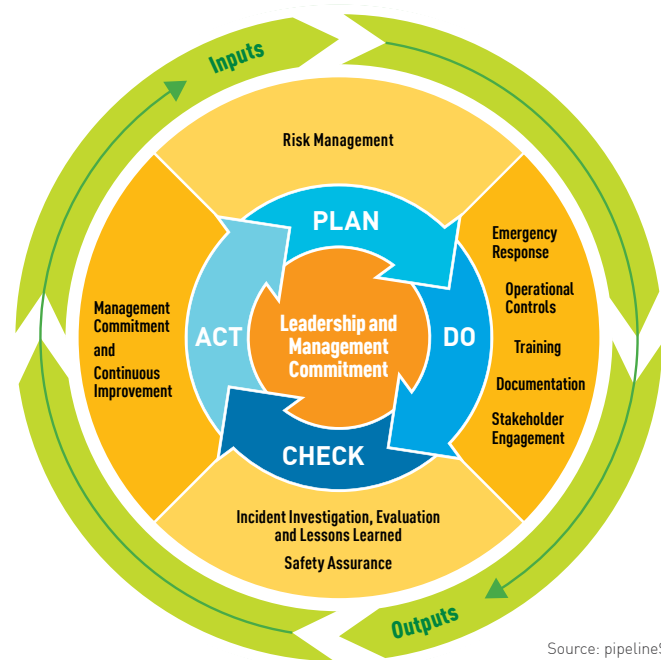
To be aware of threats and share mitigation techniques, we work closely with numerous local and federal agencies, including the U.S. Department of Homeland Security, Department of Energy, Transportation Security Administration and the FBI. We use multiple layers of security technology and follow cybersecurity frameworks like the Department of Energy's Cybersecurity Capability Maturity Model (C2M2) and National Institute of Standards and Technology (NIST) Cyber Security Framework. To further reduce cyber risks, we adhere to process controls, perform periodic maturity assessments and execute third-party penetration tests to expose vulnerabilities. Our



## Taking the Next Steps in System Safety

We are taking our safety program to the next level by implementing a Pipeline Safety Management System (PSMS), a voluntary industry-developed framework for continuously improving safety performance. PSMS is designed to create a holistic and comprehensive approach to system safety by building on our existing safety structure. We believe that strengthening and reinforcing our existing procedures and risk-management activities will enhance our ability to prevent small problems from becoming significant events. Our employees play a critical role in our PSMS, and in 2020, we developed a plan to actively engage them in supporting the program through their efforts to identify, prevent and remediate pipeline issues before they occur. At the industry level, NW Natural supports holistic safety management efforts as a member of the American Gas Association (AGA) PSMS steering committee.

### PIPELINE SAFETY MANAGEMENT SYSTEM FURTHER MITIGATES RISK



Source: pipelineSMS.org

multi-factor authentication (MFA) allowed us to meet the challenge when a significant portion of NW Natural's workforce needed to work securely from home during the pandemic.

In 2020, our Information Technology & Services department:

- Updated our incident-monitoring solution with new technology that makes it possible to identify potential threats faster
- Enhanced cybersecurity monitoring as cyberattackers became more active with much of the economy using work-from-home protocols as a result of COVID
- Completed a full reevaluation of our long-term cybersecurity strategy, with the goal of continuous refreshment as circumstances evolve
- Nearly doubled the size of our cybersecurity team and increased the breadth of coverage, so we can more closely monitor threats and continue engaging in preparedness exercises to support our readiness in the event an incident occurs

## Continuous Improvement

NW Natural leverages new technologies and practices to keep our employees, our distribution system, our storage facilities and the public safe. We work with industry partners to develop and evaluate new safety practices, and we participate in system and employee safety benchmarking and peer reviews—most notably the American Gas Association (AGA) Peer Review Program. NW Natural adheres to the Natural Gas Industry Safety Programs as outlined by the AGA, and we have begun a multiyear effort to implement the PSMS program recommended for AGA members and the pipeline industry. We are a member of the U.S. Environmental Protection Agency's (EPA) Natural Gas STAR Program, which promotes safe and environmentally conscious practices for pipeline maintenance activities.

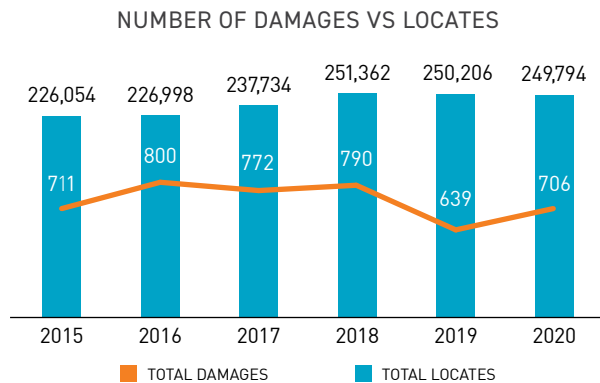
## Excess Flow Valves

NW Natural is taking steps to extend system safety beyond the minimum regulatory requirements. We are installing excess flow valves (EFVs) on new service lines and planning to retrofit EFVs on service lines meeting certain specifications in the coming years. EFVs can automatically stop the flow of natural gas to a home or business if the service line is damaged by a seismic disturbance or other catastrophic event that severs the service line. To date, we've installed more than 275,000 EFVs on about 38% of the service lines in our system. In 2019, we had EFVs on 36% of the service lines in our system, which compares to an industry average of 23% based on 2019 Pipeline and Hazardous Materials Safety Administration (PHMSA) data for natural gas distribution companies with more than 400,000 service lines.



## Damage Prevention

Digging by third-party contractors is the most common cause of damage to natural gas pipelines. **NW Natural began comprehensive efforts to address this issue in 2006, and since then damages due to digging have declined by about 70%.** We've worked with our state regulators to help develop and implement more rigorous dig laws and provide an online excavator training module to help contractors dig safely. In 2020 we implemented an industry-leading analytical model to enhance our ability to identify locates that could result in damages. Now we can identify the risk level of each locate request to assist in prioritization and response. Through a robust, multichannel safety outreach strategy, we provide natural gas safety information to our customers and the general public.



## Employee Safety

### Safety Management Program

NW Natural strives for zero safety incidents with a safety culture based on prevention, open communication, collaboration, and a strong service and safety ethic. We are laser-focused on safety at all levels of the company.

We believe employee safety is critical to our success. Our dedicated safety team is led by subject matter experts reporting to our VP, chief human resources and diversity officer, who reports directly to the CEO. A portion of our executives' compensation is tied to achieving our safety metrics, and our board of directors regularly reviews company safety metrics.

A safety steering committee overseen by our executives seeks to develop comprehensive, proactive solutions aimed at prevention. Their process incorporates input from employees with diverse skill sets at

all levels of the company. The committee provides performance monitoring and measurement of our health and safety programs, which includes closely tracking injuries and trends in safety metrics and evaluating the effectiveness of trainings. A safety oversight committee formed in 2019 developed additional performance monitoring capabilities to help us understand the underlying drivers of incidents and develop root cause trend analysis, and all incidents in 2020 used this comprehensive approach.

NW Natural's health and safety policies and procedures are designed to comply with all applicable regulations (e.g., OSHA, PHMSA, manufacturers' recommendations), but we strive to go beyond compliance. We work to incorporate industry best practices and benchmarking, including peer analysis and assessments done by the AGA. Our internal auditors periodically audit the Safety Department and our health and safety policies. We also conduct third-party assessments on a periodic basis to audit aspects of our safety management system—for example, a Federal Motor Carrier Safety Administration (FMCSA) driver audit is planned for 2021.

To ensure injuries are reported and addressed immediately, we have a strict stop-work policy when an employee is involved in an accident. To encourage prompt care and decrease injury severity, we have a 24/7 nurse care line available for all employees. We provide alternative working opportunities, such as additional light-duty activities, that allow employees to recover while continuing to contribute.

To ensure our contractors strive to meet strict safety, insurance, and drug and alcohol testing standards, we use ISNetworld's contractor management services for contractors that conduct critical activities for us. ISNetworld allows us to easily evaluate and grade these contractors based on our specific criteria. We seek to work with contractors that meet or exceed their industry standards and injury averages.



- Lost-time incident rate (LTIR) decreased by 74% from 2019 to 2020
- Good-catch rate (near-miss frequency rate) increased nearly eight-fold from a rate of 1.12 in 2019 to 8.91 in 2020, indicating accidents are being prevented
- Motor vehicle collisions, including preventable collisions, were the lowest in number since 2011
- Fatality rate was zero

The success of Journey to Zero was a result of commitment and personal accountability at every level of the organization, from the program developers who integrated input from field personnel, to leaders who modeled safe behavior and engaged in caring conversations with employees about the importance of personal safety. Employees became actively involved in solutions and consistently put safety first, for themselves and their peers.

In 2021, Journey to Zero will continue emphasizing the most critical on-the-job safety practices to keep them top of mind. The program will also focus on improving fleet safety by equipping all company vehicles with telematics software and other safety features. Many of the planned safety measures are a direct result of suggestions from employees. Also planned for 2021 is an initiative to improve safety for office employees, which will focus on improving workspace ergonomics and preventing slips, trips and falls.

## Journey to Zero

In October 2019, NW Natural's officer team brought together managers, supervisors and employees from across the company and asked them to take a fresh look at strategies to improve employee safety. From that call to action came Journey to Zero, a companywide initiative with the ultimate goal of getting as close as possible to zero injuries and motor vehicle collisions.

Journey to Zero launched in 2020, and by the end of the year, workplace injuries were the lowest in more than a decade:

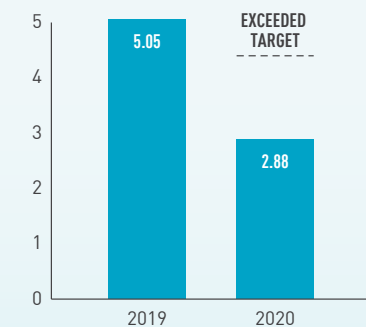
- Total recordable injuries (TRIR) declined by over 43% from 2019 to 2020
- Cases with days away from work or work restrictions (DART) was 59% lower than in 2019



**“NW Natural is an industry leader in customer satisfaction, pipeline integrity and response to damages and odor calls. We also need to be a leader in employee safety, and we knew we could make that happen with innovative ideas and buy-in from supervisors, managers and employees. While striving for zero isn't easy, we can get there together.”**

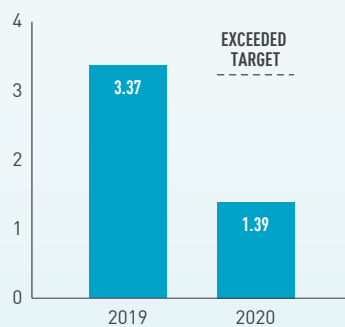
— David Anderson, NW Natural president and CEO

TOTAL RECORDABLE INCIDENT RATE (TRIR)



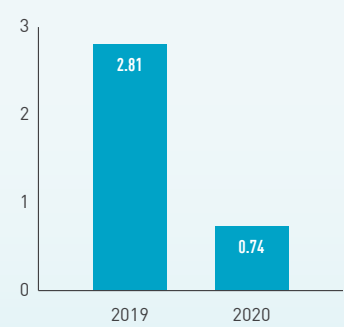
$$\text{TRIR} = \frac{\text{\# of incidents requiring medical attention} \times 200,000}{\text{Number of hours worked}}$$

DAYS AWAY OR RESTRICTED TIME RATE (DART)



$$\text{DART} = \frac{\text{\# of incidents with lost time or restricted duty} \times 200,000}{\text{Number of hours worked}}$$

LOST TIME INCIDENT RATE (LTIR)



$$\text{LTIR} = \frac{\text{\# of lost time injuries} \times 200,000}{\text{Number of hours worked}}$$



NW Natural safety trainers and firefighters at our state-of-the-art training facility.

## Employee Safety Trainings

As part of our commitment to health and safety for our employees, we maintain training programs for compliance, emergency preparedness and procedures for identifying hazards and handling high-risk emergency situations. Employees complete classroom instruction and hands-on, scenario-based training at our state-of-the-art facility in Oregon. Our training center allows employees to experience realistic situations in a controlled environment. We also host natural gas safety training events for first responders. These trainings prepare firefighters and NW Natural field employees to deliver an integrated, seamless response in the event of an emergency that involves or affects the natural gas system.

In 2020, despite the restrictions created by COVID, training hours increased for employees by about 9% compared to 2019. We navigated the pandemic with limited class sizes and online training to keep people safe. We also implemented a new learning management system that helps us comply with regulatory requirements and provides more

efficiency and flexibility in how we train. The system went live in early 2021. We also enhanced our training for contractors focusing on NW Natural standards and basic safety procedures.

**OVER 2,700 HOURS**

Clocked by employees at “Training Town” our mock neighborhood at our training center

**ON TOP OF REGULAR TRAININGS**

Employees completed quarterly, annual, and scenario-based safety trainings, as well as monthly safety presentations provided to field staff

**PLUS 366 FIREFIGHTERS TRAINED**

Held about 28 trainings early in 2020 for over 330 firefighters prior to COVID

### FOR MORE INFORMATION SEE ALSO:

- [Residential Safety](#)
- [Our Safety Measures](#)
- [Pipeline Safety](#)