

# Interstate Pipelines

## A Plan for a New New York

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## EXECUTIVE SUMMARY

### Objective

To provide a path forward for natural gas and petroleum pipelines in New York.

### Goals

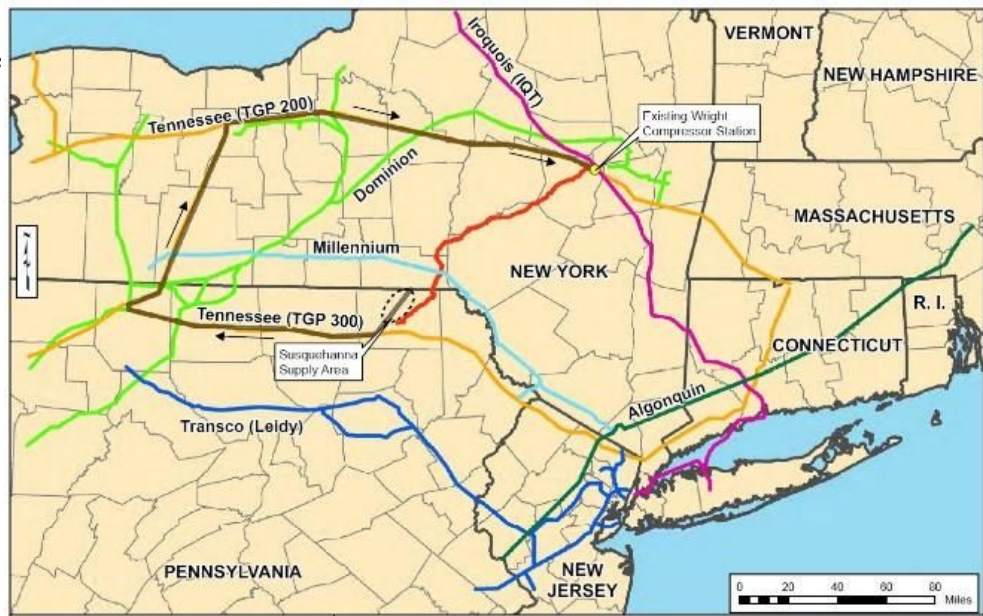
- 1) Reduce the cost of energy in New York.
- 2) Protect land values and encourage co-location of pipelines with other energy corridors.
- 3) Provide jobs and economic development while reducing the need to import energy from other states.
- 4) Prevent shortfalls in electric energy supply for both NYISO and NEISO.

### Background

- 1) Upon entering World War II, Nazi submarines sunk petroleum fuel and crude oil barges headed for Philadelphia and New York. According to historian Keith Miller, “They were highly effective and many Caribbean island beaches were seriously polluted with oil.” In response, the United States government commissioned the construction of two pipelines from Texas to Pennsylvania and New York to support the war effort and provide export terminals to supply European allies with fuel. The pipelines were privatized and converted to natural gas service following the conclusion of the war (*“Big Inch Pipelines of WWII”, American Oil and Gas Historical Society*). Today, New York imports much of its natural gas supply from other states, including Pennsylvania, Texas and Louisiana, which is supplemented by additional imports from Canada via the Iroquois pipeline. (*Energy Information Agency, 2018*)
- 2) Following several pricing and supply crises in the late 1970’s, Congress passed the Natural Gas Policy Act in 1978. This act delegated the task of regulating natural gas transportation to the Federal Energy Regulatory Commission (FERC). It also allowed the creation of a national market for natural gas, a transparent system for pricing the commodity, and regulatory guidelines for pricing transportation of the gas to its end consumers. These measures also provided approved interstate natural gas pipelines with the definition of eminent domain powers and implemented price caps on natural gas. (<https://www.ferc.gov/resources/faqs/prefiling.asp>)

- 3) FERC also established two types of orders on pipelines referred to as firm and interruptible transmission. Firm transmission is an agreement to deliver a specific quantity of gas to a location on a definite date and time. Interruptible transmission is an agreement to deliver a specific quantity of gas at a location on a day but not necessarily specific time. Interruptible transmissions are typically sold on the spot market, but firm orders have precedence on pipeline demand over the interruptible orders.
- 4) During the 2000's, conventional on-shore domestic supplies of natural gas dwindled, which required a shift for more supplies from off-shore drilling in the Gulf of Mexico. It was generally assumed that energy production in the United States was ending. This concern was addressed at the Gas Processors Association and American Petroleum Institute annual conventions in 2009 to discuss the transition of the more independent US market to one heavily dependent upon imports. Soon after these concerns arose, industry insiders were completely taken aback by the Shale Revolution. (*Brazil, 2016*)
- 5) The Shale Revolution is described as the innovation of using hydraulic fracturing (fracking) to produce oil and natural gas from shale formations, which are the source rock for much of the conventional petroleum plays in the world. Shale is a fine-grained rock composed of silt, clay minerals, quartz, calcite and trapped hydrocarbons. Fracking creates small fissures in the shale that allow the natural gas and oil in the shale to enter the well bore and exit out through the well head. Since 2016 this technology has procured the majority of all oil and gas produced in the US. (*Brazil, 2016*) (*EIA, 2016*)

- 6) In 2007 the Millennium pipeline was approved for constructed and put into service 18 months later. The route of the pipeline in relation to other New York pipelines is shown in the map to the right.. This



pipeline became a source of controversy when it filed and received FERC approval for a lateral to transport natural gas from the Marcellus to a natural gas combined-cycle power plant in Orange County, NY. The pipeline requested a water permit to install the pipeline under several creeks in the area, a requirement of the Clean Water Act. NYSDEC had a number of questions regarding the permit application, but failed to approve or deny the permit. Without a permit the company could not construct the pipeline and the Millennium group appealed to FERC, which may overrule state agencies as the organization deems necessary. FERC overruled NYSDEC in 2017 and allowed construction to commence; ultimately, in March of 2018, NYSDEC lost its appeal in Federal Court and the construction continues. (*Millennium Pipeline Valley Lateral Project*)

- 7) The Constitution pipeline, a new pipeline running from natural gas fields in Pennsylvania to Schenectady, NY, is shown in red on the map above. This pipeline was approved in 2014 by FERC and the NY PSC, however, construction has been prevented as a water permit has not been issued by NYSDEC. Constitution appealed to FERC to overrule NYSDEC this year but was denied which forced Constitution to appeal to the US Supreme Court, but they were eventually denied a hearing. (*Constitution Pipeline Project*)
- 8) One difference between this case and Millennium is that Millennium submitted its water permit and never withdrew it. The Constitution pipeline has submitted and withdrawn its permit twice which is critical because the Clean Water Act requires a permit to be completed within one year of its submission. NYSDEC determined the permit application was incomplete and the agency claimed the environmental studies of impacts on water and streams were insufficient for the proposed methods of construction. (*Record of Decision, NYSDEC, 04-22-16*)
- 9) Natural gas pricing for New York and New England is highly volatile. During the winter of 2017-18, the New York Citygate saw the price of natural gas spike to \$140 for 1 million BTU or roughly 1,000 cubic feet of natural gas. To put this in perspective, the rest of the country was paying well below \$6 for the same amount of natural gas that day. This pricing was on the “spot” market, meaning the gas was delivered that day. Most utility customers do not pay these prices as utilities tend to buy gas on long term, firm pricing contracts. However, energy generation facilities sometimes purchase on “spot” markets and the resulting price can be reflected in the electricity price that New York City residents paid that day. Electricity was also affected that day as the price soared to \$247/mW-h, while the remainder of the US paid roughly \$60/mW-h. (*EIA, 2018*)

- 10) New York's pipelines are the main source of natural gas for the New England states. Examination of the map on Item 6 indicates that the two main supply lines for New England are the Algonquin and Tennessee Natural Gas 200 lines. These veins supply the majority of natural gas available in New England with the Algonquin being the primary source of natural gas for Boston. The New England market does have two smaller pipelines supplying the market from Canada, but given the expected population growth of the region, FERC Commissioner Chatterjee believes more pipelines are needed to ensure New England has enough natural gas for winter heating and electricity demands. *(FERC Podcast, 2018)*
- 11) In its overruling of NYSDEC, FERC argued that the study provided by the Massachusetts AG was fundamentally flawed as it failed to account for the incremental demand from local distribution companies. FERC also answered many of the supplied comments from anti-pipeline groups and discovered claims ranging from legitimate to misleading to downright unfounded. NYSDEC did not bother to dispute or question the comments provided by these arguments prior to submittal. *(FERC Order CP16-486-000, 11/28/17)*
- 12) NYSDEC's approval process fails to apply the same level of scrutiny to comments from out-of-state interveners as the applicant. In the Millenium pipeline case, NYSDEC could not find fault with the application but asked FERC to reopen the comment period to allow additional feedback. NYSDEC based this request on a study from the Massachusetts Attorney General whose office contended that the pipeline was unnecessary to serve the current market. NYSDEC also wanted to hold the pipeline accountable for the potential air emissions from the combined-cycle power plant. *(Times Herald-Record, 8/31/17)*

## Solution

Interstate natural gas pipelines are a vital infrastructure resource that provides heating fuel for homes and businesses. Currently, New York's natural gas supply is balanced between 80% firm transmission contracts and 20% interruptible contracts. Purchasing gas on firm or interruptible contracts is a business-centered decision for natural gas burning electric generators and natural gas utilities alike. Some electric generation in New York still uses heavy oil and diesel when electricity demand is at its highest. High electricity demand also coincides with higher than normal natural gas prices as gas demand exceeds the amount purchased on firm shipping contracts.

*Recommendation:* Increasing the number of natural gas pipelines in New York and/or increasing their operating pressures will allow for more gas to enter New York markets and lower the price. As the

majority of New York's electricity is generated by natural gas burning plants, gas demand is increased when electricity demand increases. Increased gas supply sources will help to mitigate the occasional price spikes that arise from unpredicted events like the bomb-cyclone of 2018.

Interstate natural gas pipelines are permanent fixtures in the geography they serve and many of these aging pipelines across the United States are 50 to 70 years old. Existing regulations and maintenance protocols help these pipelines continue to operate safely. While the routes vary in width across the country, many of them are capable of accommodating additional runs. Pipelines can also be co-located alongside other infrastructure components including right of ways such as turnpikes and electrical transmission lines. Existing New York State policies encourage co-location within energy corridors, however, many of these are already full with multiple facilities occupying the same route.

*Recommendation:* Where existing utility corridors are congested, expand the width of the corridor within unoccupied areas. This will not preclude landowners from objecting to the expansion and it will require natural gas pipeline firms to obtain easement agreements with these landowners. Additionally, the width expansion would be limited to no more than twice the original corridor width and this policy would not preclude the creation of new corridors as necessary.

Pipeline construction has a multitude of benefits for local economies. Communities along the pipeline construction route experience a rush of construction jobs as well as the benefit of having access to larger sources of natural gas. Factories and other large industrial buildings with large heating loads that require significant amounts of natural gas could be located near large transmission pipelines and can benefit by purchasing natural gas directly off the pipeline. Natural gas electric generation facilities also prefer to be located near such pipelines which could encourage the growth of these cleaner sources of electricity.

*Recommendation:* The construction of new natural gas pipelines should not be discouraged as they are a critical part of a growing economy. New factories and large facilities will locate to cities and towns that are near those pipelines with access to natural gas pipelines be used as a tool for economic development to appeal to industrial developers.

Interstate natural gas pipelines are a vital infrastructure resource that provides heating fuel for homes and businesses, but under the Cuomo administration New York has proven hostile to the creation of new pipelines. This administration has also perpetuated NYSDEC's failing approval process which gives more credence to out-of-state protesters than the local businesses seeking opportunities for

growth. While it is good that state agencies scrutinize pipeline construction methods, it is illogical for these agencies to accept comments and studies and act upon them without unbiased analysis. In the Millennium case, FERC found convincing evidence that NYSDEC did not provide a rigorous review of the Massachusetts AG study nor did it investigate and dismiss inaccurate claims from other intervening groups. It simply failed to act on the water permit and attempted a “pocket veto” of the project.

*Recommendation:* Recommission of NYSDEC’s charter will protect and nurture New York’s environment as well as economic growth. Currently, NYSDEC focuses on the potential negative impacts of any mineral or energy-driven industry in New York, yet many of these businesses receive siting permits or certificates of necessity from the NY Public Service Commission. The applications for these permits include the justification of legitimate economic reasons for the project-, facts and benefits that NYSDEC policy currently ignores.

FERC has held several meetings concerning the availability and amount of natural gas supplied to the New England states and New York. There is conflict between the utilities and natural gas transmission firms and the Commonwealth of Massachusetts regarding how much gas will be necessary to keep power and heat available for all New England residents. The Massachusetts study was considered deficient in several areas by FERC because it did not account for market share growth from local gas distribution companies (LDC). These firms serve residential and commercial customers, over 50% of whom use natural gas for heating, (*EIA Residential Survey, 2009*). FERC Commissioner Chaterjee stated publicly that NEISO would have issues with brownouts and lack of heat by 2024 if additional pipelines are not installed. Current residential customers in New England and some areas of New York cannot readily switch to natural gas heating as the necessary pipelines and capacity of the LDC are not prepared. Much of New England’s power is purchased on the eastern power grid and is routed through New York’s NYISO system.

*Recommendation:* Facilitate integrated meetings between Canada, NY Public Service Commission, NYISO and NEISO to evaluate and discuss solutions for New England and New York’s power and gas services. This area is not without energy resources but the pipeline routes and electric transmission lines should be coordinated to ensure brownouts are not in New England’s future.

Canada is currently facing an energy crisis from oversupply likely affected by the shift of the natural gas market in the United States. Many areas once heavily dependent on Canadian gas are now

supplied by domestic shale oil and gas fields and, as a result, Canada is facing a natural gas glut with few economically viable markets for the gas.

*Recommendation:* Generate jobs by facilitating the location of combined-cycle natural gas fired electric generation in North Country. Currently there are only 4 small combined-cycle units north of the Schenectady hub. Although the area has plenty of available power from hydroelectric dams, it is economically depressed. Locating natural gas electric generation facilities here would export intrastate energy out of the region on NYISO to both NEISO and the New York City metro market.

### **Potential Results:**

#### **Lower energy costs**

Currently, New York imports a vast majority of its hydrocarbon energy on pipelines from various energy-producing areas of the United States. The majority of these pipelines were installed prior to the 1980s and, although the pipeline diameters have remained the same, both New York's economy and its demand for energy have exploded. In recent years, the retirement of nearly all New York coal fired power generation plants, which delivered coal via railroad, has increased the demand for natural gas. Unfortunately, in the western part of the state, it is difficult for gas from the Marcellus in Pennsylvania to enter these pipelines due to their location, thus New York and New England often pay higher prices for natural gas than the rest of the country. During one event in the winter of 2017-18, known as the Bomb Cyclone, prices spiked at the New York citygate at \$140 for 1 million BTU's (or roughly 1,000 cubic feet) of gas while the rest of the country continued to pay less than \$6 for the same amount energy that day. Rudimentary scans of the daily spot price for natural gas between Mid-Atlantic and New York Citygate hubs posted on EIA's website often show New York paying 20% to 30% higher prices for natural gas than in Pennsylvania (Mid-Atlantic). (EIA, 2018)

Permitting additional natural gas pipelines in New York will lower energy costs for New Yorkers as it increases the flexibility of the natural gas supply in a state that is currently importing the majority of the fuel. The length of time for a gas molecule to move from wellheads in Texas to the New York Citygate is 4 days. While current pipeline systems can accommodate weather events, extreme scenarios like the Bomb Cyclone test the system and could cause localized shortages as current gas pipeline routes from Pennsylvania are not geographically efficient for the New York's natural gas hubs. Construction of pipelines with shorter routes to these hubs will reduce the price differential between Mid-Atlantic and New York Citygate to less than 10% and eliminate pricing spikes for electricity generators burning natural gas.

NY PSC also requires electricity generators burning natural gas to have back up supplies of petroleum fuel to burn in the event natural gas supplies become constrained. Increasing the number of natural gas pipelines in New York could reduce the necessity for this requirement by increasing



access to a steady supply. During the Bomb Cyclone, facilities burned diesel fuel and bunker fuel to help meet electricity demand. These fuels are more expensive and generate more carbon dioxide per megaWatt than burning natural gas. Having more gas available will lower the amount of carbon dioxide generated to power New York during peak winter and summer demand. (EIA, 2018) *(Gonzalez-Salazar, Kirsten, Prchlik, 2018)*

**Protect existing land values and encourage local development of existing resources.**

Transmission pipelines and power lines are more likely to receive favorable rulings from the NY PSC if they are located in existing utility corridors. These utility corridors can become congested as each powerline and pipeline requires a certain width of permanent easement once installed. This allows the owner/operator to access the facility to perform routine or emergency maintenance. Due to utility corridors being limited to a specific width, over time they become congested as more linear facilities build in the corridor. Allowing these corridors to expand when they are congested is an attempt to limit the number of new landowners that can be impacted by a new project. Projects in an expanded corridor can use existing access routes for construction and maintenance work which will limit the need for additional roads or road access points. They will be given the same regulatory preference as if they were located in the original corridor width.

**Provide jobs and economic development while reducing the amount of electricity that NYISO imports from other states.**

New York currently imports roughly 25% of its daily energy demand from other states or Canada - energy that is often generated using coal and natural gas as a base fuel. (US Electric Operating System Data, EIA, 2018) If New York increases the amount of natural gas available within the state it is expected that more combined cycle power plants will locate in New York and help balance the load. Jobs maintaining and operating the plant typically pay an average of \$60,000 a year, do not require bachelor's degrees and offer health care benefits. These jobs become permanent fixtures in the community and the electricity supply provides a solid baseline for economic development in the region.

**Prevent energy shortfalls for both NYISO and NEISO during peak energy demand.**

If New York can keep and grow the electric supply in the state, NYISO will be able to easily dispatch power within the system. Power that is imported from Pennsylvania requires coordination with other grid operators to ensure power is dispatched correctly. It also requires large energy users to have relationships with out of state energy producers to ensure a steady supply of power to their facility. Natural gas electric generation plants also start-up quickly. Modern plant designs enable generators to go from a cold start to 100% output on the grid within 1 to 4 hours. This flexibility will cause electricity supply spikes to be short-lived as electricity can quickly meet expected unexpected demand. *(Gonzalez-Salazar, Kirsten, Prchlik, 2018)*

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