

Environmental Stewardship

NW Natural's core value of environmental stewardship is a driving force behind everything we do. We believe NW Natural has an important role to play in helping our region move to a low-carbon, renewable energy future in a more resilient and affordable way.



Building on a Legacy of Environmental Leadership

Our long history of environmental leadership reflects the values we share with the people we serve in Oregon and Washington.

2000 REPLACED CAST IRON

Completed replacement of all cast iron pipe in our system



2007 VOLUNTARY CARBON OFFSET PROGRAM

Provided customers with a voluntary program that allows them to offset carbon emissions from their natural gas use



2002 DECOUPLING

Adopted a rate structure that encourages energy conservation



2015 REPLACED BARE STEEL

Completed replacement of bare steel pipe to create one of the nation's lowest-emitting systems, with a fugitive emissions rate less than half the national average



2016 ESTABLISHED CARBON SAVINGS GOAL

Established a Voluntary Carbon Savings Goal for our operations and customers' emissions from the use of natural gas



2022 FIRST RNG FACILITY

Commenced operations at our first RNG facility. We are the first local gas distribution utility in the continental U.S. to invest in a renewable natural gas facility on behalf of its sales customers



2019 OREGON SENATE BILL 98 ESTABLISHED

Groundbreaking legislation in Oregon was signed into law that supports gas utilities investing and procuring renewable natural gas, including hydrogen, for all its customers. Regulators completed rulemaking in 2020



TODAY OUR NATURAL GAS SYSTEM IS A POWERHOUSE

NW Natural's Pipeline System

- Delivers 50% more energy than any other utility in Oregon⁷
- Meets 74% of home heating needs in the area we serve⁸
- Meets 90% of energy needs for our residential space and water heat customers on the coldest winter days⁹

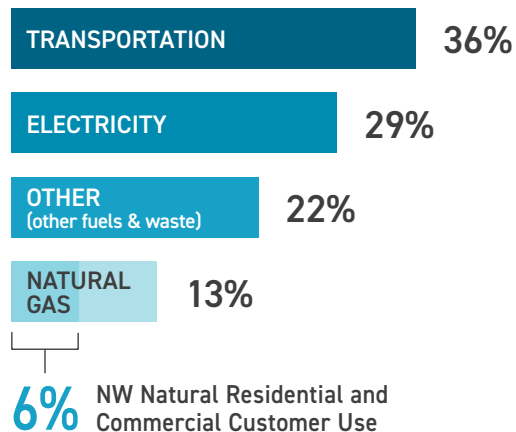
2x the Energy

During winter peak-demand periods, the natural gas system in the Pacific Northwest delivers about twice as much energy as the electric system

6% of Oregon's Emissions

The natural gas our residential and commercial customers use accounts for **around 6% of Oregon's greenhouse gas emissions**¹⁰

OREGON GREENHOUSE GAS EMISSIONS BY SECTOR



Source: Oregon DEQ In-Boundary GHG Inventory 2019 data.

Reducing emissions is crucial not only for gas utility systems, but also for electrical power generation, which is now the largest user of natural gas in the U.S. and accounts for more gas use than direct residential and commercial customers combined.¹¹

⁷ Per data from the Oregon Public Utility Commission, 2020 Oregon Utility Statistics Book

⁸ 2014 Residential Sites Database based on square footage on or near NW Natural mains that is served by natural gas

⁹ Based on electric usage of an average home with a 9.0 HSPF heat pump and standard electric water heater for the 6:30 to 7:30 a.m. hour in the winter with a temperature of 7° F

¹⁰ NW Natural sales load data from the Oregon Department of Environmental Quality In-Boundary Greenhouse Gas Inventory, 2019 data

¹¹ In 2021, U.S. natural gas deliveries for electric power was 11.3 million MMcf. Natural gas deliveries for residential and commercial sectors was 7.9 million MMcf. Source: EIA annual natural gas deliveries to consumers, U.S., 2021 https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm

The aggressive pipe replacement program we completed in 2015 has yielded important results. An [Environmental Defense Fund study](#) led by Washington State University found that methane emissions on our system were 90% lower than Environmental Protection Agency (EPA) assumptions at that time,¹² and our system's fugitive emission levels are below the EPA national average for distribution companies. As a result of continued emphasis on plastic pipeline upgrades and reduced component leaks, we saw a decrease in fugitive emissions in 2021 compared to 2020.

We're also focused on reducing emissions from our operations and our customers' use of natural gas. Although scope 1 and scope 2 emissions increased over 2020 levels as employees began returning to our headquarters and service facilities in 2021, scope 1 emissions were lower than in 2019 when people were working on-site. Due to the Uri winter storm that hit North America in February 2021, we used more natural gas to run compressors at our gas storage facilities, which contributed to the higher scope 1 emissions in 2021. In addition, scope 2 electricity usage increased due to more energy used to run ventilation for health reasons at our headquarters.

NW NATURAL'S DISTRIBUTION SYSTEM EMISSIONS

	2021	2020	2019
Fugitive Methane Emissions Rate ¹³	0.131%	0.135%	0.126%
Scope 1 Emissions ¹⁴	97,113	92,043	97,499
Scope 2 Facility emissions (electricity use) ¹⁵	2,972	2,312	N/A

N/A - information not available to perform calculation

¹² Study led by Washington State University and the Environmental Defense Fund (2013)

¹³ MMscf of methane emissions per MMscf of methane throughput

¹⁴ Greenhouse gas emissions expressed in metric tons CO₂e

¹⁵ Scope 2 Facility Electricity Emissions represent 12 months of electricity usage at the 18 main facilities operated by NW Natural. Due to the meter reading dates on the utility bills this value is approximate. The emissions are expressed in metric tons of CO₂e.

¹⁶ Industry average is 0.26% as reported by ONE Future using latest available data (2012) from EIA and greenhouse gas reporting program from EPA

As a result of our modern system and enduring commitment to environmental stewardship, NW Natural's fugitive emissions are less than half the industry rate¹⁶



On Track to Meet or Exceed Our Carbon Savings Goal

In 2016, we established our [Low Carbon Pathway](#) as a cornerstone of the company's strategic plan, setting a voluntary goal of 30% carbon savings by 2035.¹⁷ This is a unique and aggressive target since it includes our customers' emissions from the use of our product as well as emissions from our own operations. In 2021, we remained ahead of target pace for meeting this goal. We're taking steps right now to help achieve deep decarbonization in our region by:

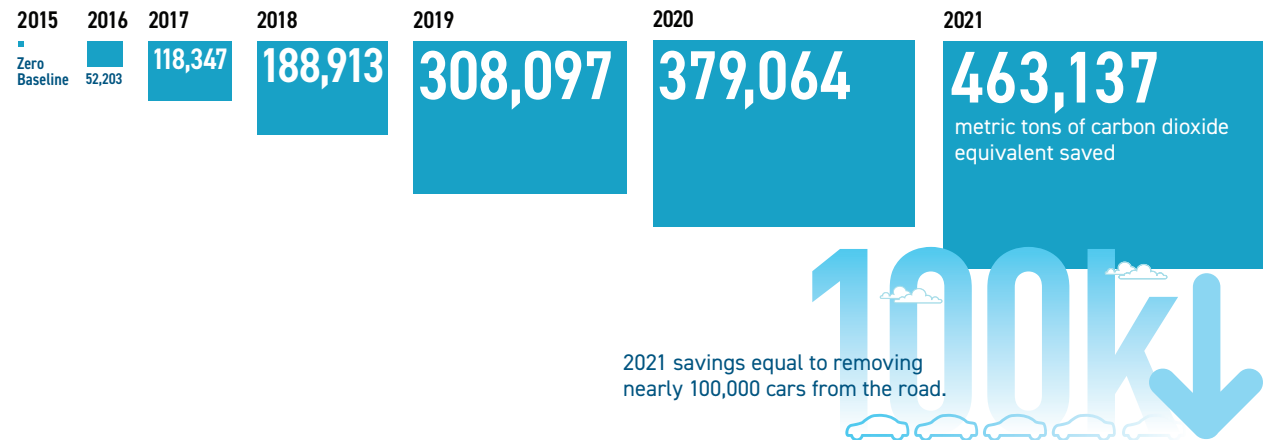
- Lowering energy use through aggressive energy efficiency and decreased consumption
- Providing customers with a voluntary program to purchase carbon offsets as an interim tool to reduce emissions
- Reducing the carbon intensity of conventional natural gas across the value chain
- Evolving our supply to include renewables in the pipelines

2021: Ahead of Target Savings Rate

463,137 metric tons of carbon dioxide equivalent saved.

This marks 36% of savings toward goal, ahead of target pace.

Annual Savings



2021 Source of Savings Mix



¹⁷ Based on 2015 emission levels attributable to NW Natural operations and customer use of our product

Reduced Energy Use

From conservation to energy-efficiency improvements, reduced energy use currently accounts for the largest savings toward our Low Carbon Pathway goal, and we're driving to increase that savings in the coming years.

- NW Natural residential customers have on average cut their emissions in half since 1970, and in our 2021 IRP Update we projected that energy efficiency will cut emissions by another 50% or more by 2050.¹⁸
- For two decades NW Natural's rate structure has been based on decoupling, which is intended to break the link between a utility's revenues and the quantity of gas used by its customers, removing any financial incentive a utility might have to discourage customers from conserving energy. Today more than 75% of our gas utility revenues are decoupled.
- Through our [Less We Can](#) public awareness campaign, we actively encourage customers to use less energy.

Through [Energy Trust of Oregon](#), we've consistently supported energy-efficiency measures such as cost-effective equipment upgrades, insulation and building improvements that last for many years. In 2021, NW Natural customers provided funding that covered approximately \$34.5 million of energy-efficiency expenses and

generated over 6.5 million therms in energy savings. That exceeded our IRP target and surpassed Energy Trust's goal for our Oregon service area by 20%. That's equivalent to removing greenhouse gas (GHG) emissions from over 7,500 cars for one year. Energy efficiency and reduced usage contributed nearly half of the savings we achieved in 2021 toward our voluntary goal of 30% carbon savings by 2035. That's about 208,000 metric tons saved in 2021 related to efficiency work since 2016.

	Energy-Efficiency Expenses (in millions)	Therms of Energy Savings (in million of therms)	Equivalent Cars Removed from Roads
2021	\$34.5	6.5	7,500
2020	\$28.8	6.8	7,800
2019	\$29.6	5.5	6,000

By market, in 2021 our Oregon service territory had 622,000 MMBtu of net energy savings and our Washington service territory had about 36,000 MMBtu of gross savings.



Equipment innovation

We are working to encourage the development of progressive technologies that use less energy. Through our partnerships with the [Gas Technology Institute](#), [Low Carbon Resources Initiative](#) and [Northwest Energy Efficiency Alliance](#) we seek to transform the market for innovative products. We co-founded the [North American Gas Heat Pump Collaborative](#) with local distribution companies across North America to support the adoption of highly efficient space and water heat equipment that are designed to reduce carbon emissions. Gas-powered heat pumps offer the opportunity to reduce natural gas consumption while maintaining equipment performance in cold weather—a challenge for electric heat pumps. Gas heat pumps are expected to be commercialized and available beginning in 2023. Research indicates that new technologies like these have the potential to reduce energy use by 40% or more in the residential sector.¹⁹

← Gas heat pumps like the one pictured can help reduce energy usage.

¹⁸ Based on 2020 emission levels

¹⁹ Opportunities for Reducing Greenhouse Gas Emissions Through Emerging Natural Gas Direct-Use Technologies. An American Gas Foundation report prepared by Enovation Partners, 2019



Industrial energy efficiency

Our industrial customers, though small in number, account for roughly half of NW Natural's gas delivery volume. Efficiency investments for industrial use can deliver large energy savings while enabling companies like Valley Milling & Lumber in Oregon to pursue strategic growth strategies. After purchasing a new lumber-drying kiln in 2020 to expand its in-house production capacity, the wood products manufacturing company installed a natural gas boiler to efficiently generate the heat a dry kiln requires. They expect to save more than 64,000 therms annually—a \$49,000 value at the time of installation. Thanks to those annual energy savings and the upfront help from Energy Trust of Oregon, nearly 70% of the cost of the boiler upgrade was offset.

"Saving energy supports our growth and our goal to be a more environmentally friendly operation."

— Eric Youel,
Valley Milling & Lumber plant manager

Carbon Offsets for Customers: Now That's Smart Energy

NW Natural was the first stand-alone gas utility in the U.S. to offer customers a voluntary program that allows them to offset carbon emissions from their natural gas use. Launched in 2007, our Smart Energy program purchases carbon offsets from projects that sequester, reduce and prevent the release of greenhouse gases. Many of these projects are biodigesters on family-owned dairy farms. The program's mantra, "Use Less, Offset the Rest," reflects our conviction that verifiable offsets are a valuable tool for effectively lowering emissions.

In 2021, we added [renewable natural gas \(RNG\)](#) to the program for our Washington customers. That gives them a new mitigation resource and aligns with recent [legislation](#) that requires natural gas companies in Washington to offer by tariff a voluntary RNG service.

In 2021 Smart Energy enrollments increased by nearly 20% and now more than 10% or nearly 75,000 of our residential customers are enrolled in the program. They funded over 197,000 metric tons in emission reductions, equivalent to removing over 42,000 cars from the road in 2021. That made Smart Energy the second largest contributor to our low-carbon goal NW Natural set in 2016 and accounted for nearly 188,000 metric tons of savings toward the goal in 2021.

Since its inception, the Smart Energy program has funded over 1.5 million metric tons of CO₂e emissions reductions.

SMART ENERGY PROJECTS






The average home enrolled in Smart Energy prevents more than 20 pounds of greenhouse gas emissions from entering the atmosphere every day.

Greener Natural Gas

Our residential and commercial customers' use of natural gas accounts for about 6% of Oregon's greenhouse gas emissions, and we are working to reduce that footprint even further. Cutting emissions across the supply chain is foundational to this effort.

- NW Natural procures natural gas from Canada and the Rocky Mountain region, two of the most stringently regulated production areas in North America, with lower methane leaks.
- NW Natural is one of the first utilities in the nation to develop and implement an emissions-screening tool that allows us to understand the carbon intensity of gas supplies and consider environmental impact when we evaluate supply purchases (alongside other key purchasing criteria such as price, credit worthiness and geographic diversity) and reward lower emitting producers with our contracts. Our program reduces the upstream emissions associated with the natural gas production of the product we procure and deliver to customers from our U.S. supply purchases by about 30%.
- Because upstream natural gas production and processing are where the bulk of emissions occur in the value chain,²⁰ we're working with like-minded industry members and trade groups to encourage producers to adopt best practices.
- We use alternative blowdown practices that reduce emissions from pipeline venting. In 2021, we avoided releasing 193 metric tons of CO₂e, reducing the amount that would have been vented into the atmosphere by 95%.

By targeting gas purchases from more environmentally conscious producers, we have avoided more than 55,000 dekatherms of methane emissions for savings of nearly 59,000 metric tons of CO₂e.

<p>NWN FOUNDING MEMBER</p> 	<p>The Natural Gas Supply Collaborative is a group of natural gas purchasers that deliver enough natural gas to meet the needs of more than 60 million households. The group focuses on promoting safe and responsible practices for natural gas supply, along with greater transparency around key issues such as water and land use, air quality, and emissions associated with natural gas production.</p>
<p>NWN MEMBER</p> 	<p>NW Natural is a member of Our Nation's Energy Future (ONE Future), a coalition representing more than 20% of the U.S. natural gas value chain and committed to reducing methane emissions through adopting science-based standards and best practices.</p> <p>ONE Future is on track to exceed its goal of reducing cumulative methane emissions from its members' production, midstream and downstream operations to below 1% by 2025.</p>
<p>NWN FOUNDING MEMBER</p> 	<p>Methane Challenge Program partners are recognized by the EPA as leaders in reducing methane emissions. As a founding partner, NW Natural is adopting practices such as alternative blowdown methods. By flaring gas or rerouting it to stay in a pipeline instead of venting it into the atmosphere to depressurize pipelines, we reduce potential greenhouse gas emissions by 90% to as much as 100%.</p>

Transportation

Replacing dirtier transportation fuels such as diesel with clean-burning natural gas is another source of carbon savings. Heavy-duty vehicles that run on compressed natural gas (CNG) rather than diesel emit 90% less nitrogen oxide (NO_x) air pollutants and particulate matter,²¹ and emissions do not vary with engine load, as they do with diesel engines. Natural gas technology also provides reliability and cost-savings unmatched by other alternative fuels. In 2021, NW Natural supplied 14 companies with 5.2 million therms of CNG to power their fleets.

"Transportation is Oregon's single largest source of greenhouse gas emissions, as well as other harmful pollutants that put vulnerable communities at risk. We need to rapidly decarbonize the transportation sector."

— Oregon Governor Kate Brown

²⁰ U.S. EPA, Inventory of U.S. Greenhouse Gases and Sinks: 1990 – 2018

²¹ Ultra-Low NO_x Natural Gas Vehicle Evaluation. Report prepared by University of California Riverside's College of Engineering-Center for Environmental Research and Technology, 2016

Our Vision Forward: Carbon Neutral Energy Provider by 2050

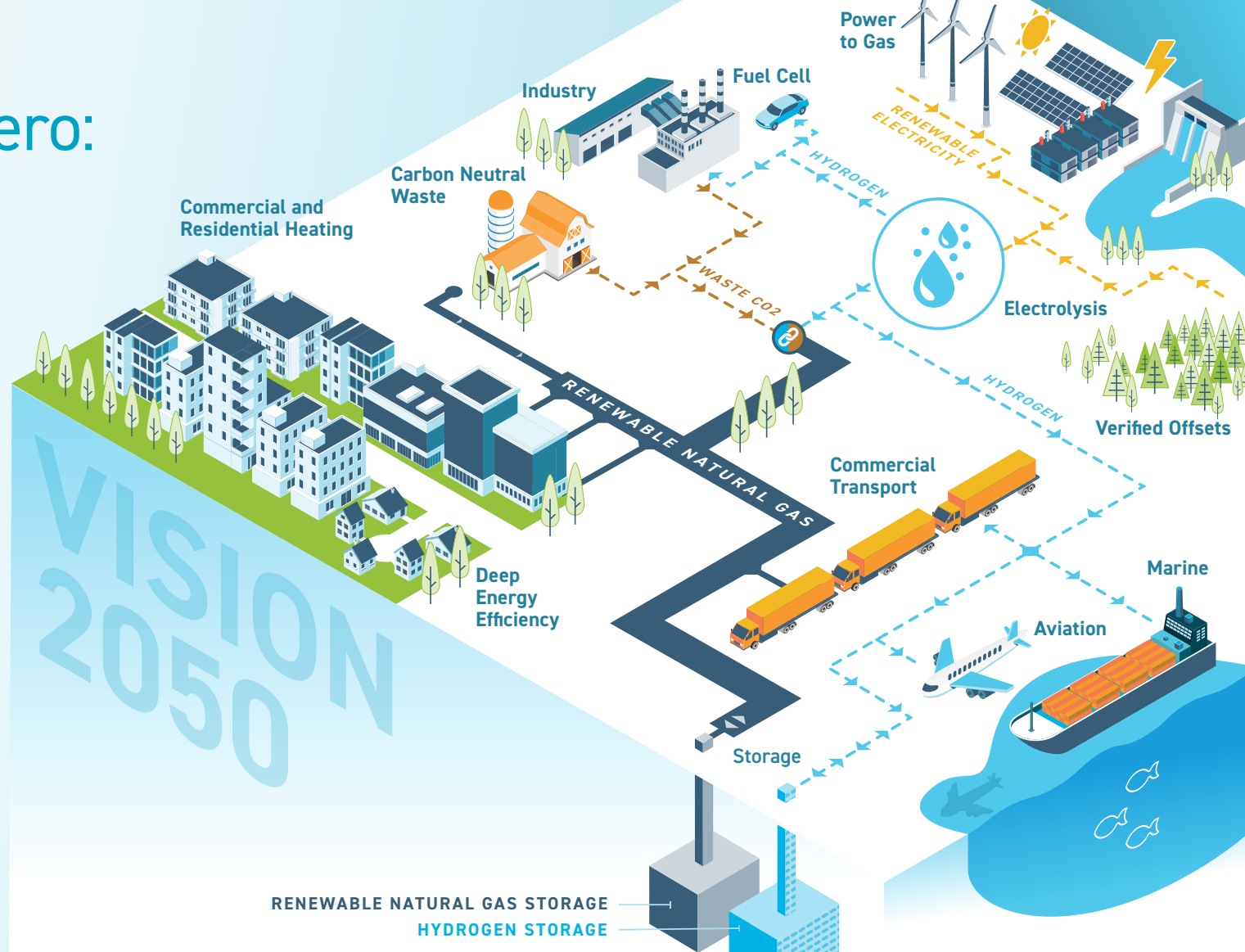
Taking steps to decarbonize the electric grid means rethinking the energy that could be transmitted and distributed across existing infrastructure—and that's our vision for the gas system.

Destination Zero:

Our vision of carbon neutrality

A decarbonizing network:

- Renewable Natural Gas
- - - Dedicated Hydrogen
- - - Waste CO₂
- - - Renewable Electricity



"NW Natural has evolved many times since 1859 to meet the essential energy needs of our region. The renewable supply is growing, the necessary technology exists, and our modern storage and delivery system is ready."

— David Anderson, NW Natural president and CEO

Vision 2050

Since NW Natural started delivering energy in 1859, the fuel going through our pipes has changed from manufactured gas to natural gas. We're on the path to our next evolution, from natural gas to renewable natural gas and clean hydrogen. As we've made progress on our 2035 [Low Carbon Pathway](#) goal, our thinking on what's possible for our system has evolved, based on promising advancements in renewables for the pipeline system.

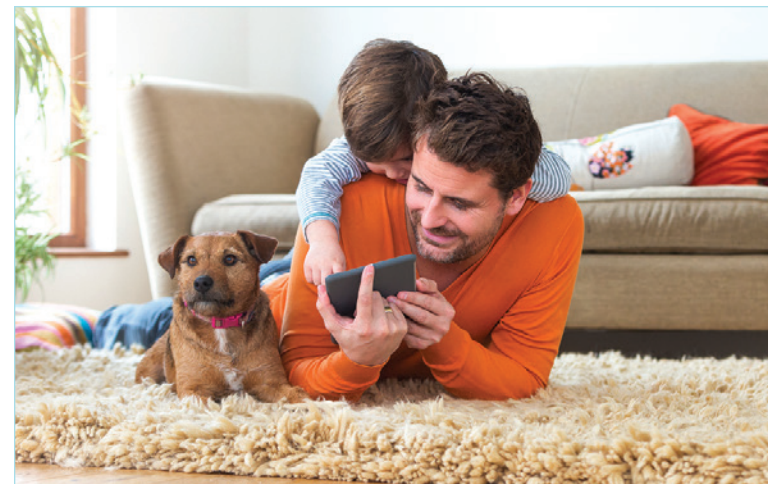
Our goals are focused on collective action to:

- Further reduce energy use through aggressive energy-efficiency actions and new technologies
- Lower the carbon intensity of the product we deliver by shifting from conventional natural gas to renewable natural gas and clean hydrogen
- Leverage our tight pipeline system and long-duration storage to enable a faster, more affordable, resilient energy transition
- Look to emerging decarbonization models such as carbon capture, utilization and sequestration (CCUS) that align with our skills and services
- Facilitate adoption of policies that use joint gas and electric system planning and encourage the development of renewables for the pipeline

In 2021, we made progress on our vision of being a carbon neutral energy provider:

- Issued our [Destination Zero Report](#), one of the first comprehensive assessments by a gas utility that demonstrates possible scenarios to leverage our existing system to achieve carbon neutrality by 2050 for the energy services we provide to customers
- Accelerated our progress toward procuring renewable natural gas for our customers under Oregon's groundbreaking SB 98 legislation
 - » Secured agreements to purchase or develop RNG totaling 3% of our current annual sales volume in Oregon
 - » Invested in the development of a facility that converts methane from a Tyson Foods processing plant into RNG, which was completed in January 2022
 - » Completed interconnections to a biomethane facility and a wastewater treatment plant that are injecting RNG into our pipelines
- Successfully tested a 5% hydrogen blend at our training and operations facility
- Actively advocated for public policy support to accelerate the development of renewable energy for the pipeline and make it affordable for customers

We believe all forms of renewable energy, delivered through both the gas and electric systems, will be necessary in a low-carbon future.

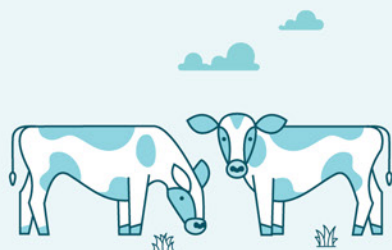


Key Decarbonization Principles

- Helping customers use less energy is the fastest and least expensive way to reduce emissions
- All forms of renewable energy are needed in a balanced, low-carbon future
- Sustaining a dual energy system—gas and electric—to handle peak energy loads and to prepare for more extreme weather events
- Leveraging our existing modern system in new ways to help develop a renewable energy future while maintaining long-term affordability and dependability
- Energy system diversification and competition provides the best opportunity for accelerated innovation
- We must drive toward carbon neutrality in a way that leaves no one behind

Getting to Zero

The pathway to our vision of carbon neutral by 2050



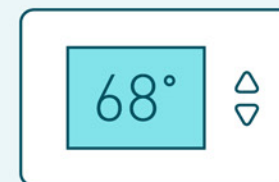
RENEWABLE ENERGY

Renewable sources that do not contribute new carbon to the atmosphere



COORDINATED ENERGY SYSTEMS

Partnership with cleaner electric systems to create seasonal and peak energy storage



ENERGY EFFICIENCY

Encouraging end-use innovation for deep efficiency

Destination Zero Report: In-Depth Scenario Analysis to Achieve Carbon Neutrality

In 2021, we issued our [Destination Zero Report](#), an in-depth scenario analysis of possible scenarios to achieving carbon neutrality for our residential and commercial customer use by 2050. The scenarios we analyzed incorporate varying applications of:

- Enhanced energy efficiency coupled with new equipment technologies that reduce consumption
- Lower-carbon fuels such as RNG and hydrogen (along with small amounts of carbon capture)
- Declining amounts of verified offsets

Using varying levels of these applications, the report analyzes three different views of the future and demonstrates how it's possible to achieve carbon neutrality by leveraging our existing natural gas system. All scenarios draw on proven decarbonization measures that are already technically viable, and ready to be implemented with public policy support.

"This is one of the first comprehensive assessments by a gas utility that analyzes multiple scenarios to achieving carbon neutrality."

— David Anderson, NW Natural president and CEO

Renewable Natural Gas for the Pipeline

Multiple studies have shown that natural gas and the gas pipeline network will be needed for the Pacific Northwest to achieve its climate goals. A [report by the premier environmental consultant Energy and Environmental Economics \(E3\)](#) outlines how our system—leveraging renewables developed for the pipeline—can be instrumental in achieving deep decarbonization in our region most affordably and reliably.²² The E3 study found that our region can further its deep decarbonization goals by blending just 25% RNG into the existing gas system.

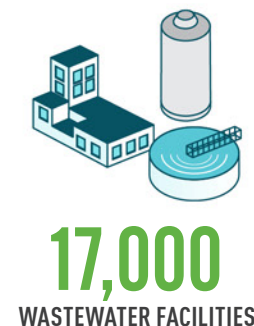
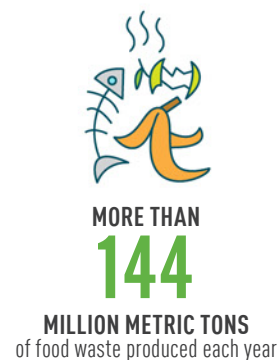
Waste streams are potent contributors to climate change. In the U.S., that includes methane emissions from 34 billion gallons of [wastewater](#), more than a billion tons of [livestock](#) manure, and 144 million tons of [food waste](#) every year. Renewable natural gas (RNG) can turn this waste problem into a powerful climate solution. RNG projects capture emissions from organic waste to produce renewable energy that can be used just like conventional natural gas. By adding RNG to our distribution system we can prevent the release of greenhouse gasses from waste streams and reduce the amount of conventional natural gas flowing through our pipelines.

"At NW Natural, we're proud to be aggressively pursuing renewable natural gas and clean hydrogen—allowing us to leverage our tight modern system in new ways to address the climate imperative."

— Kim Heiting, NW Natural senior vice president of operations

Turning Waste Into Renewable Energy

North American sources of organic waste that can be converted to RNG to displace conventional natural gas are vast—and provide similar climate benefits to wind and solar:



Source: Coalition for Renewable Natural Gas

²² Independent consulting firm Energy and Environmental Economics [E3] study published in December 2018 and commissioned by NW Natural

RENEWABLE NATURAL GAS IS AN ESSENTIAL ELEMENT OF OUR VISION FOR THE GAS SYSTEM BECAUSE:

RNG can reduce greenhouse gas emissions, and it is interchangeable with conventional natural gas, so RNG can be added directly into existing gas pipelines

RNG can be stored for distribution on demand, and the supply of waste doesn't fluctuate the way weather-dependent renewable energy sources do

RNG can replace diesel fuel in transportation to reduce emissions and improve local air quality

Ample RNG Potential

Studies indicate that the potential supply of RNG is ample. An Oregon Department of Energy [report](#) identified nearly 50 billion cubic feet of technical potential, equivalent to the total amount of natural gas used by all Oregon residential customers today. Nationwide, RNG production potential is [estimated](#) to be 10 to 30 times greater than current production. In 2021, the number of production facilities in the U.S. grew [33.5%](#).

RNG PROJECTS ACROSS NORTH AMERICA

RNG Facilities

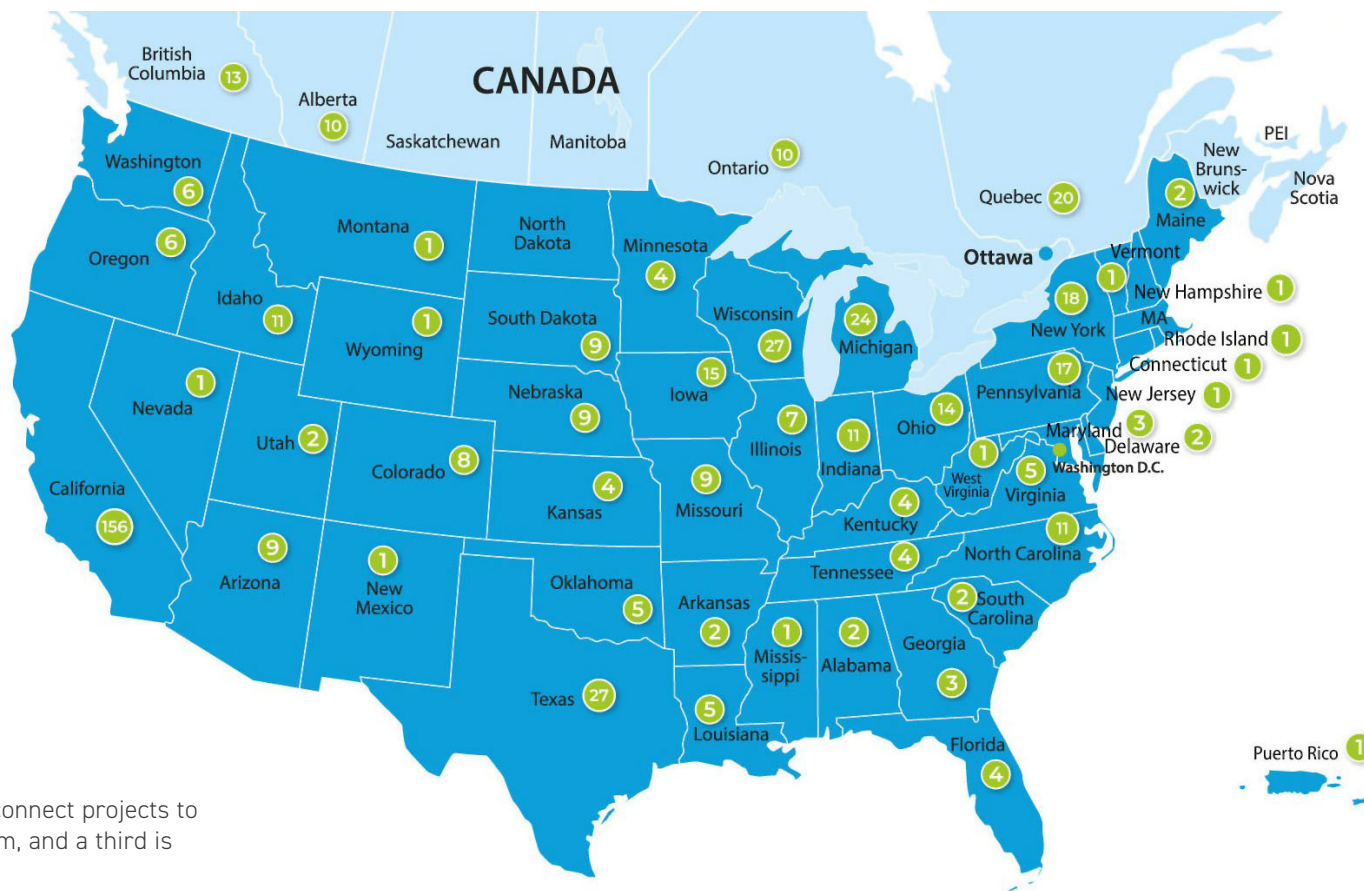
Operational: **268**

Under Construction: **109**

Planned: **136**

TOTAL: 513

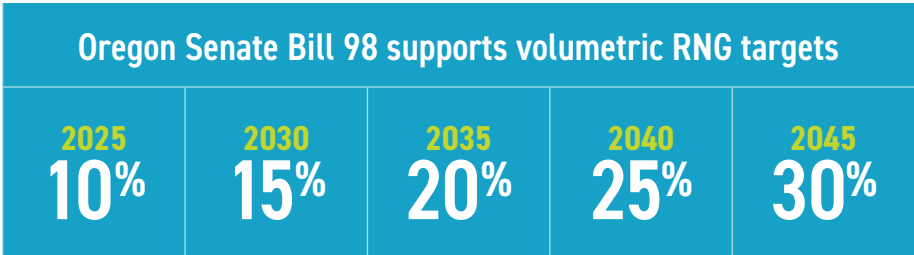
Source: RNG Coalition map as of 8/2/22



- NW Natural has completed two interconnect projects to inject RNG into our distribution system, and a third is scheduled for completion in 2022
- We're actively procuring RNG for our customers

Oregon Supports Renewables

In Oregon, [Senate Bill 98](#)—the first legislation of its kind—sets voluntary 30-year targets for gas utilities to procure renewable natural gas, and eventually renewable hydrogen, for our customers. The legislation, which was passed with bipartisan support, goes further than any other current U.S. law by outlining voluntary goals for adding as much as 30% RNG into the state’s pipeline system by 2050. Gas utilities can use up to 5% of their revenue requirement to cover the incremental cost of RNG.



Procuring RNG for our Customers

We believe NW Natural created the nation’s first dedicated RNG team at a natural gas utility in 2021. The team’s mission is to help us meet SB 98 targets and secure renewable supply at favorable prices for our customers. We have been vigorously pursuing contracts and establishing long-term relationships with RNG producers, developers and feedstock owners to procure RNG. In 2021, we had agreements with options to purchase or develop renewable natural gas totaling 3% of our current annual sales volume in Oregon.

"We're on track to procure enough RNG to get to at least 5% of our annual sales volume within the next two years and we've got sight lines to reach the voluntary target of 10% by 2029. For context, wind and solar generation currently supply just 12%²³ of our nation's electricity—after more than two decades of active development and public policy support."

— Anna Chittum,
director of renewables at NW Natural

"RNG is a resource that wasn't significantly developed even five years ago. NW Natural is proud to be an early mover in this market and we're committed to leading decarbonization efforts in our region and setting new precedents for our industry."

— Justin Palfreyman, vice president strategy and business development, NW Natural

In 2021, NW Natural:

- Made our first [investment](#) under SB 98, toward development of a biogas facility that is now operational and converting methane from a Tyson Foods processing plant into RNG. In Dec. 2021, NW Natural initiated investment in a second development project and construction of the biogas facility is underway.
- Signed agreements under SB 98 to purchase RNG on behalf of Oregon customers through Element Markets, Archaea Energy and BP Products North America.
- Completed our interconnection to a local RNG production facility at the [Shell New Energies Junction City](#) biomethane facility in Oregon.
- Partnered with [Metropolitan Wastewater Management Commission](#) (MWMC) of Eugene/Springfield to inject RNG derived from wastewater treatment into our system, which began producing in 2022—the first wastewater interconnect in Oregon.

²³ EIA 2021 electricity generation by source



RNG ENTERS NW NATURAL PIPELINES

The [Shell New Energies Junction City](#) biomethane facility in Oregon began sending renewable natural gas through NW Natural pipelines in Dec. 2021. The facility—Shell's first RNG production site in the U.S.—uses locally sourced cow manure and agricultural residues to produce an expected 736,000 MMBtu a year of RNG. As the interconnecting gas company, NW Natural played an important role in the startup and took a big step toward advancing our own low-carbon goals. Having a new fuel production resource directly connected to the local distribution pipelines adds resilience to our system. The Shell facility—now a NW Natural industrial customer—supports the local economy and helps farmers manage agricultural wastes, reduce expenses and protect air and water quality.

AN RNG MILESTONE

In 2022, the [Metropolitan Wastewater Management Commission's](#) wastewater treatment plant in Eugene became the first wastewater facility in Oregon to produce renewable natural gas. New equipment installed at the plant produces RNG by "scrubbing" biogas from the anaerobic digesters that stabilize and treat solids, transforming 100% of what would otherwise be a waste product into a sustainable energy source. The pure methane/natural gas is injected into NW Natural's system. MWMC is the first public agency in Oregon to complete a project of this kind.



[Watch a video about the project.](#)

TAKING THE LEAD ON RNG

NW Natural is a member of the [Coalition for Renewable Natural Gas](#), a member-led nonprofit representing nearly 300 companies, municipalities, universities, and organizations dedicated to advancing RNG through policy and education. The coalition's Sustainable Methane Abatement & Recycling Timeline ([SMART](#)) is an initiative to capture and control methane from 43,000+ organic waste sites in North America by 2050. NW Natural business development director Anna Chittum currently serves as chair of the coalition's Leadership Advisory Board for Advocacy.

NW Natural is also a member of the [American Biogas Council](#), which is a national trade association representing the entire U.S. biogas industry and is dedicated to maximizing the production and use of biogas from organic waste.



WHAT DO A COW, A TOILET AND A BANANA PEEL HAVE IN COMMON?

That's the riddle people were asked to ponder when NW Natural's community involvement team began reappearing at community events last summer. After more than a year of event cancellations due to COVID-19, the team wanted to bring a moment of surprise and delight when they went back out into the community. And so they came up with the "Cowhouse," a whimsical new way to build awareness of renewable natural gas and NW Natural's [Less We Can](#) program. The Cowhouse (think cow + outhouse) is an 8-foot-tall privy with two knobby cow legs sticking out beneath the door. At the familiar blue NW Natural tent next to the display, visitors get a sugar cookie with the three-letter answer to the cow-toilet-banana riddle: RNG. The Cowhouse appeared at 24 events in 2021, and the team also created a Candy Crush-style Waste to Energy game designed to be played on a mobile device.

"The Cowhouse has been a novel way to start conversations about our commitment to developing renewables for our customers."

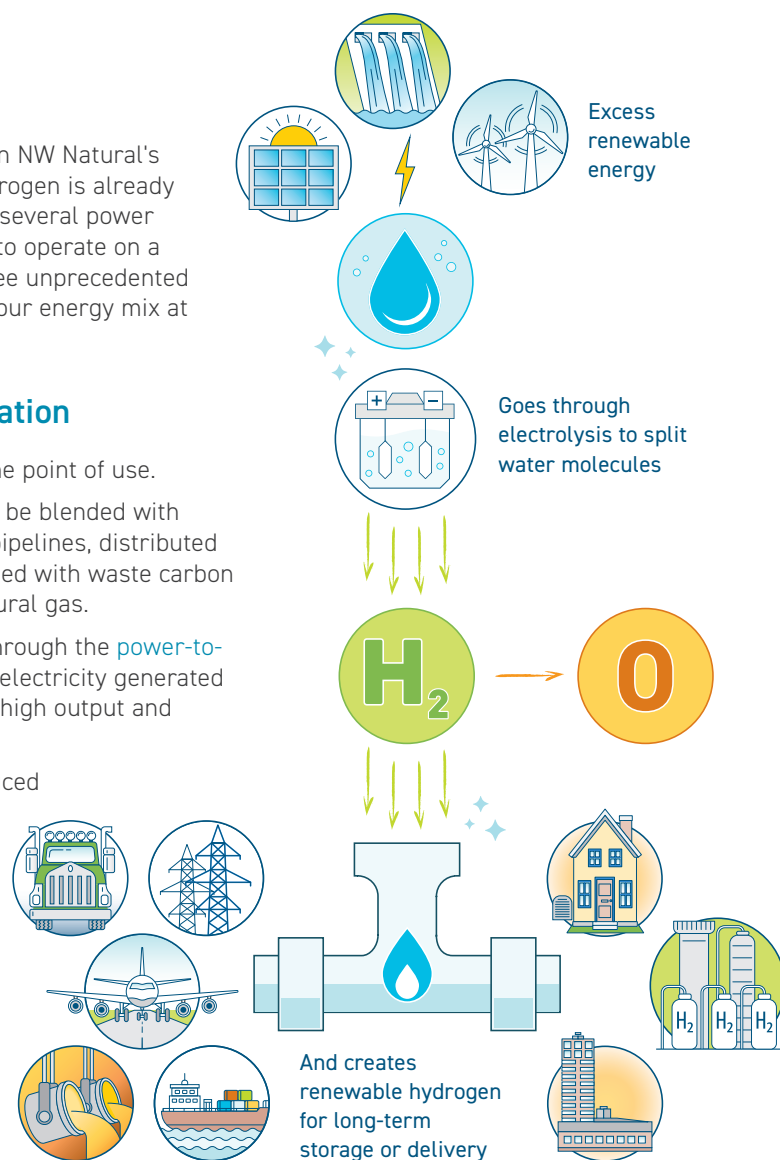
— Darrell Nelson, NW Natural community involvement senior manager

Hydrogen: The Other Piece of the Puzzle

Clean hydrogen plays an important role in NW Natural's long-term plans for decarbonization. Hydrogen is already flowing through the pipes in Europe, and several power plants in the U.S. have announced [plans](#) to operate on a natural gas/hydrogen fuel mixture. We see unprecedented opportunities for bringing hydrogen into our energy mix at a large scale.

Hydrogen is key to decarbonization

- Hydrogen has zero CO₂ emissions at the point of use.
- It is a versatile energy source that can be blended with natural gas and injected into existing pipelines, distributed in a dedicated pipe network, or combined with waste carbon dioxide and converted to synthetic natural gas.
- [Renewable hydrogen](#) can be created through the [power-to-gas](#) process, using surplus renewable electricity generated from solar and wind during periods of high output and low demand.
- Carbon neutral hydrogen can be produced by reforming conventional natural gas, paired with carbon capture and storage.
- Hydrogen can be stored on a large scale for long periods of time and delivered when needed.



Testing hydrogen on our own system

We're conducting real-world research to determine maximum hydrogen blending levels we can safely add to our pipelines without significant modifications to our distribution system or our customers' appliances. In 2021, we tested a 5% blend at NW Natural's state-of-the-art training facility in Sherwood, Oregon, and confirmed that it will work in our system. We're now testing the blend on end-use equipment, including furnaces, fireplaces, and water heaters.

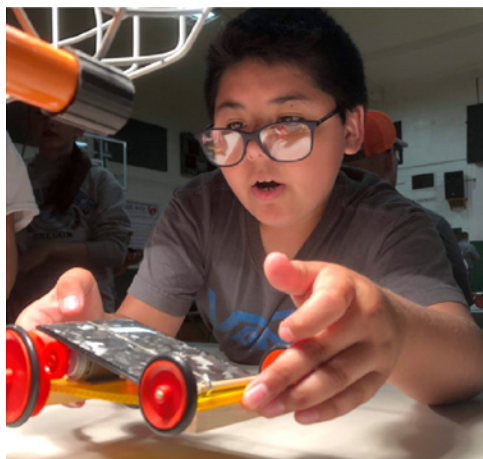
And we're not alone. More than a dozen North American utilities are actively working on hydrogen as a resource. Some have hydrogen already being blended in, some are under construction and others are looking at pure research and development. In addition, Hawaii Gas has been using hydrogen since the 1970s in its natural gas distribution system without issue.²⁴ In Italy, the largest gas utility, SNAM, successfully ran a trial blend of 5% and then 10% in sections of its pipelines system.

Countries like the Netherlands, United Kingdom and Germany are testing 20% hydrogen blending. The current thinking is that the 20% blending level would likely be the maximum that gas utilities can blend into their existing systems directly.²⁵ Based on that, we've also begun to research a 20% blend that is going into water heaters and some heating units in one of our own buildings.

We want to anticipate our customers' concerns. We are confirming that a hydrogen blend will operate the way natural gas does, that we can incorporate it safely in our systems."

— Chris Kroeker, NW Natural business development segment manager

Looking to the more distant future, we're working with technical partners to determine how to convert our large industrial customers from natural gas to pure hydrogen. We have evidence it can be done, because there are 1,600 miles of hydrogen infrastructure already operating successfully in the U.S. today. We'll need a lot of pieces to come together to launch these major projects, but we're starting to lay the foundation now.



Bonneville Environmental Foundation's CE – Clean Energy. Bright Futures is a national K-12 education program with a mission to prepare the next generation of leaders for a clean energy future. NW Natural is providing the program with a three-year grant to support the **NW Natural Clean Energy Fellows** project, which works with regional educators to build students' understanding of renewable gas technologies. In 2021, the second year of the partnership, teachers who were selected for the project developed career-centered curriculum that can be shared with K-12 educators throughout NW Natural's service territory. NW Natural staff engaged with these teacher-leaders to illuminate clean energy career pathways for students and link the learning content to the company's real-world renewable energy projects.

²⁴ Hawaii Gas: Clean Energy and Hydrogen, <https://www.hawaiigas.com/clean-energy/decarbonization>. In the 1970s, Hawaii Gas began producing and using hydrogen to convert naphtha, a by-product from the local oil refineries, for the manufacture of synthetic natural gas (SNG) on the island of Oahu. Today, 12% of the gas in its Oahu pipeline is hydrogen—the highest concentration of hydrogen reported by any gas utility in the U.S.

²⁵ The April 2021 report, Extending the European Hydrogen Backbone, involves 23 gas infrastructure companies from 21 countries, with a vision of nearly 40,000km of hydrogen pipeline infrastructure by 2040, 69% of which is repurposed from existing gas infrastructure. Source: https://gasforclimate2050.eu/wp-content/uploads/2021/06/European-Hydrogen-Backbone_April-2021_V3.pdf.

A public-private partnership to produce renewable hydrogen

NW Natural has partnered with Eugene Water & Electric Board (EWEB) and the Bonneville Environmental Foundation to propose the development of Oregon's first renewable hydrogen production plant. This working [power-to-gas](#) grid-connected facility would be designed to generate up to 4,300 MMBtu of clean hydrogen annually via an electrolyzer powered by EWEB's low-carbon electricity supplies. The hydrogen is planned to be blended at 5% into existing natural gas supplies and delivered to approximately 2,500 EWEB customers via NW Natural's pipeline infrastructure. This clean energy innovation project is expected to reduce carbon emissions by approximately 200 MTCO₂(e) annually over 20 years of service, while providing hands-on experience in the generation and distribution of low-carbon energy sources across increasingly interdependent gas and electric grids.

HyReady

The transition to renewable hydrogen will require broad support and investments in best practices and science-based research. We're collaborating with like-minded businesses, organizations and public utility districts to advance the development of renewable hydrogen. We're part of the Zero Carbon Hydrogen Coalition, and in 2020 we joined [HyReady](#), a worldwide collaboration on hydrogen, which is focused on creating guidelines and best practices for natural gas distribution companies blending hydrogen into their distribution systems. We are also partnering with other North American utilities to begin mapping out the technical tests we need to do at different blending percentages for hydrogen.



NW Natural technician testing blended hydrogen gas at NW Natural's Sherwood facility

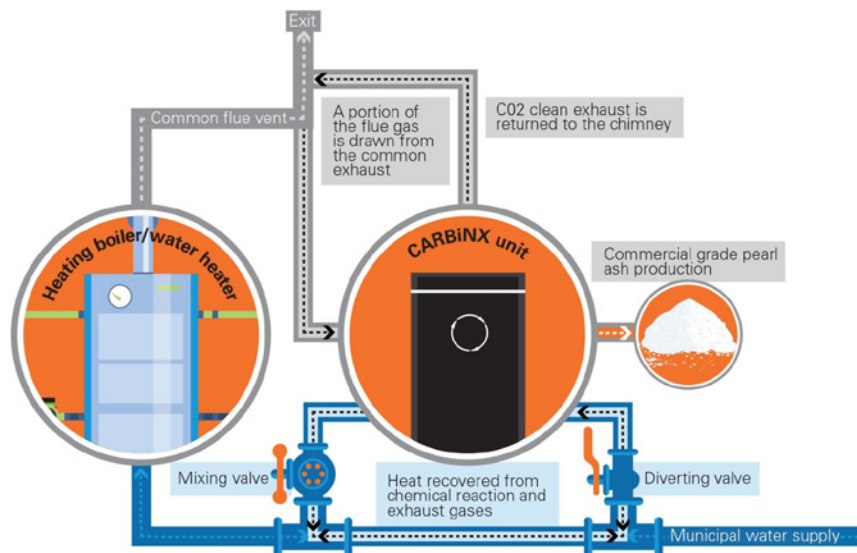
Promoting clean hydrogen to take decarbonization beyond the grid

NW Natural is a founding member of the [Renewable Hydrogen Alliance](#), a cross-industry coalition that advocates for using surplus renewable electricity to create hydrogen as a critical step to reducing dependence on fossil fuels. The alliance began after NW Natural hired Flink Energy Consulting in 2018 to write a report on the electrolyzer technology that uses electricity to break water into hydrogen and oxygen. In researching the report, Flink discovered that significant deployments in Europe had dropped the cost of electrolyzers precipitously in just a few years—news that appeared to be largely unknown among utilities, renewable developers, regulators, and environmental advocates in North America. As a result, Flink was committed to promoting the industry and formed the Renewable Hydrogen Alliance with NW Natural and four other founders.

The alliance has successfully backed legislation and policies in Oregon and Washington to advance the development and use of renewable hydrogen.

Carbon Capture

Carbon capture, use and storage (CCUS) is an [important emissions-reduction strategy](#) that involves capturing CO₂ and storing it underground or converting it to other substances. NW Natural is working with some of our biggest commercial customers on a program to pilot carbon capture equipment for commercial buildings. The CARBiNX equipment is designed to be fitted to existing gas-powered furnaces and boilers to reduce both energy use and greenhouse gas emissions. Carbon dioxide in the exhaust from the gas heating appliance is captured and converted to potassium carbonate, which is blended into soap products. The soap can be a value stream for customers to get a return on investment in a relatively short time. Through carbon capture and increased energy efficiency, each unit has the potential to reduce CO₂ emissions nearly 18,000 pounds annually. CARBiNX equipment has been installed in a variety of facilities in Canada, and several other direct capture technologies are approaching commercialization. We expect adoption rates to grow.



The Gas System Delivers What We Need for a Clean Energy Future

Leveraging our existing natural gas system in new ways is our priority. We are seeking paths to a renewable energy future with long-term dependability, resilience and affordability.

A coordinated energy system: Two systems are better

A diversified energy system is fundamentally stronger, more affordable, and more reliable—and diversification will be even more important as climate change and severe weather pose new risks to reliability and resiliency.

- The natural gas system in the Northwest meets 90% of energy needs for residential space and water heat customers on the coldest winter days. The system is critical for energy reliability in a region where the electric grid already faces serious [capacity limitations](#).²⁶
- NW Natural serves 74% percent of residential square footage in our service territory. Without the gas system, the electric system would need to at least double in size to handle the additional load, that includes building new transmission and distribution lines.²⁷ That would come with a high price tag, and the investment in batteries to store renewable energy would drive the cost even higher.
- Without the gas system people would be required to replace their gas heating systems and other appliances, posing a barrier for low-income customers.

Electric utilities are the biggest users of natural gas in the U.S., and they rely on it to back up renewables that provide intermittent energy for power generation. For the foreseeable future, cities will be using natural gas for direct heating in homes and businesses and to generate electricity in power plants where energy is lost in electric generation process and through transmission to homes and businesses.

"An energy system with renewable electrons delivered over wires and renewable molecules delivered underground gives our communities a more effective hedge against potential risks posed by more extreme weather, and a more cost-effective way to reduce emissions."

— Kim Heiting, NW Natural senior vice president of operations

²⁶ Northwest Power and Conservation Council, 2019

²⁷ Independent consulting firm Energy and Environmental Economics [E3] study published in December 2018 and commissioned by NW Natural

Unmatched storage capacity

As the world transitions to decarbonized energy systems, long duration storage of renewable energy will be critical. Our natural gas infrastructure already provides a massive, long-term storage resource that makes it possible to deliver energy on demand to customers all year long. In the future, we envision the storage facilities we currently have in place could be used to store RNG or hydrogen. Leveraging that unique asset can make it possible to provide renewables at a significant cost advantage when compared to the battery storage that would be needed to decarbonize the electric grid.

NW Natural currently has 20 billion cubic feet of underground storage—equivalent to the capacity of a battery that would cost about \$2 trillion in today's market.²⁸

- The gas system in the U.S. can deliver 2.5 times the energy of hydrogeneration facilities²⁹ and gas storage provides about 1,500 times the energy delivered from current large-scale utility batteries,³⁰ which has significant cost implications for decarbonization strategies across the energy sector.
- A large power-to-gas plant can enable renewable energy storage in the gas system for less than half the cost per kilowatt hour of a battery storing the same energy.³¹

The gas system can also help protect customers from service interruptions as the demand for energy continues to grow and the electric distribution system relies more heavily on weather-dependent renewables like solar and wind that deliver an intermittent supply of energy.

²⁸ Prices based on NREL <https://www.nrel.gov/docs/fy19osti/73222.pdf>. That's equivalent to about 6 million megawatt hours of storage. To convert natural gas volumes to MWh for comparison, this figure uses a national average heat content of 1036 btu/cf and a direct energy conversion of 0.29307 MWh/MMBtu

²⁹ Source: [EIA Weekly Natural Gas Storage Report](#) - Withdrawals are calculated and aggregated from a weekly regional report. The figure for hydroelectric generation is the total net generation from hydroelectric facilities and does not distinguish between what can and cannot be stored.

³⁰ Source: [EIA 923 Form](#) - Hydroelectric and battery generation are pulled from generator level data identified with prime movers "HY" and "BA", respectively. Net generation is aggregated for hydroelectric generators and gross generation is aggregated for batteries.

³¹ [NREL Technical Report June 2019. PNNL-28866 Report. Caltech Report.](#)

³² 2021 American Gas Foundation/Guidehouse report, [Building a Resilient Energy Future](#)



Modernized dehydration equipment at our Mist gas storage facility to support reliability

Resilience

In the coming decades the U.S. energy system will need to be resilient to catastrophic events. The natural gas system's underground infrastructure is less vulnerable than above-ground systems to hurricanes, fires and other extreme events associated with climate change. This ability to withstand disruption will be needed for the transition to a carbon-neutral future, along with the flexible, large-scale storage the gas infrastructure provides. To ensure resilience, the energy system needs pipeline delivery infrastructure and storage capabilities meeting both short- and long-duration needs.³²

The resilience of the natural gas distribution system was essential during the February 2021 North American snow and ice storm unofficially known as Winter Storm Uri. The deadliest winter storm in nearly 30 years, Uri brought power outages to millions of households in the U.S., northern Mexico and southern Canada. The gas system's stored energy supplies provided significant support to the energy system. Feb. 14 and 15 set a national record for the largest natural gas demand for a two-day period, and there was sufficient delivery capacity to meet the unprecedented demand—thanks in large part to storage, which accounted for 38% of the gas delivered on Feb. 15. Events like these underscore that system resilience is gained through diversity and redundancy.

Our customers want choice—and renewables

Research conducted in NW Natural's service territory in 2021 by the independent opinion research firm DHM shows that Oregon and Southwest Washington citizens want the freedom to choose natural gas as an energy source for their homes and businesses. They want a diversified set of solutions to lower carbon emissions.

78%

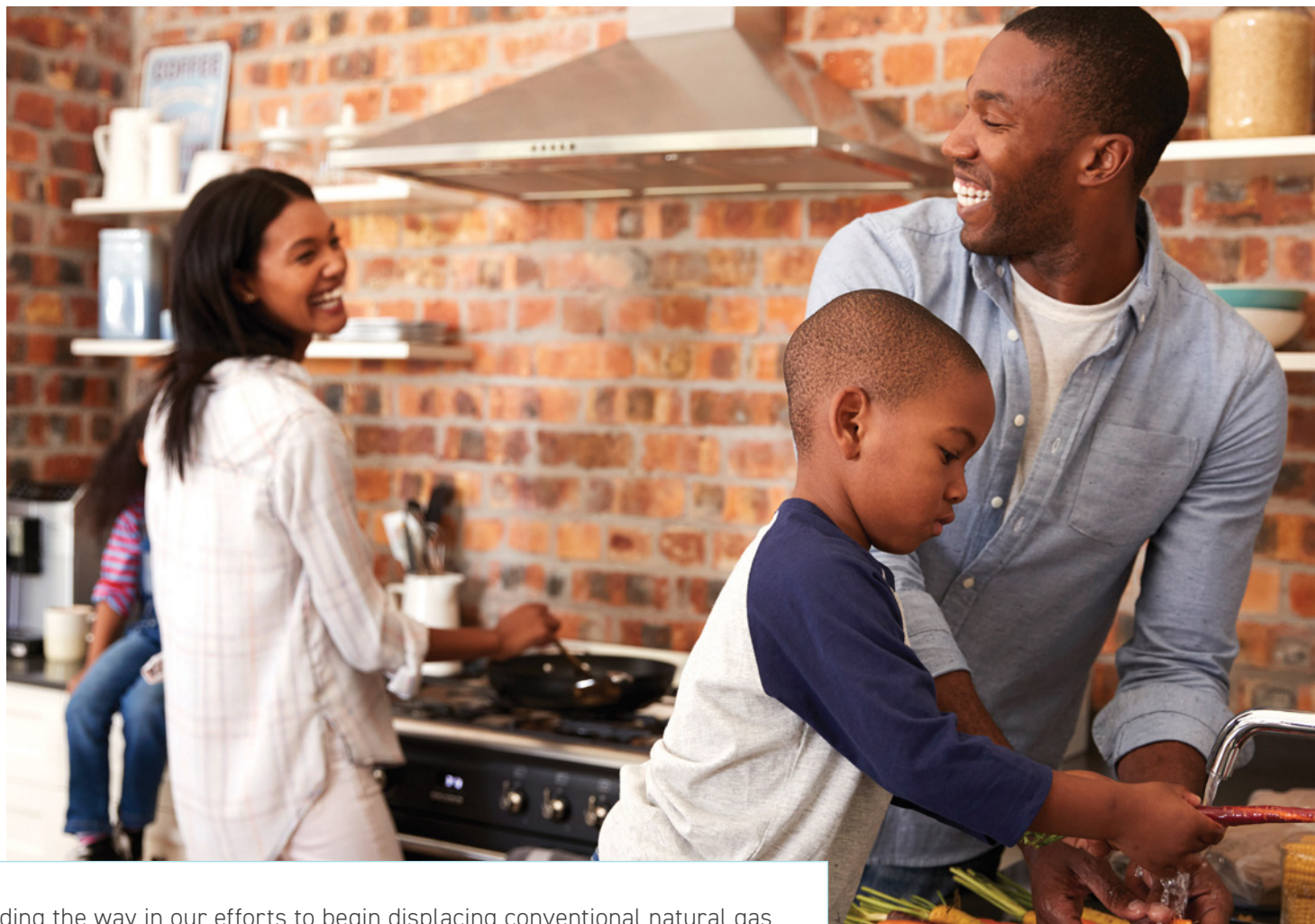
of voters value the natural gas system for its critical role in lowering emissions with both affordability and reliability as top priorities

78%

of voters support local government's efforts to encourage the use of renewable natural gas

73%

of voters agree that families and businesses should have a choice of energy options to meet their needs and not have those choices limited or mandated by their local government



"NW Natural has been leading the way in our efforts to begin displacing conventional natural gas with renewables, and this survey shows our communities strongly support this approach."

— Kim Heiting, NW Natural senior vice president of operations

Public Policy Support is Key

The effort to decarbonize the electric grid has depended on public policy that supports the development of renewable power sources, and policy is equally important in decarbonizing the gas system.

We're actively engaged advocating for thoughtful design of regulatory programs in Oregon and Washington state. While we're excited about early steps such as the passage of Oregon [SB 98](#), which creates a pathway for renewable natural gas, we're also working toward additional policy support to accelerate the development of renewable energy for the pipeline and make it affordable for gas customers.

Two decades ago, Congress began providing incentives to support solar and wind technologies until renewable sources of power generation could compete in the marketplace. NW Natural has joined other utilities in asking Congress to do the same thing for renewable natural gas and hydrogen.

At the federal level we hope to see large-scale investment in hydrogen R&D and deployment—as we're seeing in Europe, Australia, Asia and Canada—and production tax credits for RNG and hydrogen development, similar to the incentives that have had such a powerful impact for wind and solar. We're also looking for consideration and funding at both the state and federal level for biomass gasification as an important component of our nation's climate and wildfire mitigation strategy.



Where We Go from Here

NW Natural has initiated progress on multiple fronts in support of our vision to be a provider of carbon neutral energy.

We're pursuing solutions like gas heat pumps, efficient furnaces and water heaters that don't require electric ignition, hybrid systems and hydrogen-ready appliances and processing equipment. Our RNG procurement is ramping up following finalization of legislation and rulemaking in 2020. Through Dec. 2021, we've signed options or agreements for approximately 3% of our total current supply portfolio. NW Natural is also actively supporting the development of clean hydrogen in the Pacific Northwest.

We're Pleased with this Early Progress

In our pursuit of these advancements, we believe in the opportunity found in new ideas and the value of diverse perspectives. As we face decisions about the future of our energy system and our environment, it's critical that customers, communities, and other stakeholders take part in those discussions and decisions. We've shared a vision for how NW Natural intends to contribute to this common future.

Building on 163 years of success, we are looking forward —channeling the advantages of our modern infrastructure, our expertise, and our innovative spirit toward what's next: **Destination Zero.**

Environmental Stewardship is a Priority Within Our Organization

Our values are reflected in our operations, at our facilities and through policies and procedures that protect our environment as we serve customers.

LEED Core and Shell Gold Certified Headquarters

Our headquarters and operations center in Portland, Oregon, was built with environmental stewardship, seismic resiliency, and employees' health and wellness in mind and now informs how we operate this center. The building is LEED Core and Shell Gold certified, meeting the U.S. Green Building Council's rigorous standard for healthy and sustainable buildings. A range of features allow us to use less energy, conserve natural resources, minimize waste and support our strategic goals:

- **Energy Conservation Measures** – Through our high-efficiency building envelope (wall, roof and window assemblies), efficient heating, ventilation and air-conditioning system and controls, the use of 100% LED lighting and other measures, we estimate energy cost savings for the building's core and shell of approximately 28% annually, compared to a code-compliant building—more than 550,000 kilowatt hours and approximately 8,000 therms of natural gas.
- **Water Savings** – By installing efficient plumbing fixtures that use approximately 40% less water than code-compliant fixtures and planting native plants and a drip irrigation system, we've reduced water demand. In 2021, we used approximately 304,000 gallons of water.
- **Use of Green Building Materials** – Nearly 21% of the materials cost for the building core and shell construction came from recycled materials, reducing environmental impacts of extracting and processing virgin materials.
- **Convenient Downtown Location** – Our headquarters are conveniently located in downtown, within walking distance of transit stops for public bus lines, light rail and the streetcar. We provide secure and indoor bicycle parking, to further encourage sustainable transportation alternatives and reduce pollution from automobile use.
- **Onsite Recycling and Composting** –To limit waste, each floor is equipped with central recycling and compost stations.



CORE AND SHELL
GOLD CERTIFIED



Our building supports employees' health and wellness with an on-site wellness center, locker room and indoor bike parking, ample daylight in work areas and access to the outdoors and nature on our rooftop deck.

Clean Operations

- In 2021, NW Natural used approximately 13.4 megawatt hours of electricity and 4.8 million therms of natural gas in our own operations, and that energy was used with an emphasis on renewables.
- For our use of natural gas, we pay for carbon offsets through our Smart Energy program. In fact, in 2007 we became our own first Smart Energy customer and in 2020 and 2021 we offset 100% of the CO₂ associated with our natural gas heating.
- All our electricity is consumed from the grid. In 2021, NW Natural's largest electricity provider, Portland General Electric, derived 34.8% of the power it provided to retail customers from clean energy sources.
- We are part of Energy Trust of Oregon's [Strategic Energy Management](#) program, which helps us continually improve our own operations through equipment and building choices as well as employee behavior. In 2021, we expanded our involvement in the program to now include six enrolled facilities, up from three in 2020. We received the Strategic Energy Management award for "Attending Most Operations Calls" in 2021, and honorable mention for the "Most Engaged Energy Team."
- We are examining additional renewable electricity program options, and we expect to use increasing amounts of RNG in the future as we procure RNG under Oregon Senate Bill 98.

- We expanded our recycling programs in 2021 to include a personal protective equipment (PPE) recycling pilot and a plastic film recycling program at some NW Natural locations.
- We celebrated Earth Month 2021 with lunch and learns on sustainable landscapes, food justice, and climate and energy.
- Our facility in Sherwood, Oregon, received the Gold Level of the Washington County Green Business Leaders award, which recognizes a company's efforts in sustainable materials management, toxics reduction and social responsibility. As we're continuing to renovate and upgrade our facilities, we are inspired by LEED certification principles and focus on building resilient, energy-efficient structures that serve the needs of our customers, employees and the business.
- We strive to use the lowest carbon fuel available for our fleet vehicles, including renewable diesel and ethanol. In 2021, we began to purchase renewable natural gas to use in our CNG-powered fleet vehicles.



Environmental Policy and Leadership

Our board, executives, employees, and customers have been committed for decades to environmental stewardship, environmental protection and environmental performance. Our dedicated environmental management and sustainability team focuses daily on these issues, and reports to our VP of public affairs and sustainability, who reports directly to our CEO. The sustainability team provides direct monitoring of our environmental performance, reporting regularly on environmental issues and consulting with stakeholders on environmental issues. The Public Affairs and Environmental Policy Committee of the NW Natural Holdings and NW Natural boards of directors provides oversight of environmental matters.

The committee is guided by the company's environmental policy, which is reviewed and approved annually. It sets forth our commitment to:

- Environmental stewardship
- Reducing emissions, releases, and waste
- Using our natural resources and energy more efficiently
- Protecting and enhancing the quality of the natural environment
- Operating our business in an increasingly sustainable manner

Biodiversity, Land, Water, and Non-GHG Emissions Environmental Management

To help us use our precious resources wisely and efficiently, we have strong environmental programs that we diligently follow, and we strive for continual improvement.

Environmental management: With one of the most modern natural gas distribution systems in the country, in a well-established service territory, NW Natural performs a limited amount of new construction or other work that might disrupt local communities and the environment, including waterways. When work is required, our environmental management team strives to comply with all environmental regulations and leave the area the same as, or better than, it was when we began. We have a rigorous procedure manual that provides guidance on environmental matters, including EPA, Oregon Department of Environmental Quality (DEQ) and Washington Department of Ecology (DOE) regulations, and local jurisdictions' requirements. In certain instances, we take the strictest regulation within our jurisdictions and apply it to our entire service territory, which assists us in holding ourselves to a higher standard and facilitates consistent procedures across our operations.

Our internal Environmental Management System (EMS) addresses how our resource centers and field work sites are designed and operated. The procedure manual outlines how to design sites to prevent runoff and soil erosion, mitigate spills, obtain necessary Clean Water Act permits, and follow federal, state and local rules and regulations. These rules and regulations are primarily related to water quality, air quality, chemical handling, spill response, waste, cultural resources and threatened and endangered species.

In addition, the EMS is used as a guide to rigorously vet products, substances, activities and services to help us minimize our impact on the environment and use the safest and most environmentally responsible materials appropriate in our operations. We keep environmental records and provide environmental training for each project, and we offer awareness programs and trainings for new employees and refresher trainings for established employees. The EMS allows us to assign roles and responsibilities, as well as monitor activities for compliance with our permits. Our internal audit department performs periodic audits of our environmental programs and trainings, and external agencies such as EPA, DEQ and DOE also periodically audit our permitted facilities.

NW Natural has in-house environmental specialists that oversee all waste assessments. The environmental specialists participate on a chemical evaluation safety team to eliminate products that may produce potentially hazardous waste before it's generated, and periodically perform waste audits at our resource centers. Each specialist has over 10 years of experience managing waste stream assessments, has completed OSHA's 40-hour "hazwoper" certification, and attends annual waste management training seminars hosted by the Oregon Department of Environmental Quality. Our specialists implement several written environmental modules directed at managing commonly occurring waste streams and identifies opportunities for continued improvement.

Waste: We strive to reduce and recycle any byproducts of our process. We perform waste audits periodically at all our resource centers. We have implemented recycling programs in our operations and currently recycle 100% of the following items: batteries, waste oil from our fleet transportation, oil filters, antifreeze, scrap metal, and some types of plastic. NW Natural's recycling activities in 2021 eliminated over 77% of the total volume of total ordinary operating waste potentially requiring disposal. We follow EPA's rules and regulations for hazardous waste and report to the state government the amount of hazardous waste that is incinerated or sent to the landfill annually. In addition to materials recycled in 2021, NW Natural disposed of materials from ordinary operations as well as remedial site wastes. Of the ordinary operational waste that was disposed; 99% was nonhazardous waste (99% landfilled and 1% incinerated) and 1% was hazardous waste (12% landfilled and 88% incinerated).

Water: While our natural gas distribution operations are not water intensive, we strive to adhere to all Clean Water Act requirements, and we use limited water for hydrostatic testing and pipeline construction. We also repurpose water, use leading stormwater-management techniques and conduct regular audits at construction sites.

Air: We work to promote healthy air quality in several areas. We have invested in five CNG stations for our own fleet, which includes 185 vehicles. A station at our Sherwood Service Center is designed to provide backup service for our CNG customers. We strongly believe that natural gas as a transportation fuel provides significant economic and environmental benefits to our customers and to the overall community. For example, heavy-duty vehicles that run on compressed natural gas (CNG) rather than diesel emit 90% less nitrogen oxide (NOx) air pollutants and particulate matter. We also have an idling-reduction initiative aimed at reducing particulate emissions. Nongreenhouse gas emissions such as sulphur oxides (SOx), nitrogen oxides (NOx) and nonmethane volatile organic compounds (VOCs) are not significant to our operations.

Suppliers

In addition to our efforts to procure RNG and target gas purchases from more environmentally conscious producers described above, we have implemented a sustainable purchasing program covering various environmental, social and governance focus areas. We strive to procure goods and services in an increasingly sustainable manner and expect our suppliers to share our core value of environmental stewardship. Our Supplier Code of Ethics, which was developed in 2021, contains expectations for our suppliers related to environmental protection and sustainability. We also include language covering environmental stewardship and sustainability in our master contracts and agreements and launched a website specific to suppliers that allows them to better understand how we promote sustainable procurement efforts. We monitor key vendors' environmental record and have implemented a scorecard for certain vendors that addresses certain sustainability-related topics, including environmental performance. In addition, as part of our request for proposal (RFP) process, we give preference in bid evaluations to contractors who demonstrate their willingness to work together on finding ways to reduce environmental impacts, and we ask prospective suppliers to describe their current or planned practices for utilizing recycled products and minimizing waste.



FOR MORE INFORMATION SEE ALSO:

[Less We Can](#)

[Renewable Natural Gas](#)

[Vision 2050: Destination Zero](#)

[Public Affairs and Environmental Policy Committee](#)

[Environmental Policy](#)