Shale Gas Market Assessment, By Technology [Horizontal Fracking, Vertical Fracking, Rotary Fracking], By Application [Industrial, Power Generation, Commercial, Residential, Transportation], By Region, Opportunities and Forecast, 2018-2032F

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Report description:

Global shale gas market is projected to witness a CAGR of 9.09% during the forecast period 2025-2032, growing from USD 90.41 billion in 2024 to USD 181.34 billion in 2032. The market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years. Shale gas is a type of natural gas trapped within shale formation. The extraction of this gas is performed through hydraulic fracturing and horizontal drilling. Shale gas has various applications, such as electricity generation, heating, and industrial applications.

The shale gas market is experiencing growth due to several factors, such as advancements in technology and rising demand for natural gas. The shift towards cleaner energy sources fuels the global demand for shale gas. Furthermore, shale gas emits less CO_2 than coal, which makes it a significant choice to lower carbon emissions in the environment.

Innovation in technologies such as hydraulic fracturing and horizontal drilling has boosted extraction efficiency and reduced operational costs, propelling the market growth tremendously. Countries are adopting cleaner energy alternatives to lower their carbon footprint as compared to coal and oil. Government and higher authorities are looking to commence new policies to reduce the reliance on imported fossil fuels, which drives the demand for green energy sources, such as shale gas, in developing countries. Moreover, the integration of advanced data analytics and real time monitoring technologies in the extraction activities of shale gas will enhance the operational efficiency of drilling and further improve safety.

For instance, in June 2024, Chesapeake Energy Corporation shifted its focus towards more sustainable practices in shale gas extraction. It recently announced plans to reduce its greenhouse gas emissions by 50% by 2035, which will increase the country's production of shale gas.

Advancements in Extraction Technologies Propel Market Growth

Advancements in shale gas exploration and drilling technologies are improving operational efficiency, boosting production volume, and reducing production costs, thereby contributing to market growth. Technology advancements, such as hydraulic fracturing, have evolved, enabling more efficient extraction with reduced water and chemical usage. Moreover, horizontal drilling has decreased the cost per unit extracted and increased the productivity of individual wells, further helping to reduce environmental impact.

Additionally, automation in drilling equipment advancement in data analytics is being used to monitor drilling conditions in real-time, which enhances natural gas production levels and cuts down costs associated with exploration, drilling, and refining. Another area of technological advancement is remote monitoring, which allows engineers to oversee and control operations from far away, reducing the need for an on-site level.

For instance, in September 2022, Schlumberger introduced a Neuro automation solution, which uses advanced cloud-based software and intelligent systems to create a continuous feedback loop between surface and downhole. The solution delivers steering autonomy for directional drilling and uses artificial intelligence with surface and downhole automation workflow to self-determined steering sequences and deliver well trajectory on a plan. technology reduces risk, refines precision and human intervention, and increases efficiency, reducing drilling emissions.

Upgradation in Industrial Demand and LNG Infrastructure is Acting as Catalysts for Market Growth

Industries are transitioning to natural gas as a cleaner alternative to coal and oil to enhance energy reliability while reducing carbon footprint. The demand for shale gas is rising in industrial applications to reduce environmental impact while maintaining energy reliability. The boosting demand for natural gas in sectors such as chemical, manufacturing, and power generation is on the rise, which further drives market growth and propels the expansion of the shale gas industry. According to the U.S. Energy Information Administration (EIA) natural gas consumption in the industrial and manufacturing sectors is expected to grow by 17% from 2023 to 2030 due to excessive demand for electricity generation and chemical production. For instance, Dow Inc. is following the trend and has announced plans to increase ethylene production capacity, which depends on natural gas as a feedstock.

Furthermore, the expansion of Liquefied Natural Gas (LNG) infrastructure is essential for meeting the increasing demand for natural gas, as new infrastructure will stabilize supply of natural gas across the various sectors. By 2023, the United States LNG exports reached an average of 11.4 billion cubic feet per day, showcasing a surge in global demand for cleaner energy alternative as per EIA. The development has established the United States as a major player in the global LNG market, by enhancing its export capabilities in recent years.

For instance, in October 2024, Cheniere Energy, one of the leading U.S. LNG exporters expanded its Corpus Christi LNG facility in Texas. The Stage 3 expansion project, which began construction in 2022, aims to add 10 million tonnes per annum (mtpa) of LNG production capacity. Company has decided to expand the plant to meet the rising global demand, especially from Asia and Europe.

Government Strategies Creating Market Opportunities

The global shale gas market is fostered to expand by government policies and regulatory support as it facilitates the exploration and production of gas. Many nations are implementing strategies to harness shale resources, aiming to increase energy supply and reduce dependence on imported fuels. For example, strategies such as the Hydrocarbon Exploration and Licensing Policy (HELP) in India have been good practices that save time for market players wishing to invest in conventional or unconventional hydrocarbons. The policy permits open acreage licensing, which allows various companies to select certain blocks based on their view of geological information, leading to competition and growth in the sector.

Additionally, governments are offering tax incentives, including royalty rates, to promote investment in shale gas projects. Regulatory frameworks also require environmental impact assessments and adherence to safety standards to ensure responsible exploration practices. By addressing environmental concerns while facilitating shale gas development, these policies not only enhance investment opportunities but also support the overall growth of the shale gas industry.

For instance, in July 2024, Sidi Kerir Petrochemicals Company (SIDPEC) announced its participation in a consortium aimed at importing shale gas from the United States, a strategic move to address the ongoing natural gas supply shortages affecting chemical factories in Egypt. The initiative comes as several plants have faced temporary shutdowns due to inadequate gas supplies, exacerbated by increased demand during recent heatwaves. The consortium includes key players such as the Egyptian Petrochemicals Holding Company (ECHEM), the Egyptian Ethylene and Derivatives Company (ETHYDCO), the Gama Construction

Company, and the Egyptian Natural Gas Company (GASCO).

The dominance of Power Generation Sector in the Shale Gas Industry

The power generation sector has cemented its dominance with strong statistics in the market. Natural gas is increasingly used as a cleaner alternative to coal in power generation. Natural gas fired power plants produce comparatively lower carbon emissions, aligning with the regulatory standards. The International Energy Agency IEA reports that natural gas has contributed almost 23% of global electricity production in recent years. The generation of electricity by natural gas has resulted in cost advantages and reduced environmental impact, which makes it an ideal choice for utility companies. Moreover, the government policies for reducing environmental impact and promoting cleaner energy sources, notably in the United States, China, and Europe, are propelling the demand for shale gas for power generation sectors.

For instance, in June 2023, Dominion Energy expanded its natural gas facilities in Virginia to meet the growing demand for energy. The Chesterfield facility, initially proposed before the pandemic, will now generate 1,000 megawatts of electricity. The electricity generated will be enough to power 250,000 houses. Dominion□s strategy combines natural gas and renewable energy, ensuring grid stability and reliability during extreme weather conditions.

North America Dominates Shale Gas Market Share

North America is exerting its dominance in the shale gas market. The region includes abundant shale gas reserves in areas such as the Permian Basin, Marcellus Shale, and Barnett Shale, which are home to major shale gas. The advancement of extraction technologies, such as hydraulic fracturing and horizontal drilling, has enhanced extraction efficiency and increased production. Additionally, the expansion of LNG infrastructure has enabled the United States to shift from a net importer to a net exporter of natural gas.

Furthermore, in 2022, United States dry natural gas production reached approximately 36.35 trillion cubic feet, with shale gas accounting for about 80% of this total. This surge in production has positioned North America as a leader in the global energy industry. Additionally, favorable government policies and regulatory frameworks have encouraged investment in shale gas projects, enhancing the region's competitive edge. As countries worldwide look to diversify their energy sources and reduce reliance on imports, North America's dominance in shale gas production is expected to continue shaping the global energy market for years.

For instance, in October 2023, Chevron Corporation announced its acquisition of Hess Corporation for USD 53 billion, aiming to expand its shale gas production capabilities. The Chevron acquisition aligns with its strategic goal of growing shale production in North America while expanding its energy production.

Future Market Scenario (2025 □ 2032F)

□□Advancements in extraction technologies such as horizontal drilling and hydraulic fracturing are enhancing extraction production and reducing the cost of extraction, helping to reach the untapped shale reserve, which will further lead the market towards growth.

□□The shift towards cleaner energy sources to reduce carbon emissions will push demand for natural gas, and shale gas, with its lower carbon emissions compared to coal, will propel the market growth.

□□The discovery of new shale gas reserves enhances the opportunities for expansion in various regions, such as North America, thereby increasing the production capacity.

Key Players Landscape and Outlook

Continuous innovation characterizes the global shale gas landscape as companies compete to enhance their production capacity by adopting advanced extraction technologies and unique features. The market outlook remains positive, driven by increased demand for natural gas and the integration of advanced technologies in hydraulic fracturing and horizontal drilling. Shale gas manufacturers are increasingly focused on environmental considerations to reduce reliance on coal and improve extraction efficiency, which will likely define the industry's future. Collaborations and the development of new technologies are projected to intensify competition in this fast-paced market.

For instance, in May 2024, Exxon Mobil Corporation announced the acquisition of Pioneer Natural Resources. The development reveals a high-return business with significant Permian Basin potential. With over 1.4 million net acres, ExxonMobil's Permian production volume is expected to double to 1.3 million barrels per day in the coming year, which will help the company increase revenue.

For instance, in August 2023, Falcon Oil & Gas and Tamboran Resources identified significant dry gas potential at the Shenandoah South 1H (SS1H) well located in Australia□s Beetaloo sub-basin, representing a noteworthy advancement in shale gas exploration.

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