Williams’ Transco Pipeline

Williams’ Transco pipeline is a major transporter of natural gas, delivering much of the natural gas consumed in the Northeastern United States.

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.

The Transco Pipeline
Williams owns the Transco pipeline, a 10,000-mile natural gas transportation system that extends from South Texas to New York City, crossing 13 states. The Transco pipeline actually consists of multiple large-diameter pipes buried three feet underground within a common pipeline right-of-way. The pipeline transports natural gas (methane) from gas production areas to customers such as power plants, industrial operators or public utility companies. The public utility companies operate smaller-diameter pipes which deliver gas to residential homes and businesses.

Service to New York
The Transco pipeline provides reliable service to three major local distribution companies: National Grid - Brooklyn Union, National Grid - Keyspan Gas East, and Con Edison. The pipeline transports more than half the gas used in New York City.

Transco works closely with its customers to respond to their growing natural gas needs. This may mean building new facilities or expanding existing pipeline infrastructure in order to deliver the additional gas necessary to satisfy increasing market demand.

### Williams’ Operational Statistics in New York

<table>
<thead>
<tr>
<th>Description</th>
<th>Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 Property Taxes Paid:</td>
<td>$1.8 million</td>
</tr>
<tr>
<td>Assets</td>
<td>$36 million</td>
</tr>
<tr>
<td>Miles of Pipe:</td>
<td>27</td>
</tr>
<tr>
<td>Meter Stations:</td>
<td>3 (Manhattan, Narrows &amp; Long Beach*)</td>
</tr>
</tbody>
</table>

*Note: Although the Transco pipeline also delivers gas to NYC through its Central Manhattan delivery point, due to space constraints the meter station is located in New Jersey.*
Natural gas is part of the solution to reducing greenhouse gas emissions. As the cleanest burning fossil fuel, it emits much less carbon dioxide than either coal or oil – about 28% less than oil and 43% less than coal.

The environmental advantages of natural gas have made it the fuel of choice for industries looking for ways to reduce air emissions. National Grid, the largest distributor of natural gas in the northeast, is coordinating its efforts with Williams, one of its major providers, to meet the growing demand for natural gas in its market area.

In recent years, the supply/demand balance has been tight in the Brooklyn/Western Long Island region. This delicate balance is beginning to tip as environmental and economic drivers have spurred a recent growth in oil-to-natural gas conversions. Without additional pipeline capacity to serve the Rockaways and New York City, National Grid will be challenged to maintain system reliability and growth (growth in natural gas demand in the Rockaways has climbed significantly in recent years). The need to expand natural gas supplies into New York City was recognized in PLANYC 2030. In fact, this project was specifically cited as being helpful to achieve the goal of eliminating the use of high sulfur fuel oil.

Williams’ Transco pipeline provides a connection between New York City much of its natural gas supply. National Grid has asked Williams to develop a new delivery point on its existing Transco pipeline system to provide additional service and reliability to the New York City area.
Williams is in the early stages of developing a pipeline project to provide another natural gas delivery point from its Transco pipeline to the Rockaways and New York City. The Rockaway Delivery Lateral project would involve the construction of a 3.17-mile, 26-inch pipeline lateral (approximately 2.79 miles of offshore pipeline and 0.38 miles of onshore pipeline) interconnecting with a 26-inch lateral pipeline proposed to be constructed by our customer, National Grid. The Rockaway Delivery Lateral project is designed to deliver additional supply of natural gas to National Grid as early as November 2014. There are no LNG terminal facilities related to or proposed as part of this project.

**Proposed Project Schedule**

- Spring 2011 – FERC Pre-Filing
- Spring 2012 – Public Meetings
- Fall 2012 – FERC Filing
- Late 2013 – Begin Meter Station Construction
- Late Summer 2014 – Offshore Construction
- Late 2014 – Pipeline In-Service
Federal Energy Regulatory Commission, or FERC, is the agency that regulates the interstate transmission of natural gas, oil, and electricity.

It also licenses, inspects and oversees environmental matters for hydroelectric projects and major electricity policy initiatives. FERC has jurisdiction over interstate pipelines like Transco. However, as a local distribution company, National Grid is not subject to FERC regulation.

**FERC’s natural gas responsibilities include regulation of:**

- Pipeline, storage and liquefied natural gas facility construction
- Interstate transportation of natural gas
- Facility abandonment

**FERC also:**

- Oversees the construction and operation of pipeline facilities at United States points of entry for the import or export of natural gas
- Issues certificates of public convenience and necessity to prospective companies providing energy services or constructing and operating interstate pipelines and storage facilities
- Establishes rates for services

---

**Process for Natural Gas Certificates**

1. **Use of the Pre-Filing Environmental Review (PF) Process is Approved (voluntary)**
2. **Conduct Scoping to Determine Environmental Issues and Attempt to Resolve Issues**
3. **Applicant Files FERC Application**
4. **FERC Issues Notice of Application**
5. **Conduct Scoping (if the PF Process is not used)**
6. **Issue EA or Draft EIS**
7. **Respond to Environmental Comments / Issue Final EIS**
8. **Commission Issues Order**
The process of siting natural gas pipeline facilities is comprised of many variables. Federal regulations require that the pipeline company conduct numerous studies and analyze a number of alternatives before filing an application identifying a proposed pipeline route.

Williams is committed to working to select facility locations that have the least impact on the community, the environment and other considerations, while balancing the needs of customers.

Williams analyzed aerial photography and sub-sea scientific data from numerous sources to develop a preliminary route for the Rockaway Delivery Lateral project, identifying various constraints such as residential neighborhoods and underwater environmental features. Additional ground and offshore surveys have helped the company further refine the proposed route, avoiding or minimizing impact to sensitive environmental areas, people and structures. The planned route would completely avoid impacts to the beach at Rockaway and Jacob Riis Park, while creating no significant environmental impact to Jamaica Bay.
Williams proposes to use a horizontal directional drill for the Rockaway peninsula shore approach. This technology will enable Williams to avoid sensitive environmental areas while burying the pipe at depths greater than could be achieved with traditional trenching. Williams is proposing a drill from an onshore site within the Marine Parkway Interchange to an offshore bore exit site, approximately one mile long.

1. **Rig & Pipe Sites**  
On both sides of the crossing, a limited working area is prepared for the drilling and pipeline installation equipment.

2. **Drill Site**  
On the rig site, a small entry pit is installed. The site also includes separation plants, a buffer tank, a mixing unit, pump and power packs, a pipe skid and a control cabin.

3. **HDD Rig**  
Pipe connected to a drill bit is pushed forward into the entry pit. One after another, the drill sections are connected and pushed into the ground.

4. **Cross Section Schematic**  
The steerable drill bit is pushed through the ground to the exit point on the other side of the obstacle.

5. **Jack up configuration**  
A set of crossbars is driven into the seabed, and a casing is laid upon the crossbars to provide an enclosure from the drillhole exit to the deck of a jack-up barge.

6. **Jack up configuration**  
The drillstring is pushed from the rig site up the casing and onto a drill rig on the jack-up barge and the drill bit is disconnected.
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. The pipeline’s centerline and the exterior right of way and workspace is 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 in agricultural areas. Williams then uses backhoes and trenching machines to excavate the trench. The soil that is excavated during ditching operations is temporarily stockpiled on the right of way.

4. Pipe stringing and bending
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, pipe coating and x-ray inspection
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 x-rayed. Line pipe requires a coating at the welded joints. The entire pipe coating is then electronically inspected.

6. Lowering pipe in and backfilling
The pipe assembly is lowered into the trench by sideboom tractors. The trench is backfilled. No foreign materials are allowed in the trench.

7. Testing
After backfilling, the pipe is filled with water and pressure tested. Tested water is obtained and disposed of in accordance with applicable regulations.

8. Restoration
Williams’ policy is to clean up and restore the work area as soon as possible. Disturbed areas are restored, as nearly as possible, to their original contours. Temporary environmental control measures are maintained until the area is restored, as closely as possible, to its original condition.
Lay Barge

A lay barge is a complete seagoing plant that allows the pipeline to be assembled and laid continuously along the selected route either on top of the ocean floor or in trenches on the seafloor. When used in conjunction with supporting tugs and an anchoring system, the lay barge can be self-sufficient for months at a time.

A system of wire ropes and anchors holds the lay barge on a precise heading to prevent buckling of the pipe as it is laid. The system also propels the barge as anchor lines are reeled in and out. As the barge progresses to the end of the lines, the system is moved ahead by anchor-handling tugs.

The completed pipeline is lowered into the water by way of the inclined ramp and a stinger attached to the ramp to guide the pipeline to the seafloor at the proper angle. The pipe curves downward from the stern through the water until it reaches the “touchdown point,” or its final position on the seabed. The pipeline is coated with a high-density concrete to overcome buoyancy so that it can be sunk into place.

The entire pipeline will be buried in a subsea trench. The pipeline will be lowered below the seabed along its entire length such that the top-of-pipe is a minimum of three feet below the pre-disturbed natural bottom. The entire offshore construction process is expected to last approximately 3 months, beginning late summer of 2014.
Williams’ Commitment to Safety

According to the National Transportation Safety Board, natural gas pipelines are the safest mode of transportation today – surpassing highway, railroad, airborne or waterborne transport.

Interstate pipelines are regulated by the U.S. Department of Transportation’s Office of Pipeline Safety, which imposes a broad range of construction and operations standards. Williams has its own high standards for pipeline design, material specifications, construction, maintenance and testing.

- Pipeline representatives inspect the pipe at the mills during fabrication to ensure its quality meets or exceeds both federal and industry standards.
- Protective coatings are applied at the mill and on-site to prevent moisture from coming into contact with the metal.
- The welds linking the pipe joints are x-rayed to ensure integrity.
- Once the pipeline is in the ground, it is tested with water at pressures higher than normal operating pressure to ensure the pipeline’s integrity.
- Automatic shut-off valves are installed for safety.
- After the pipeline is installed, we put in a low-voltage electrical system called cathodic protection that, along with the pipe’s coating, is designed to prevent corrosion of the steel pipeline.
- Internal, electronic inspection devices, called smart pigs, are used to detect any anomalies.
- Aerial and ground inspection of pipeline rights of way occur on a regular basis.
- Markers are posted along our rights of way to let you know there is a pipeline in your area. These markers are checked annually.
- Pipeline personnel monitor our systems 24 hours a day, seven days a week. Our equipment can detect even a slight change in pressure or flow. Dispatchers can quickly activate emergency shutdown procedures if they detect a problem.
Leak Prevention and Detection

1. Regular aerial inspections
2. Written pipeline safety information is distributed annually to neighbors, emergency officials and excavators.
3. Regular patrols
4. Line markers are posted along the rights of way to identify pipeline’s presence. Markers are checked annually.
5. Block valves to stop gas flow
6. Valves are inspected annually.
7. Williams participates in local One-Call line locating service.
8. Leak surveys conducted annually.
9. Cathodic protection, a low-voltage electrical system that prevents corrosion
10. Anodes
11. Meter to measure volume
12. Temperature sensor
13. Pressure sensor
14. Pipeline personnel monitor pipeline systems 24 hours a day, 7 days a week.
15. Pipe is pressure tested with water before being placed into service.
16. Pipe sections replaced through normal maintenance
17. Pressure tested at the mill
18. Extra thickness in populated areas
19. Protective coating
20. High tensile strength steel
21. In-line inspection devices are used to detect any anomalies in the pipe.
22. Cleaning pigs are used to help prevent internal corrosion.
23. All welds linking the pipe joints are x-rayed to ensure integrity.
The pipeline industry is committed to being a proactive, cooperative partner with the federal government in strengthening pipeline security:

- The pipeline sector established industry security guidelines ahead of other critical infrastructure sectors.
- The industry initiated proactive studies to focus resources on critical facilities.
- The industry formed one of the first sector security coordinating councils.
- Pipeline companies have consistently received positive feedback from federal assessments and audits.

Working closely with local, state and federal officials, Williams regularly updates and tests security systems and procedures to minimize the likelihood of security breaches. In fact, as part of its historic focus on pipeline safety, the pipeline industry has spent years developing safety and security measures designed to ensure that pipelines continue delivering natural gas to consumers and businesses across the country. These security measures include, but are not limited to, round-the-clock monitoring, ground and aerial surveillance, timely maintenance services, backup safety systems and quick recovery procedures.
Advances in pipeline control technology have made it possible to safely operate pipelines from a single location. From its Gas Control center in Houston, Williams applies Supervisory Control and Data Acquisition (SCADA) computer systems for the safe, efficient operation of its Transco pipeline. Information is relayed back and forth between the Gas Control center and remote sites 24 hours a day, seven days a week, using Wide Area Network system technology.

This system regularly transmits information such as natural gas flow volumes, pressure and temperature. In addition to monitoring the pipeline on a real-time basis, the system also allows Williams to operate compressor facilities, certain valves and other facilities remotely.
The measured total benefits derived from both the construction and the placement of the proposed Rockaway Lateral are as follows:

- The total number of on and off-site jobs created during construction are estimated to range from 274 to 360.
- Between 156 and 206 of these jobs are expected to be local new hires or preservation of existing jobs currently within the city.
- Total spending during construction will be boosted by between $6.65 million and $11.03 million in New York.
- Total tax revenues associated with the direct and indirect income and associated spending during the construction is estimated to be between $2.759 million and $5.26 million.
- In addition, there is a permanent annual accrual of property taxes that is estimated to be roughly $5.315 million. Over the first 50 year period, the total current and constant property tax dollars are estimated to be more than $265 million.

### Total Direct Tax Revenues Generated*

<table>
<thead>
<tr>
<th>TAX</th>
<th>LOW END ESTIMATE</th>
<th>HIGH END ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Income</td>
<td>$1,023,363</td>
<td>$2,108,696</td>
</tr>
<tr>
<td>NY State Income</td>
<td>$54,421</td>
<td>$77,483</td>
</tr>
<tr>
<td>NY City Income</td>
<td>$33,919</td>
<td>$48,137</td>
</tr>
<tr>
<td>Sales and Commuter</td>
<td>$118,788</td>
<td>$200,194</td>
</tr>
<tr>
<td>Transient Accommodations</td>
<td>$25,380</td>
<td>$41,243</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,225,871</strong></td>
<td><strong>$2,475,753</strong></td>
</tr>
</tbody>
</table>

* Developed by Chesapeake Group, Inc., 2009

### Total Indirect Tax Revenues Generated By All Construction Components*

<table>
<thead>
<tr>
<th>TAX</th>
<th>LOW END ESTIMATE</th>
<th>HIGH END ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Income</td>
<td>$818,690</td>
<td>$1,686,957</td>
</tr>
<tr>
<td>NY State Income</td>
<td>$195,263</td>
<td>$269,485</td>
</tr>
<tr>
<td>NY City Income</td>
<td>$121,701</td>
<td>$167,420</td>
</tr>
<tr>
<td>Sales and Commuter</td>
<td>$397,813</td>
<td>$659,950</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,533,467</strong></td>
<td><strong>$2,783,812</strong></td>
</tr>
</tbody>
</table>

* Developed by Chesapeake Group, Inc., 2009
<table>
<thead>
<tr>
<th>AGENCY</th>
<th>PERMIT/CLEARANCE/APPROVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td></td>
</tr>
<tr>
<td>Federal Energy Regulatory Commission</td>
<td>Certificate of Public Convenience and Necessity</td>
</tr>
<tr>
<td>Advisory Council on Historic Preservation</td>
<td>Section 106, National Historic Preservation Act Clearance</td>
</tr>
<tr>
<td>United States Fish and Wildlife Service, Long Island Field Offices</td>
<td>Section 7 Endangered Species Act Clearance</td>
</tr>
<tr>
<td>National Oceanic and Atmospheric Administration (NOAA), Fisheries (Northeast Region)</td>
<td>Marine Mammal Protection Act</td>
</tr>
<tr>
<td></td>
<td>Essential Fish Habitat Clearance</td>
</tr>
<tr>
<td>U.S. Army Corps of Engineers (New York District)</td>
<td>Section 404/10, Clean Water Act Permits (in conjunction with state agencies)</td>
</tr>
<tr>
<td>National Park Service/U.S. Congress</td>
<td>Special Use Permit/Congressional Legislation</td>
</tr>
<tr>
<td>United States Coast Guard (New York Sector)</td>
<td>Aids to Navigations and Navigation Obstructions</td>
</tr>
<tr>
<td>State</td>
<td></td>
</tr>
<tr>
<td>New York State Historic Preservation Office</td>
<td>Cultural Resources (Section 106/HPA) Consultation/Clearance</td>
</tr>
<tr>
<td>New York State Department of Environmental Conservation</td>
<td>Threatened and Endangered Species Consultation</td>
</tr>
<tr>
<td>New York State Department of Environmental Conservation</td>
<td>State Pollution Discharge Elimination System General Permit for Stormwater Discharges and Hydrostatic testing of pipeline</td>
</tr>
<tr>
<td>New York State Department of Environmental Conservation</td>
<td>401 Water Quality Certification</td>
</tr>
<tr>
<td>New York State Department of Environmental Conservation</td>
<td>Article 34 Coastal Erosion Permit</td>
</tr>
<tr>
<td>New York State Department of Environmental Conservation</td>
<td>Article 15 Protection of Waters</td>
</tr>
<tr>
<td>New York State Department of State</td>
<td>Coastal Zone Consistency Determination</td>
</tr>
<tr>
<td>New York State Office of General Services</td>
<td>Subsea Lease for pipeline ROW</td>
</tr>
<tr>
<td>Local</td>
<td></td>
</tr>
<tr>
<td>New York City Department of City Planning (Queens office)</td>
<td>Coastal Zone Consistency Determination – Local Waterfront Revitalization Program</td>
</tr>
</tbody>
</table>
The project will involve the construction of a meter and regulator station (60,000 square foot facility), which is necessary to measure, condition and control the flow of natural gas before it enters the local natural gas distribution system. Attempting to avoid the aesthetic impacts normally associated with the design and siting of metering facilities, Williams is exploring the possible placement of the facility on Floyd Bennett Field, inside one of the hangar buildings.

Floyd Bennett Field has two 1930s-era aircraft hangar buildings off to one side of the field along Flatbush Avenue. The hangar buildings, while historically significant, are in serious disrepair to the point of being in danger of collapse.

The meter station will be a secure “building within a building” with the hangar building’s exterior restored to its historically accurate original condition. This would allow for operation of the pipeline without impacting the historic landscape, while also providing for the long-term care of the structures and providing annual income from rent.

Benefits
- Solves the difficult challenge of siting the 60,000 square foot facility in a densely populated urban area.
- Creates a secure building within a building.
- Facilitates the restoration of this historically significant landmark.
- Preserves park aesthetics.
- Creates a source of income for the Park Service, which can be used for park infrastructure needs, resource protection and visitor services at the park.
In 2011, Williams researchers surveyed a 5,000-foot wide corridor off the Rockaways Peninsula and Breezy Point to examine the seafloor for archeological points of interest, including marine life preservation sites, hard bottoms, submerged aquatic vegetation, and potential construction hazards. Shallow core samples were also taken to assess the sub-soils. The data generated from these surveys has helped Williams identify environmentally sensitive areas and hazards to be avoided while planning the proposed pipeline route.

These hydrographic & geophysical surveys were conducted using the very latest multi-beam echo sounder, side scan sonar, magnetometer and sub-bottom profiler, technology. As a result, Williams has identified a proposed route that minimizes environmental impacts, including avoiding hard live-bottoms entirely.
The natural gas pipeline system that serves Brooklyn and Queens (including the Rockaways) was constructed between 40 and 60 years ago. While it was state of the art then, it no longer has the capacity to reliably serve the approximately 1,250,000 natural gas customers in those areas.

Based on expected demand growth from both development and conversions to the cleaner natural gas fuel source, more natural gas will be needed. There is very limited ability to tap into the additional gas supplies New York City needs to serve all of its commercial businesses and residents, as well as its electric generation facilities, particularly as the City strives to meet federal environmental standards as well as its new, even more ambitious, clean energy goals.

National Grid's Brooklyn Queens Interconnect (BQI) project aims to enhance National Grid's system reliability by boosting delivery pressures and eliminating an existing dead-end feed in the Rockaway Peninsula. Along with the Rockaway Delivery Lateral project, the BQI project aims to provide a long-term solution to meet the supply needs of National Grid's system by delivering natural gas to the Brooklyn area, while also increasing the flexibility and stability of the natural gas delivery system. As such, both of these projects address key goals of the State Energy Plan.

National Grid will undertake the BQI project in two phases.

- The first phase of the project includes installing approximately 5,500 feet of both 26-inch and 12-inch diameter steel main across the Rockaway Inlet parallel to the Marine Park – Gil Hodges Memorial Bridge.

- The second phase of the project will be the addition of approximately 16,200 feet of high pressure 30-inch pipeline under Flatbush Avenue from National Grid's existing 24-inch main in Avenue U. This line would connect the 24-inch line described above and the Transco facilities to the National Grid system.

National Grid's BQI project has been analyzed by the City of New York's Environmental Quality Review (CEQR). In December 2011 the City issued a Negative Declaration, meaning the project would not have an adverse impact on the environment.