

North America Oil & Gas Pipeline Market Segmented By Type (Crude Oil Pipeline and Natural Gas Pipeline), By Application (Offshore and Onshore), By Source (Upstream, Midstream and Downstream), By Country, By Competition Forecast & Opportunities, 2018-2028

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Abstracts

North America Oil & Gas Pipeline Market was valued at USD 6.52 billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 7.01% through 2028. The exploration and production of unconventional resources, particularly shale oil and gas, contribute significantly to the demand for pipeline infrastructure. Advancements in technologies such as hydraulic fracturing and horizontal drilling have unlocked vast reserves, necessitating an expanded and modernized pipeline network to transport these resources to markets. The continued growth of unconventional resources is expected to be a persistent driver of the Oil & Gas Pipeline Market in North America.

Key Market Drivers

Increasing Energy Demand and Production

One of the primary drivers of the North America Oil & Gas Pipeline Market is the ever-growing demand for energy in the region. As the population continues to rise, accompanied by industrial expansion and urbanization, the need for reliable and efficient energy sources has surged. This demand is met significantly by the oil and gas sector, which relies heavily on pipelines for transportation. With North America being a key player in global energy production, the construction of pipelines has become imperative to facilitate the movement of oil and gas from extraction points to refineries and ultimately to end-users.

The development of unconventional resources, such as shale oil and gas, has further amplified the demand for pipelines. Technological advancements, especially in hydraulic fracturing and horizontal drilling, have unlocked vast reserves that were previously economically unviable. This has led to a substantial increase in production levels, necessitating an expanded and modernized pipeline infrastructure to transport these resources efficiently. As a result, companies in the oil and gas sector are investing heavily in pipeline projects to meet the escalating energy demands of North America.

Infrastructure Modernization and Replacement

The aging infrastructure of existing pipelines has become a significant driver for the North America Oil & Gas Pipeline Market. Many pipelines in the region were constructed several decades ago, and their maintenance costs have risen due to wear and tear over time. Moreover, technological advancements have introduced more efficient and environmentally friendly pipeline materials and construction techniques. As a result, companies are increasingly inclined towards replacing or upgrading their existing pipelines to enhance efficiency, reduce operational costs, and comply with evolving safety and environmental regulations.

Modern pipelines incorporate advanced technologies such as smart sensors and monitoring systems that enable real-time detection of leaks or faults, enhancing overall safety and reducing the environmental impact of pipeline operations. Governments and regulatory bodies are also incentivizing pipeline operators to invest in the replacement and modernization of infrastructure to ensure the integrity of the network and minimize the risk of incidents.

Geographic Expansion and International Trade

The North America Oil & Gas Pipeline Market is significantly influenced by the region's strategic position as a major player in the global energy trade. North American countries, particularly the United States and Canada, possess substantial oil and gas reserves, making them key exporters in the international market. To capitalize on this, companies are investing in the expansion of pipeline networks to connect domestic production centers to export terminals and border crossings.

The increasing focus on international trade agreements and partnerships further drives the need for extensive pipeline networks. Pipelines facilitate the efficient transportation

of oil and gas across borders, connecting production areas with refineries and export terminals. As North American countries seek to strengthen their positions in the global energy market, the expansion of cross-border pipelines becomes crucial for enhancing trade capabilities and meeting the energy needs of international partners. This driver underscores the interconnected nature of the global energy landscape and the pivotal role that North American pipelines play in supporting international energy trade.

Key Market Challenges

Regulatory and Environmental Hurdles

One of the prominent challenges faced by the North America Oil & Gas Pipeline Market is the increasingly stringent regulatory environment and heightened environmental concerns. As awareness of climate change and environmental impact grows, governments and regulatory bodies are imposing stricter regulations on pipeline construction and operation. Obtaining permits for new pipeline projects has become a complex and time-consuming process, with rigorous assessments of potential environmental risks and social impacts.

Public opposition to pipeline development has also intensified, leading to legal battles and protests. Concerns over potential oil spills, water contamination, and habitat disruption have fueled resistance from environmental groups and local communities. Balancing the need for energy infrastructure with environmental conservation and safety considerations poses a significant challenge for pipeline operators in North America. Navigating this regulatory landscape requires substantial financial investment and effective communication strategies to address public concerns and comply with evolving regulatory requirements.

Infrastructure Security and Cyber Threats

The North America Oil & Gas Pipeline Market faces a growing challenge in ensuring the security of its infrastructure against cyber threats. With the increasing digitization of pipeline operations, the industry becomes more vulnerable to cyber-attacks that can disrupt operations, compromise sensitive data, and pose serious safety risks. Pipelines rely on complex supervisory control and data acquisition (SCADA) systems and other digital technologies for monitoring and control, making them potential targets for malicious actors seeking to exploit vulnerabilities.

As the industry adopts advanced technologies to enhance efficiency, the risk of cyber

threats escalates. A successful cyber-attack on pipeline systems could lead to operational disruptions, environmental disasters, and significant economic losses. Pipeline operators must invest in robust cybersecurity measures, including regular risk assessments, employee training, and the implementation of cutting-edge security protocols, to safeguard their infrastructure against evolving cyber threats.

Volatility in Oil and Gas Prices

The North America Oil & Gas Pipeline Market is profoundly affected by the inherent volatility in oil and gas prices. Fluctuations in global energy markets can have a direct impact on the profitability and feasibility of pipeline projects. When oil and gas prices are low, exploration and production activities may decrease, resulting in reduced demand for new pipelines. Conversely, during periods of high prices, there may be an increased push for exploration and production, but the uncertainty of market conditions makes long-term investments in pipeline infrastructure risky.

The cyclical nature of the oil and gas industry poses challenges for pipeline operators in terms of project planning and financing. Companies must navigate a delicate balance between responding to immediate market demands and ensuring the long-term viability of their pipeline investments. Economic downturns can lead to project delays, cancellations, or financial strain on companies operating in the North America Oil & Gas Pipeline Market, highlighting the need for strategic planning and risk management in an industry closely tied to global commodity prices.

Key Market Trends

Integration of Advanced Technologies for Efficiency and Safety

A significant trend in the North America Oil & Gas Pipeline Market is the increasing integration of advanced technologies to enhance operational efficiency and safety. The industry is leveraging innovations such as Artificial Intelligence (AI), Internet of Things (IoT), and machine learning to optimize various aspects of pipeline management. One notable application is the implementation of smart sensors along pipelines, providing real-time data on factors like temperature, pressure, and flow rates. These sensors enable predictive maintenance, helping operators identify potential issues before they escalate into critical failures.

AI and machine learning algorithms are employed to analyze vast datasets, improving decision-making processes related to pipeline operations. Predictive analytics assist in

forecasting equipment failures, optimizing maintenance schedules, and enhancing overall asset performance. This trend not only increases the reliability of pipeline infrastructure but also contributes to cost savings by minimizing downtime and preventing costly repairs.

Furthermore, the adoption of drone technology for pipeline inspection is gaining momentum. Drones equipped with advanced imaging and sensing capabilities can efficiently survey large stretches of pipelines, identifying anomalies, leaks, or encroachments. This enhances the speed and accuracy of pipeline monitoring while reducing the need for manual inspections in challenging terrains. The integration of these advanced technologies reflects a broader industry shift towards digitalization and automation to improve efficiency, reduce operational risks, and meet increasingly stringent regulatory requirements.

Transition to Sustainable and Low-Carbon Energy Sources

Another prominent trend in the North America Oil & Gas Pipeline Market is the industry's response to the global push for sustainable and low-carbon energy sources. As the world shifts towards cleaner energy alternatives to combat climate change, the oil and gas sector is adapting its strategies to remain relevant and environmentally responsible. This transition is influencing pipeline projects in several ways.

Firstly, there is an increasing focus on pipelines that transport natural gas, which is considered a cleaner-burning fossil fuel compared to oil. Natural gas pipelines are integral to the energy transition, facilitating the shift away from more carbon-intensive energy sources. Additionally, there is a growing interest in pipelines associated with carbon capture and storage (CCS) projects. These pipelines transport captured carbon dioxide for storage underground, reducing greenhouse gas emissions from industrial processes.

Furthermore, the North America Oil & Gas Pipeline Market is witnessing a rise in projects associated with hydrogen transportation. Hydrogen is gaining recognition as a clean energy carrier, and pipelines are being repurposed or newly constructed to transport hydrogen to end-users. This trend aligns with the industry's commitment to supporting the development of a low-carbon economy and meeting the evolving energy needs of a more sustainable future. As the focus on environmental responsibility intensifies, the North America Oil & Gas Pipeline Market is likely to witness continued innovation and adaptation to support the transition to cleaner energy sources.

Segmental Insights

Source Insights

The Upstream segment emerged as the dominating segment in 2022. The upstream segment begins with exploration activities, including geological surveys and seismic studies to identify potential oil and gas reserves. Once a viable resource is located, drilling operations commence to extract hydrocarbons from the earth. In North America, particularly in regions like the Permian Basin in the United States and the oil sands in Canada, extensive exploration and drilling activities drive the need for efficient and expansive pipeline networks. The analysis of the upstream segment should consider the geographical distribution of exploration and production activities, as this influences the layout and capacity requirements of pipelines. Additionally, factors such as technological advancements in drilling techniques, such as hydraulic fracturing, impact the volume of extracted resources and, consequently, pipeline demand.

Upstream activities necessitate a robust pipeline infrastructure to transport crude oil and natural gas from extraction points to processing facilities, which are typically located in downstream areas. The analysis should focus on the development of new pipelines and the expansion or repurposing of existing ones to accommodate the growing production levels. Technological innovations in pipeline construction, such as the use of high-strength materials and advanced corrosion protection, contribute to the efficiency and safety of transporting upstream resources. Understanding the dynamics of pipeline projects, including their capacities, routes, and connectivity to downstream markets, is essential for a comprehensive upstream segment analysis.

In conclusion, the upstream segment analysis of the North America Oil & Gas Pipeline Market should encompass a holistic view of exploration and production activities, pipeline infrastructure development, regulatory and environmental considerations, market dynamics, economic factors, and technological advancements.

Type Insights

The Natural Gas Pipeline segment is projected to experience rapid growth during the forecast period. The natural gas pipeline segment is influenced by the increasing demand for natural gas as a cleaner and more environmentally friendly alternative to other fossil fuels. In North America, the demand for natural gas is driven by various factors, including the transition to cleaner energy sources, the replacement of coal in power generation, and the use of natural gas in industrial processes. Understanding the

regional and sector-specific demand for natural gas is crucial in assessing the need for new pipelines and expansions in the existing infrastructure.

The advent of the shale gas revolution, particularly in regions like the Marcellus and Utica shale basins in the United States, has significantly impacted the natural gas pipeline segment. The analysis should focus on the extraction and transportation of shale gas, as these resources often require extensive pipeline networks to reach processing and distribution centers. The efficiency of shale gas extraction techniques, such as hydraulic fracturing, influences the volume of gas transported through pipelines.

The natural gas pipeline segment in North America is characterized by an extensive and interconnected network of pipelines that span across different regions and countries. Analyzing the connectivity of these pipelines is crucial for understanding the flow of natural gas from production areas to consumption centers. Cross-border pipelines, such as those between the United States and Canada, play a significant role in facilitating international trade and meeting the energy needs of various regions.

The growth of liquefied natural gas (LNG) exports is a key trend impacting the natural gas pipeline segment. LNG terminals and associated pipelines are essential components of the infrastructure needed to transport natural gas in its liquefied form to international markets. Assessing the development of LNG export facilities, the capacity of LNG pipelines, and the integration of these facilities with domestic natural gas transportation networks provides insights into the global reach of North American natural gas resources.

Country Insights

United States emerged as the dominating country in 2022. The United States boasts an extensive network of oil and gas pipelines that play a crucial role in the transportation of energy resources. The analysis should include an assessment of the existing pipeline infrastructure, considering factors such as the total length of pipelines, their capacity, and the regions they connect. Key pipeline systems, such as the Keystone Pipeline, Colonial Pipeline, and the extensive network in the Permian Basin, contribute significantly to the overall transportation capacity in the country.

The shale revolution, driven by advancements in hydraulic fracturing and horizontal drilling, has transformed the energy landscape in the United States. The analysis should focus on the impact of shale gas and shale oil production,

particularly in regions like the Permian Basin (Texas and New Mexico), the Bakken Formation (North Dakota), and the Marcellus Shale (Pennsylvania and West Virginia). The development of pipelines to transport these unconventional resources is a critical aspect of the market analysis.

The United States has witnessed increased attention to environmental and social considerations in the development of energy infrastructure, including pipelines. Opposition to pipeline projects on environmental grounds, concerns about water contamination, and the impact on Indigenous lands are factors that influence project approvals and timelines. Analyzing the social and environmental landscape provides insights into potential challenges and public sentiment surrounding pipeline development.

The U.S. Oil & Gas Pipeline Market has seen a growing integration of advanced technologies to enhance efficiency and safety. This includes the use of smart sensors, IoT devices, and data analytics for real-time monitoring of pipeline operations.

The United States is experiencing a shift towards cleaner and renewable energy sources. The analysis should consider how this transition influences the role of oil and gas pipelines. Additionally, initiatives related to carbon capture and storage (CCS) and the transportation of hydrogen are emerging trends that impact the future of the Oil & Gas Pipeline Market in the U.S.

Economic factors, including oil and gas prices, investment trends, and market dynamics, influence the viability of pipeline projects. Understanding how economic indicators impact decision-making by pipeline operators and investors is crucial for predicting the future growth and challenges within the U.S. Oil & Gas Pipeline Market.

In conclusion, a comprehensive analysis of the United States in the North America Oil & Gas Pipeline Market involves considering the extensive pipeline infrastructure, the impact of the shale revolution, the regulatory environment, environmental and social considerations, the integration of advanced technologies, the energy transition, international trade dynamics, and economic factors.

Key Market Players

TC Energy

Enbridge Inc.

Kinder Morgan Inc.

Energy Transfer LP

Williams Companies Inc.

ONEOK Inc.

Plains All American Pipeline, L.P.

Magellan Midstream Partners, L.P.

Sempra Energy

Columbia Pipeline Group

Report Scope:

In this report, the North America Oil & Gas Pipeline Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

North America Oil & Gas Pipeline Market, By Type:

Crude Oil Pipeline

Natural Gas Pipeline

North America Oil & Gas Pipeline Market, By Application:

Offshore

Onshore

North America Oil & Gas Pipeline Market, By Source:

Upstream

Midstream

Downstream

North America Oil & Gas Pipeline Market, By Country:

United States

Canada

Mexico

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the North America Oil & Gas Pipeline Market.

Available Customizations:

North America Oil & Gas Pipeline market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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