Williams' Northwest Pipeline

Williams' Northwest Pipeline is a major transporter of natural gas, delivering much of the natural gas consumed in the northwestern United States.

Northwest Pipeline Operational Statistics

<table>
<thead>
<tr>
<th>Category</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Peak Design Capacity</td>
<td>3.9 million dekatherms per day</td>
</tr>
<tr>
<td>Seasonal Storage</td>
<td>14 million dekatherms of capacity</td>
</tr>
<tr>
<td>Supply Areas</td>
<td>Rocky Mountain, Canada and San Juan</td>
</tr>
<tr>
<td>Market Areas</td>
<td>Western United States</td>
</tr>
<tr>
<td>Miles of Transmission Pipeline</td>
<td>3,900</td>
</tr>
<tr>
<td>Compressor Stations</td>
<td>41</td>
</tr>
</tbody>
</table>

About Williams

You may have never heard of Williams, but millions of Americans depend on us every day. Williams is one of the leading energy infrastructure companies in North America. In fact, we deliver about 14 percent of the natural gas consumed in the United States. Founded in 1908, the company has a long history of operating safely and reliably.

Northwest Pipeline

The Northwest Pipeline system has changed significantly since its beginnings nearly 60 years ago. Like the Western states it serves, Northwest's transmission system has expanded to meet the demands of growth.

Today the pipeline is a primary artery for the transmission of natural gas to the Pacific Northwest and Intermountain Region. What began as a 1,500-mile pipeline is now a 4,000-mile bi-directional transmission system crossing the states of Washington, Oregon, Idaho, Wyoming, Utah and Colorado.

Northwest's bi-directional system provides access to British Columbia, Alberta, Rocky Mountain and San Juan Basir gas supplies.
Williams is a leading energy infrastructure company, primarily operating in North America, which gathers, processes and transports natural gas. Our operations are concentrated in the Pacific Northwest, Rocky Mountains, Gulf Coast and Eastern Seaboard.

**OUR OPERATING AREAS**

- **Atlantic-Gulf**
  Includes Transco, the nation's largest volume interstate natural gas pipeline system. Gathering & processing facilities include processing plants, pipelines and floating crude oil and natural gas production platforms along the U.S. Gulf Coast.

- **Northeast G&P**
  Extensive footprint to serve Northeast producers; positioned to capture the value of significant investment; focused on creating market hubs in Susquehanna, Bradford, Ohio River and Utica.

- **West**
  Natural gas gathering and processing operations in Colorado, Wyoming, New Mexico, Oklahoma, Texas and Louisiana; Northwest Pipeline interstate natural gas transmission system; natural gas liquids pipelines and a fractionation and storage facility in Conway, Kansas.

**WHAT WE DO**

Williams is one of North America’s largest natural gas gatherers and processors, dedicated to becoming the most reliable midstream service provider in the industry. We focus on running large-scale assets safely and reliably.

**Williams’ midstream operations:**
- are one of the largest producers of natural gas liquids in North America
- provide critical infrastructure to producers in the deepwater Gulf of Mexico

Williams provides safe, reliable natural gas transportation to heat homes and generate electricity across the nation. Natural gas pipelines are a vital and efficient part of the United States’ energy infrastructure. Williams operates three interstate pipelines, serving the Northeast, Eastern Seaboard, Florida and the Northwest.

Williams has many ongoing efforts to increase public awareness about pipeline safety and damage prevention. In addition, the company is involved in various industry efforts to keep our natural gas pipeline infrastructure safe.

**COMPANY DATA**

- Williams’ headquarters are located in Tulsa, Okla. Other major offices are in Salt Lake City, Houston and Pittsburgh. We have operations in 24 states.
- Williams employs approximately 5,500 people.
- Williams ranks No. 364 on the 2016 FORTUNE® 500 list.
- President and CEO: Alan Armstrong.
- Williams is an equal opportunity employer and does not discriminate in any employer/employee relations based on race, color, religion, sex, sexual orientation, national origin, age disability or veteran’s status.

- Williams common stock (WMB) is listed on the New York stock exchange.
- Most of Williams’ midstream and gas pipeline assets are owned by Williams Partners L.P. (NYSE:WPZ), a master limited partnership. Williams owns 74 percent of Williams Partners, including the general-partner interest.
- The company was founded in 1903.
- Williams Partners owns and operates more than 33,000 miles of pipelines system wide, including the nation’s largest volume and fastest growing pipeline, providing natural gas for clean-power generation, heating and industrial use.
- Williams’ facilities have daily gathering capacity of more than 16 billion cubic feet of natural gas, processing capacity of 6 billion cubic feet of natural gas and NGL production of more than 400,000 barrels per day.
- In 2017, Forbes magazine recognized Williams as one of America’s Best Large Employers.
- In 2015, Williams received a Platts 2015 Global Energy Award for its industry leadership in the midstream sector.
- In 2016, Williams and its employees gave more than $14.4 million to help meet community needs across the country.
STRATEGY DRIVES PERFORMANCE

- Williams' focus is on building large-scale, market-integrated infrastructure to meet demand for gathering, processing and transportation capacity.
- Williams continues to expand its Transco pipeline, the largest volume natural gas transmission system in the nation, to serve high-growth markets in the eastern United States.
- In 2016, Williams' businesses generated $7.6 billion in revenue.
- The interest in natural gas as a cleaner-burning alternative to other hydrocarbon-based energy sources will continue to drive the demand for natural gas.
- Williams is committed to balancing our nation's energy needs with concerns for environmental impact, national security and cost-effective fuel choices. More information about Williams’ commitment to corporate responsibility is available on our website, www.williams.com.

PROVIDING NATURAL GAS SERVICES

NORTH AMERICAN OPERATIONS AND ASSETS

Media contact: 918-573-4034  
Investor contact: 918-573-2362

© 2017 The Williams Companies, Inc. All rights reserved. 0717022188101
NATURAL GAS: THE LONG JOURNEY TO YOUR HOME

Williams’ pipelines are part of a vast pipeline transmission system sometimes referred to as the “interstate highway” for natural gas. It consists of more than 220,000 miles of high-strength steel pipe moving large amounts of natural gas thousands of miles from producing regions to market.

NATURAL GAS

You probably already know that natural gas is the fastest-growing energy source because it is clean-burning, efficient and abundant.

But did you know that nearly all of the natural gas consumed in the United States is transported from gas wells to gas users through thousands of miles of high-strength steel pipelines?

Pipelines exist almost everywhere throughout the United States, transporting the energy to heat homes, generate electricity, cook food and much more. In your community, Williams operates a natural gas pipeline known as the Transco pipeline, transporting natural gas from the Gulf Coast to markets throughout the southeastern and northeastern United States.

THE JOURNEY FROM WELLHEAD TO BURNTERTIP

Natural gas is found in large deposits in the Gulf of Mexico, in addition to 23 other states. Exploring for natural gas means drilling thousands of feet, or even miles, into the earth. Once a deposit is found, the natural gas is brought to the surface where it is cleaned and made ready for transportation through pipelines.

1. Gathering lines bring gas from offshore and onshore wells to a processing plant.
2. At the processing plant, moisture and impurities are removed from the gas stream; natural gas liquid by-products (butane, propane, natural gasoline) are extracted and sold separately.
3. Compressor stations move gas through interstate pipelines to utilities or other direct-purchase customers, maintaining gas pressure and flow.
4. Some gas is stored during the summer in porous underground rock formations or depleted oil and gas reservoirs so it is quickly available at times of peak demand, such as severe winter weather.
5. Compressed to an average of 300 to 1400 pounds per square inch, gas moves through the pipeline at about 15 miles an hour.
6. At the “city gate,” usually located at the edge of a town or city, gas is metered to determine the quantity delivered to the local utility. The pressure is also reduced and in some locations, an odorant is added to the gas to help consumers identify gas in the atmosphere.
TYPICAL PIPELINE CONSTRUCTION PROJECT

A pipeline construction project looks much like a moving assembly line. A large project typically is broken into manageable lengths called "spreads," and utilizes highly specialized and qualified workgroups. Each spread of a pipeline construction project is composed of various crews, each with its own responsibilities. As one crew completes its work, the next crew moves into position to complete its piece of the construction process, with the front of the spread clearing the right of way and the back of the spread restoring the right of way. These tasks include:

1. Pre-construction survey
   Before construction begins, Williams surveys environmental features along proposed pipeline segments. Utility lines and agricultural drainages are located and marked to prevent accidental damage during pipeline construction. Next, the pipeline's centerline and the exterior right of way boundaries are staked.

2. Clearing and grading
   The pipeline right of way is cleared of vegetation. Temporary erosion control measures are installed prior to any earth-moving activities.

3. Trenching
   Topsoil is removed from the work area and stockpiled separately in agricultural areas. Williams then uses backhoes or trenching machines to excavate a pipeline trench. The soil that is excavated during ditching operations is temporarily stockpiled on the non-working side of the trench.

4. Pipe stringing
   Individual joints of pipe are strung along the right of way adjacent to the excavated ditch and arranged so they are accessible to construction personnel. A mechanical pipe-bending machine bends individual joints of pipe to the desired angle at locations where there are significant changes in the natural ground contours or where the pipeline route changes direction.

5. Welding and coating pipe
   After the stringing and bending are complete, the pipe sections are aligned, welded together, and placed on temporary supports along the edge of the trench. All welds are then visually and radiographically inspected. Line pipe, normally mill-coated or yard-coated prior to stringing, requires a coating at the welded joints. Prior to the final inspection, the entire pipeline coating is electronically inspected to locate and repair any coating faults or voids.

6. Lowering pipe in and backfilling
   The pipe assembly is lowered into the trench by side-boom tractors. The trench is backfilled using a backfilling or bladed equipment; no foreign materials are permitted in the trench.

7. Testing
   After backfilling, the pipeline is hydrostatically tested following federal regulations. Test water is obtained and disposed of in accordance with applicable federal, state, and local regulations.

8. Restoration
   Williams policy is to clean and restore the work area as soon as possible. After the pipeline is backfilled and tested, disturbed areas are restored as close as possible to their original contours. Restoration measures are maintained until the area is restored, as closely as possible, to its original condition.

* Photos (from top): Trenching, pipe stringing, welding and coating pipe.
AN INTRODUCTION TO NATURAL GAS

Natural gas is the cleanest burning fossil fuel used for power generation today. As demand for energy increases, expanded use of natural gas can help improve air quality across the country, especially when used to replace more polluting energy sources.

FUEL OF CHOICE

The environmental advantages of natural gas have made it the smart energy choice and part of the solution to reducing greenhouse gas emissions. As the cleanest burning fossil fuel, it emits fewer pollutants than either coal or oil. It is also efficient, flexible, plentiful and domestic.

Today, Americans use about 22 trillion cubic feet of gas per year, which is about 25 percent of the energy consumed in the United States.

NATURAL GAS 101

Natural gas is made up of hydrocarbon gases, primarily methane. It is usually found deep below the earth's surface, often with deposits of oil, and is removed by wells that are drilled to access the petroleum deposits. After it reaches the surface, the gas is separated from any oil or water that may have been present in the petroleum deposit. It is then processed to remove impurities, other gases such as propane and butane, and any remaining water or water vapor.

THE INTERSTATE GAS PIPELINE SYSTEM

Natural gas is transported in an underground system of large-diameter pipes. The pipeline transportation system, the "interstate highway" for natural gas, consists of 220,000 miles of high-strength steel pipe six to 48 inches in diameter. It moves huge amounts of natural gas thousands of miles from producing regions to local natural gas utilities and sometimes directly to large users of natural gas. The force that propels the gas is its pressure, which gradually dissipates as it travels through the pipeline. A series of compressor stations are positioned along the pipeline's path every 40 to 100 miles. Each station has a number of large compressors that increase the pressure of the gas to push it to the next station along the line.

NATURAL GAS CONSUMERS

There are five main groups of natural gas users:

> Residential users: use natural gas in their homes to fuel furnaces and appliances such as stoves, water heaters and clothes dryers.
> Commercial users: use natural gas in businesses such as restaurants, hotels and hospitals.
> Industrial users: use natural gas for heating processes and as a fuel for the generation of steam.
> Electric utilities: use natural gas to generate electricity.
> Natural gas pipeline companies: use natural gas as a fuel to run compressor units.

ENVIRONMENTALLY PREFERRED

Carbon Emissions by Fuel Type

INDUSTRY SECTORS

Four industry segments coordinate to bring natural gas from producing wells to more than 160 million North American consumers.

Gathering and Processing
Natural gas is a commodity produced by major oil and gas companies and independent gas producers and traded in a competitive market.

During the production phase, gas producers use advanced technology to locate and drill for gas reserves. Gas is pumped from wells into gathering lines. Gathering operations bring natural gas to processing plants that remove moisture and impurities from the gas stream, and to separate liquid byproducts.

Power
Marketing companies act independently from gas pipeline companies, and serve as sales agents or brokers, purchasing gas from producers, selling gas and arranging transportation for large consumers and local gas distribution companies.

Transportation and Storage
Interstate natural gas pipelines are transportation companies, like railroads or trucking companies. They do not own the commodity they carry in their pipelines or store in their underground facilities. Their job is to move natural gas from producing areas to market areas under contract to gas buyers. Buyers such as local gas distribution companies and marketers resell the natural gas to their customers. Others transport directly to industrial and electric generation facilities. The Federal Energy Regulatory Commission sets transportation and storage rates charged by pipeline companies; however, the FERC requires pipelines to operate “open access” systems that allow any shipper to request gas transportation on any pipeline.

Local Distribution
If you have gas service in your home, your meter reader works for a local distribution company (LDC). LDCs contract for gas supplies and for interstate pipeline transportation to bring natural gas to their own “city gates,” where they deliver gas to homes, businesses and industrial plants served by their own distribution pipelines. State public service authorities regulate these distribution companies and their sales.

To help ensure reliable service, local natural gas companies can store natural gas underground for use during peak demand, such as cold days. In some cases, the storage is within the local distribution system. In most cases, large volume underground storage facilities are connected to the interstate pipeline network. On average, underground storage accounts for about 20 percent of the natural gas consumed each winter.