

# A Practical Guide to US Natural Gas Transmission Pipeline Economics



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# A PRACTICAL GUIDE TO US NATURAL GAS TRANSMISSION PIPELINE ECONOMICS • 2009

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# EXECUTIVE SUMMARY

## Industry Overview

From a revenue perspective, the US natural gas transmission industry is small, about \$20 billion in 2007.<sup>1</sup> From an economic impact and standard of living point of view, the industry is huge. Second only to liquid fuels, natural gas provides about 23 percent of the US energy demand, according to the US Energy Information Agency (EIA)<sup>2</sup>. Essentially all cross-country transportation of natural gas in the US is provided by about 278,000 miles of natural gas transmission pipelines, according to the Pipeline and Hazardous Material Administration (PHMSA).<sup>3</sup> Most of the steel pipe comprising these lines is between 16 and 48 inches in diameter and operates at pressures between 1,000 and 2,000 pounds per square inch. As critical as the transmission link is to the natural gas industry as a whole, it accounted for only roughly 10 percent of total delivered gas costs in 2007<sup>4</sup>.

## Energy Price Impact

Natural gas transmission lines are often mistakenly lumped together with oil and gas exploration and production assets. Higher energy prices mean higher earnings for those entities, so many people automatically assume higher energy prices also mean higher earning for natural gas transmission lines. The real answer is: "It depends." Higher energy prices stimulate supply while depressing demand. Industry wide, natural gas pipeline volumes are more a function of demand than they are of supply, and demand generally falls as energy prices move higher. Natural gas consumption, for example, fell in 2005 and 2006 in response to rising natural gas prices. Volumes picked back up in 2007 as prices declined.

## Transmission Line Profitability

Transmission line profitability is tightly tied to volumes and volumes are tied to natural gas demand. Natural gas competes head to head in all aspects of the residential and commercial markets, except lighting where electricity wins out easily. Even considering lighting, natural gas delivers more energy to the residential market than does electricity. Electricity narrowly beats out natural gas in the commercial market. Natural gas, in turn, handily beats electricity in the industrial market by a margin of nearly two to one, but liquid fuels best both in this market. Interestingly, even though the price of natural gas—on an energy equivalent basis—is less than half the price of electricity, natural gas is second in terms of energy supplied to electric power plants, beaten out only by coal. Economic viability of natural gas transmission is tied to the future of natural gas but also to the future of electricity use and generation.

## Rates and Regulations

Transportation and storage service and rates were "bundled" until the Federal Energy Regulatory Commission's Order 636 "unbundled" them in 1992. Prior to Order 636, pipeline companies purchased gas from producers, transported it to customers (storing it along the way if required), and

sold it for a combined price. The entire process, from the wellhead purchase price to the final customer price, was regulated. Order 636 and subsequent clarifications have moved the natural gas industry towards a national, competitive market. Natural gas transmission and storage rates, however, are still highly regulated. Methods to set rates—the cost per unit charged to customers—include of cost-of-service, discounted, negotiated, or market-based. Transportation rates include the storage needed to balance line receipts and deliveries. Longer-term storage must be contracted and paid for separately. After all the regulatory turmoil of the past 30 or so years, economic regulations seem to have hit an acceptable equilibrium for the short to intermediate term.

### Transportation Service

Firm service and interruptible service are the two major rate classifications for both transportation and storage. Firm, or guaranteed, service is the backbone of natural gas pipeline economics, particularly when it comes to justifying new lines. Firm transportation costs more than interruptible, but firm receives priority over interruptible when a line can't move all the quantities nominated. Firm transportation rates must be paid whether or not the gas actually moves. Firm capacity, both transportation and storage, can be released for use by others. Storage provides a critical balancing between production and demand. Over the years, natural gas transmission and storage companies responded to customer and industry needs with a range of other services and rates, which are covered in detail in the report.

### Shifting to MLP Ownership

During the past 20 years, nearly 30 percent of the natural gas transmission pipelines in the US have shifted from ownership by corporations to ownership by master limited partnerships (MLPs) as a result of tax law changes passed in 1986. MLPs are managed by general partners (GPs), which receive additional payments when they are able to increase distributions to the limited partners. These additional payments, called incentive distributions, created an acquisition boom in the late 1990s as GPs began focusing on growth through acquisitions. About the same time, assets became available from integrated majors and some cash-strapped gas companies.

### Acquisition Boom and Price Escalation

This acquisition boom has driven up asset prices which, in turn, motivated some companies to form “dropdown” MLPs. Dropdowns involve natural gas transmission companies forming MLPs into which they sell assets. The corporation usually owns the GP and continues operating the pipelines. Limited partners buy units of ownership and receive distributions very similar to those from stocks. Cash distributions, present and future, and expected growth rates determine MLP unit values. If expectation of growth slows, the unit price drops. Dropdown MLPs have a built-in source of growth from which the GP should continue to profit.

### Recent Growth

The past 10 years have seen an increase of about 20,000 miles of natural gas transmission pipelines. From a demand perspective, this new capacity was added primarily to serve new natural gas-fired electrical generation plants. New unconventional gas, primarily coal seam and shale



gas, provided the new supply. Given the large amount of recent construction and the current relatively low energy price environment, construction activity is likely to decline from this peak for the next several years.

### Industry Threats and Opportunities

The largest economic threat to natural gas transmission line profitability, although highly unlikely given the relative environmental attractiveness of natural gas as a fuel, is a reduction in natural gas use to fire electric power generation facilities. Environmental regulations have favored and will continue to favor natural gas as a fuel of choice. And these regulations will continue to drive power plant use of natural gas, even though on a strictly energy equivalent economic basis this use is questionable. Integrity expenditures will continue at significant levels but will not seriously threaten industry profitability, as regulators and the pipeline industry have been developing these programs for at least the past decade. Accidents and the attendant litigation, however, could threaten individual company profitability. Consequently, prior to investing in natural gas transmission companies, investors should understand the company's integrity programs and the risks those companies face. Permitting and land use are impacted by a patchwork of federal, state, and local regulations. Those pipeline companies that can best manage the public relations process will be the winners when it comes to new pipeline construction and recovering from releases or accidents.

### Summary

Natural gas pipelines are critical. No developed country can live without them in the current energy environment, but the pipeline industry is only the transporter. Understanding the natural gas industry and the electric power industry and how these industries impact their customers is the price of entry into the natural transmission arena. Those natural gas transmission companies who succeed in the long term must understand the myriad stakeholders. Appreciating stakeholder positions and working to balance the competing stakeholder demands that include safety, environmental responsibility, reliability, efficiency, profitability, quality of life, and many others is the key to long-term success in this industry.