

# Oil & Gas Transportation & Storage

6.15.2020

NAICS CODES: 486

SIC CODES: 4612, 4613, 4922

## Industry Overview

Companies in this industry use pipelines to transport crude oil, refined petroleum products, and natural gas. Major companies include Energy Transfer Equity, Enterprise Products Partners, and Plains All American Pipeline (all based in the US); along with Australian Pipeline Trust, Aziatski Gazoprovod (Kazakhstan), Enbridge (Canada), Engie (France), TransCanada, and Transneft (Russia).

The US oil and gas transportation and storage industry includes about 3,500 establishments (single-location companies and units of multi-location companies) with combined annual revenue of about \$40 billion.

Recovery of oil and natural gas from wells is covered in the Oil & Gas Exploration & Production industry profile. Direct and wholesale natural gas distribution is covered in the Natural Gas Distribution & Marketing industry profile. Pipeline operators that specialize in transportation of crude oil, refined petroleum products, or natural gas are covered in separate industry profiles.

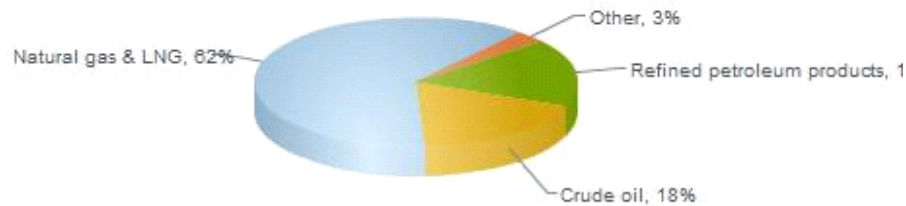
## Competitive Landscape

Demand is driven by economic activity and population growth, which drive energy use. The profitability of pipeline transporters depends largely on the volume and efficiency of their operations. Companies that operate multiple pipeline networks may enjoy economies of scale in purchasing. The US industry is **highly concentrated**: the 20 largest companies account for about 75% of revenue.

## Products, Operations & Technology

Major services are transportation of bulk natural gas and liquefied natural gas (about 60% of US revenue), crude oil, and refined petroleum products. Other services include transportation of products such as ethanol, coal, and carbon dioxide.

Revenue by Product - US Census Bureau (2012)



Oil and gas transportation and storage companies operate pipeline and storage networks acting as the bridge between oil and gas producers and consumers. Referred to as the **midstream process** of the oil and gas industry, the pipeline transportation industry both sells and distributes to end-use customers and to oil and gas brokers or agents that arrange the distribution to final customers.

Transportation and storage networks consist of various types of pipelines with different functions. For example, onshore flowlines transport oil and gas from production wells to storage sites. Offshore flowlines take oil and gas to platforms. Gathering lines transport oil and gas to one central site from multiple locations. Trunklines transport oil and gas from production sites to refineries and from refineries to bulk storage facilities.

Oil and gas is stored in facilities referred to as terminals. Refined products may be delivered to terminals via pipelines or tankers for storage and redistribution. Terminals may have aboveground storage tanks (AST) or underground storage tanks (UST). Contamination at storage sites is a concern. USTs are less commonly installed today because of leakage concerns of highly toxic and flammable materials. At the terminal, smaller feeder pipelines deliver natural gas to end users. Refined petroleum is taken from terminals and delivered to end users, i.e. gas stations, by tankers.

### Technology

The integrity of pipelines must be assessed regularly. Most internal inspections are done by using a device known as a "**smart pig**" or pipeline inspection gauge. Pipeline smart pigs gather information by traveling through a pipeline without stopping the flow of the liquid (a process sometimes called "pigging").

Although smart pigs are widely used, they are criticized for being inaccurate. New technology is being developed for detecting pipeline leaks from the outside. **Infrared equipment** on helicopters and acoustic sensors are being used to find even the smallest leaks. Software-based systems, including computational pipeline monitoring (CPM) systems, are used to check for factors such as drops in pressure inside a pipeline, which would indicate a possible leak. Drones are being touted as an efficient means of inspecting above-ground pipelines, and ultra-wide band pulsed radar is being tested for inspecting buried pipes.

**Geographic information software** (GIS), hydraulic modeling software, computer-aided design (CAD) software and project management programs are other common technological tools used by pipeline operators.

### Sales & Marketing

Typical customers include industrial facilities, utilities, gas stations, and oil and gas distributors and marketers. Because natural gas and oil are commodities, sales depend largely on price and convenience versus alternative products like coal and fuel oil.

Pipeline operators usually do not own the product being transported through their pipelines. Pipeline companies charge producers and shippers, who own the products, a rate for transport and storage. Fees are set by the Federal Energy Regulatory Commission (FERC). Pipelines must tie rate increases to inflation. Large customers such as utilities often have long-term contracts and usually pay the lowest delivered price.

Some pipeline operators purchase natural gas and oil from producers with fields near the pipeline system and from third-party interstate and intrastate pipeline companies. Pipeline operators may purchase oil and gas for market well-head prices, then add transportation costs when reselling.

Oil pipeline transporters compete with major oil companies and trucking, rail, and marine transportation firms.

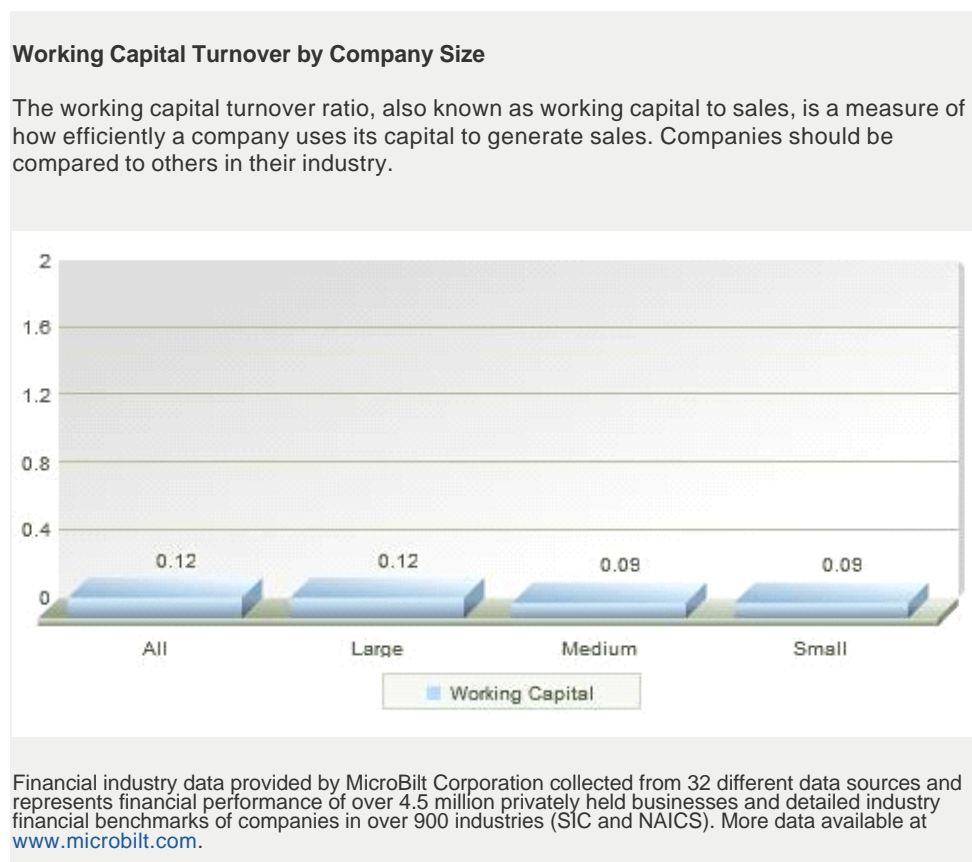
However, pipeline transportation is typically cheaper than rail, truck, or barge transport. Storage firms also compete with major oil and companies and refineries.

## Finance & Regulation

Sales can be seasonal depending on regional market demands. For natural gas, demand varies with heating consumption among residential consumers. Industrial demand is more steady year-round. Gasoline sales are seasonal with a peak during summer due to increased vacation travel. However, for those companies with long-term contracts, cash flow is more steady and not as subject to demand volatility. Fees, set by FERC, are based on regulated tariffs, which rise with inflation.

Maintaining and expanding natural gas and oil pipeline infrastructure requires significant capital investment. Cost overruns and delays are common. The industry is capital-intensive: average annual revenue per worker in the US is about \$840,000.

The industry's working capital turnover ratio averages about 10%. Inventory is negligible, but accounts receivable may be substantial. For the industry in the US, accounts receivable of about 70 days' sales are typical.



## Regulation

US refined and crude pipeline operations are overseen by FERC when engaged in interstate transportation. The agency works to ensure reasonable rates and provide shippers with equal access to pipelines. FERC also approves new natural gas pipelines.

The Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) regulates the safety of oil and gas pipeline transport. PHMSA identifies high consequence areas (HCAs), areas where pipeline leaks or ruptures could be most devastating, and requires testing and upgrades of these pipeline segments. The Pipeline Safety, Regulatory Certainty, and Job Creation Act, passed in 2012, imposed stricter regulations and higher penalties for failures to keep adequate records of HCAs. The industry is also subject to extensive environmental laws concerning hazardous waste and cleanup, including the Superfund law and the Clean Water and Clean Air acts. The Occupational Safety and Health Administration (OSHA) requires companies in the industry to follow guidelines to protect the health and safety of employees.

## International Insights

Major companies based outside the US include Australian Pipeline Trust, Aziatski Gazoprovod (Kazakhstan), Enbridge (Canada), Engie (France), TransCanada, and Transneft (Russia). Besides the US, countries with extensive pipeline networks include Russia, Ukraine, China, and Canada.

Net imports of natural gas account for about 3% of the gas consumed in the US. Most natural gas imported to the US arrives via pipeline, primarily from Canada. Canada and Mexico are the leading export markets for US natural gas. As Canada develops energy resources such as the oil sands in Alberta, pipeline infrastructure between the US and Canada is expected to expand.

In other regions, cross-border pipeline operations can be complicated by political tensions. For example, much of the oil and natural gas consumed in Europe flows from Russia through Ukraine. Because of recent conflicts between the countries, Russia is seeking to reduce Ukraine's role in gas transit by building new pipelines to reach European customers via other routes.

## Regional Highlights

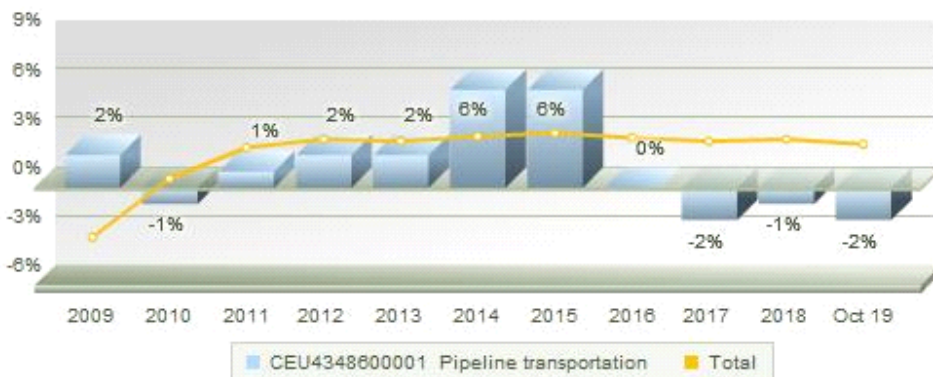
The US has more than 2.4 million miles of interstate and intrastate pipelines that deliver trillions of cubic feet of natural gas and billions of tons of crude oil and liquid petroleum products annually. Networks are often located near refineries and crude oil production sites. Industry revenue is concentrated in [Texas](#), [Louisiana](#), and [Oklahoma](#), states that are large producers and refiners of natural gas and crude oil.

## Human Resources

Pipeline transportation workers install, inspect, test, and replace pipelines. Some are licensed engineers. Wages for US pipeline transportation workers are significantly higher than the national average.

Although pipeline leaks and explosions often attract media attention, increasing awareness of industry accidents, the injury rate for the US pipeline transportation industry is about 65% lower than the national average.

Industry Employment Growth  
Bureau of Labor Statistics



Average Hourly Earnings & Annual Wage Increase  
Bureau of Labor Statistics



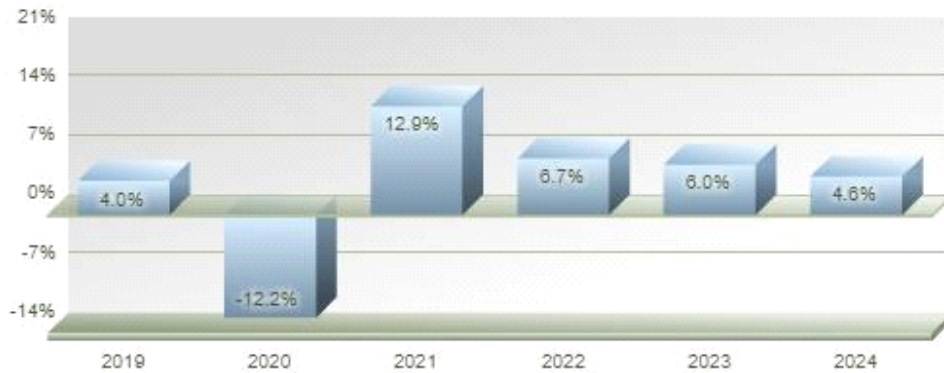
## Industry Growth Rating



Demand: Depends on energy use  
 Need efficient operations  
 Risk: Changing regulations

## Industry Forecast

Domestic demand for pipeline transportation services is forecast to grow at an annual compounded rate of 4% between 2020 and 2024. Data Published: July 2020



First Research forecasts are based on INFORUM forecasts that are licensed from the Interindustry Economic Research Fund, Inc. (IERF) in College Park, MD. INFORUM's "interindustry-macro" approach to modeling the economy captures the links between industries and the aggregate economy. [Forecast FAQs](#)

## Industry Drivers

Changes in the economic environment that may positively or negatively affect industry growth.

Data provided by First Research analysts and reviewed annually



**Government Regulations** Changes in federal, state, or local government regulations or business-related policies



**Commodity Prices** Changes in prices for commodities, such as crops, metals, and other raw materials

## Critical Issues

**Compliance with Regulations** - State and federal agencies regulate many aspects of the transportation of natural gas, crude oil, and refined petroleum products. Customer contracts, acquisitions, record-keeping, construction and maintenance, safety, and cleanup are all subject to oversight. In recent years, safety requirements have become more stringent and violation penalties more severe. As regulations change, unforeseen compliance costs may be significant.

**High Required Capital Investment** - Maintaining and expanding natural gas and oil distribution infrastructure requires significant capital investment. To meet rising demand, companies often must construct new pipeline systems. Annual spending on US natural gas pipeline projects has averaged about \$10 billion over the past decade, but ICF International expects companies to invest \$30 billion in new midstream infrastructure each year through 2035 in order to meet growing production and demand. Companies are expected to spend more than \$12 billion per year on crude oil infrastructure, including pipelines.

## Business Challenges

**Aging Pipeline Infrastructure** - More than half of US pipelines were built before the 1970s. Older pipelines, known as low-frequency electric resistance welded pipe (ERW), do not meet today's corrosion standards and are considered high risk for leaks and dangerous ruptures. Replacing these old pipelines is a huge challenge for the industry, estimated to cost \$1 million per mile. In a rush to meet growing capacity needs, companies are still repurposing some older pipelines, drawing criticism from some. As pipeline accidents increase, regulators are requiring companies to do more extensive testing of older pipe and welded seams. Inspection methods could become more stringent, leading to costly pipeline replacements.

**Competition with Other Transporters** - Pipeline companies sometimes compete with rail, truck, and barge transporters. Oil and gas pipelines are often at capacity and bottlenecks are not uncommon when pipelines are closed due to maintenance or repairs. To avoid holdups, customers may turn to rail or barge shipping methods rather than pipelines. Increasing use of ethanol, which can corrode pipelines, is also heightening competition with alternative transportation methods.

**Political Tensions** - Major pipelines often cross borders into neighboring countries. However, political tension between countries can erupt over price disputes, payments, and infrastructure. For example, Russia supplies Europe with about a third of the region's oil, coal, and natural gas. Much of it flows through pipelines that cross through Ukraine. Because of recent conflicts between the countries, Russia is seeking to reduce Ukraine's role in gas transit by building new pipelines to reach European customers via other routes.

## Business Trends

**Natural Gas Drilling Increases** - New drilling techniques have expanded the available supply of oil and gas. Vertical drilling has gradually been replaced by horizontal, which is often used in conjunction with hydraulic fracturing, also called fracking. Fracking involves blasting a mixture of water, sand, and chemicals into rock formations to fracture the rock and release oil and gas. Fracking has caused a boom in natural gas production, lowering prices, and increasing demand. Pipeline transporters are increasing pipeline networks, through building and acquisitions, to meet consumer demands and producers shipment needs.



**Backlogs** - As oil and gas production has increased in the US and Canada, especially in the Permian Basin and the province of Alberta, respectively, bottlenecks have occurred due to limited pipeline capacity. With producers turning to other transportation means, like rail and truck, pipeline companies have faced pressure to increase capacity as quickly as possible. However, the volatility of prices, and therefore production, make oversupply of pipeline capacity a risk as well.

## Industry Opportunities

**Technological Advances** - Using both newer pipe technology and newer leak detection management systems can help companies save on costly accidents, comply with environmental demands, and build consumer confidence in pipeline transportation safety. Advances in pipe metallurgy and welding in newly built pipelines lessen the chances of leaks. However, no pipes are 100% leak-proof, and many older pipelines have smaller leaks that go undetected for months or years before being discovered. Current leak detection systems only detect about half of leaks. New detection systems, including drones and underground radar, can identify leaks more quickly over an entire pipeline network.

**Production in Alaska** - Alaska is one of the largest oil- and gas-producing states in the US, but because of a lack of economical transportation to the lower 48, much of the oil and gas is re-injected into fields. Various transportation options include a trans-Canada pipeline, gas liquefaction for ship transport, and a natural gas pipeline that would run parallel to the Alaska highway. However, most proposed projects have faced opposition or delays. Environmentalists oppose further development of Alaskan wilderness for natural gas production.

**Increased Use of LNG** - As more liquefaction plants are built worldwide, trade in LNG is expected to increase, and pipeline demand will rise. US exports of LNG are expected to increase nearly 70% by 2035 compared to 2011, according to the EIA. Pipelines supplement tankers as a means for transporting LNG.

## Financial Information

### COMPANY BENCHMARK TRENDS

#### Quick Ratio by Company Size

The quick ratio, also known as the acid test ratio, measures a company's ability to meet short-term obligations with liquid assets. The higher the ratio, the better; a number below 1 signals financial distress. Use the quick ratio to determine if companies in an industry are typically able to pay off their current liabilities.



Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available at [www.microbilt.com](http://www.microbilt.com).

### Current Liabilities to Net Worth by Company Size

The ratio of current liabilities to net worth, also called current liabilities to equity, indicates the amount due creditors within a year as a percentage of stockholders' equity in a company. A high ratio (above 80 percent) can indicate trouble.



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## COMPANY BENCHMARK INFORMATION

NAICS: 486

Data Period: 2018

Last Update February 2020

Table Data Format

Mean

Company Size	All	Large	Medium	Small
Size by Revenue		Over \$50M	\$5M - \$50M	Under \$5M
Company Count	448	23	39	386

### Income Statement

	All	Large	Medium	Small
Net Sales	100%	100%	100%	100%
Gross Margin	66.2%	66.3%	61.0%	60.7%
Officer Compensation	0.4%	0.4%	1.1%	2.5%
Advertising & Sales	0.0%	0.0%	0.0%	0.0%
Other Operating Expenses	50.0%	50.0%	55.2%	51.4%
Operating Expenses	50.5%	50.4%	56.3%	54.0%



<b>Operating Income</b>	15.7%	15.9%	4.7%	6.8%
<b>Net Income</b>	8.1%	8.2%	2.0%	3.2%

### Balance Sheet

<b>Cash</b>	6.0%	5.9%	11.9%	11.3%
<b>Accounts Receivable</b>	11.9%	11.9%	14.5%	14.2%
<b>Inventory</b>	1.2%	1.2%	1.8%	1.4%
<b>Total Current Assets</b>	21.6%	21.5%	31.8%	29.9%
<b>Property, Plant &amp; Equipment</b>	54.5%	54.5%	44.9%	45.9%
<b>Other Non-Current Assets</b>	23.9%	23.9%	23.4%	24.3%
<b>Total Assets</b>	100.0%	100.0%	100.0%	100.0%
<b>Accounts Payable</b>	5.8%	5.8%	7.2%	6.2%
<b>Total Current Liabilities</b>	16.5%	16.5%	15.8%	15.3%
<b>Total Long Term Liabilities</b>	43.1%	43.1%	42.8%	43.3%
<b>Net Worth</b>	40.4%	40.4%	41.4%	41.5%

### Financial Ratios

(Click on any ratio for comprehensive definitions)

<b>Quick Ratio</b>	1.11	1.11	1.75	1.74
<b>Current Ratio</b>	1.31	1.31	2.00	1.96
<b>Current Liabilities to Net Worth</b>	40.7%	40.7%	38.3%	36.9%
<b>Current Liabilities to Inventory</b>	x13.39	x13.50	x8.66	x10.76
<b>Total Debt to Net Worth</b>	x1.47	x1.47	x1.42	x1.41
<b>Fixed Assets to Net Worth</b>	x1.35	x1.35	x1.08	x1.11
<b>Days Accounts Receivable</b>	99	100	68	76
<b>Inventory Turnover</b>	x12.00	x11.96	x16.68	x18.73
<b>Total Assets to Sales</b>	247.3%	248.9%	129.4%	151.0%
<b>Working Capital to Sales</b>	12.7%	12.6%	20.6%	22.1%
<b>Accounts Payable to Sales</b>	13.4%	13.5%	9.3%	9.0%
<b>Pre-Tax Return on Sales</b>	13.1%	13.2%	3.3%	5.2%
<b>Pre-Tax Return on Assets</b>	5.3%	5.3%	2.5%	3.4%
<b>Pre-Tax Return on Net Worth</b>	13.0%	13.1%	6.1%	8.2%
<b>Interest Coverage</b>	x4.81	x4.82	x2.73	x3.47
<b>EBITDA to Sales</b>	25.5%	25.7%	15.2%	16.9%
<b>Capital Expenditures to Sales</b>	33.9%	34.2%	14.8%	17.9%

## VALUATION MULTIPLES

No valuation multiples available for this industry.

## Industry Websites

### **American Gas Association**

Gas lobbying organization. Industry issues.

### **American Petroleum Institute**

Oil industry news, trends, statistics, and environmental and regulatory information.

### **Association of Oil Pipe Lines**

Oil pipeline industry group.

### **Energy Information Administration**

Government energy data and outlooks.

### **Interstate Natural Gas Association of America**

Natural gas pipeline operators group.

### **National Energy Board (Canada)**

News, reports, links, and regulation.

### **Oil & Gas Journal**

Industry news.

### **Pipeline 101**

Industry facts and statistics.

### **S&P Global Platts**

Oil and gas news.

## Glossary of Acronyms

**AST** - aboveground storage tank

**CAD** - computer aided design

**CPM** - computational pipeline monitoring

**ERW** - electric resistance welded

**FERC** - Federal Energy Regulation Commission

**GIS** - geographic information software

**HCA** - high consequence area

**LNG** - liquefied natural gas

**NGL** - natural gas liquids

**NAPSR** - National Association of Pipeline Safety Representatives

**NTSB** - National Transportation Safety Board

**PHMSA** - Pipeline and Hazardous Materials Safety Administration

**PIG** - pipeline inspection gauges

**UST** - underground storage tank