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Hydrogen Pipeline Market Forecasts to 2032 – Global Analysis By Type (Mobile Pipelines and Fixed Pipelines), Distance (Upto 300 Km and More than 300 Km), Hydrogen Form, Installation Type, Pipeline Structure, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Hydrogen Pipeline Market is accounted for $12.67 billion in 2025 and is expected to reach $40.36 billion by 2032 growing at a CAGR of 18.0% during the forecast period. A hydrogen pipeline is specialized equipment made to move hydrogen gas effectively over long distances, much like natural gas pipelines. Because they allow for large-scale distribution from production facilities to industrial users, refueling stations, and power plants, these pipelines are essential to bolstering the hydrogen economy. Hydrogen pipelines are made of composite materials or high-strength steel, and they need to be designed to resist hydrogen embrittlement, which gradually erodes metal.

According to the International Energy Agency (IEA), global hydrogen demand reached 97 million tonnes (Mt) in 2023, which is an increase of 2.5% compared to 2022. Additionally, the IEA reports that approximately 5,000 kilometers of hydrogen pipelines are currently in operation worldwide primarily owned by private companies and used to connect industrial users.

Market Dynamics:

Driver:

Growing interest in hydrogen as a sustainable energy source

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The use of hydrogen as a sustainable energy source has grown as a result of the global movement toward decarburization. Utilizing hydrogen can lessen reliance on fossil fuels in a number of industries, such as transportation, industrial manufacturing, and power generation. Projects involving hydrogen have increased as a result of the drive to achieve net-zero emissions by 2050, which has been supported by groups like the UNFCCC and the International Energy Agency (IEA). Additionally, the demand for specialized hydrogen pipeline infrastructure to guarantee an efficient and continuous supply is being further fueled by the growth of fuel cell electric vehicles (FCEVs), hydrogen-powered trains, and industrial hydrogen boilers.

Restraint:

High initial outlay of funds

Significant capital investment is needed to build new hydrogen pipelines or retrofit existing natural gas pipelines. High-strength materials specialized welding methods, sophisticated monitoring systems, and costs associated with regulatory compliance are all included in the price. Because of the possibility of embrittlement and leakage, hydrogen pipelines also need extra safety precautions, which raise the cost even more. Dedicated hydrogen pipelines can cost anywhere from $2 million to $5 million per kilometer, depending on the location and complexity of the infrastructure, according to research by the International Renewable Energy Agency (IRENA).

Opportunity:

Adapting current natural gas pipelines to transport hydrogen

Repurposing existing natural gas pipelines for hydrogen transportation is one of the most economical ways to increase hydrogen infrastructure. There is no need for completely new pipeline networks because many gas pipelines can be modified to carry hydrogen blends or even pure hydrogen. Furthermore, gas utilities, energy firms, and infrastructure providers now have a great chance to take advantage of their current assets and make the switch to hydrogen-powered vehicles. In order to lower infrastructure costs and speed up the adoption of hydrogen, groups such as Hydrogen Europe and the European Hydrogen Backbone (EHB) initiative have laid out plans to retrofit a section of Europe's current gas pipeline network for hydrogen transport by 2030.

Threat:

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Issues with hydrogen embrittlement and safety

The special qualities of hydrogen present pipeline infrastructure with safety and technical difficulties. Pipelines can become weakened by hydrogen embrittlement, a process in which hydrogen atoms pierce metal structures, resulting in cracking, leaks, or catastrophic failures. For long-distance pipelines that operate under high pressure, this risk is especially worrisome. Moreover, hydrogen is more hazardous to transport than traditional fuels due to its high flammability and broad explosive range. Long-term threats to market expansion could come from incidents involving hydrogen leaks or explosions, which could result in public opposition, regulatory scrutiny, and higher insurance costs for hydrogen pipeline projects.

Covid-19 Impact:

The COVID-19 pandemic had a mixed impact on the hydrogen pipeline market, disrupting supply chains, delaying infrastructure projects, and reducing investment in large-scale hydrogen initiatives due to economic uncertainties. Workforce shortages and lockdowns caused project delays, and changes in energy consumption and falling oil and gas prices momentarily lessened the need to expand hydrogen infrastructure. Additionally, governments all over the world have included hydrogen in their stimulus plans and green recovery strategies, but the post-pandemic recovery phase hastened the drive for clean energy. As a result of increased financing for hydrogen projects, decarbonisation policy support, and a renewed emphasis on energy security, the market for hydrogen pipelines has experienced resurgence and is now positioned as a major facilitator of the global hydrogen economy.

The Fixed Pipelines segment is expected to be the largest during the forecast period

The Fixed Pipelines segment is expected to account for the largest market share during the forecast period. Establishing a dependable hydrogen supply chain that links manufacturing plants, storage facilities, industrial users, and refueling stations requires these long-term infrastructures. Large-scale hydrogen distribution can be supported by fixed pipelines, which offer a scalable and sustainable solution to the growing demand for hydrogen from industries like steel production, ammonia production, and fuel cell vehicles. Furthermore, the transition to a low-carbon economy is being aided by governments and energy companies around the world investing in the development of dedicated hydrogen corridors, the expansion of hydrogen pipeline networks, and their integration with existing natural gas infrastructure where practical.

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The Gas segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the Gas segment is predicted to witness the highest growth rate. This growth is driven by the widespread adoption of steam methane reforming (SMR) technology, which utilizes natural gas to produce hydrogen in its gaseous form, accounting for over 96% of large-scale hydrogen production. Integration can be facilitated, and the need for brand-new pipelines can be decreased by frequently repurposing the current natural gas pipeline infrastructure for hydrogen transport. Moreover, the gaseous hydrogen market is poised for substantial growth in the upcoming years due to its versatility and the growing need for hydrogen in a variety of industries.

Region with largest share:

During the forecast period, the Europe region is expected to hold the largest market share, motivated by its steadfast dedication to the decarbonization and clean energy transition goals. The creation of a specialized hydrogen backbone network, which intends to integrate hydrogen pipelines across several nations, is one of the ambitious hydrogen roadmaps set by the European Union. Large-scale hydrogen transportation is made possible by countries like Germany, the Netherlands, and the UK investing heavily in hydrogen infrastructure. Additionally, the European Green Deal and the Hydrogen Strategy for a Climate-Neutral Europe, which offer financial and regulatory frameworks for the development of hydrogen infrastructure, are two examples of the strong policy support that the region enjoys.

Region with highest CAGR:

Over the forecast period, the Middle East & Africa region is anticipated to exhibit the highest CAGR, Green hydrogen is being produced using the region's plentiful renewable energy resources, especially solar and wind, which are the main drivers of this quick expansion. Saudi Arabia and the United Arab Emirates, among other nations, are making significant investments in hydrogen infrastructure in an effort to diversify their economies and lessen their reliance on oil exports. Furthermore, the development of hydrogen pipeline networks is also being expedited by strategic initiatives that seek to establish the region as a global center for hydrogen production and export.

Key players in the market

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Some of the key players in Hydrogen Pipeline Market include Cenergy Holdings SA, Gruppo Sarplast S.r.l, ArcelorMittal, Hexagon Purus ASA, TotalEnergies SE, Welspun Corp., NPROXX B.V., Jindal Saw Limited, Salzgitter AG, H2 Clipper Inc., GF Piping Systems, Pipelife International GmbH, SoluForce B.V. and Tenaris S.A.

Key Developments:

In February 2025, Hexagon Purus has renewed its multi-year supply agreement with a leading European bus manufacturer for the delivery of hydrogen fuel storage systems to transit buses until 2028. Production of the next generation Type 4 hydrogen storage systems will be out of Hexagon Purus' facility in Kassel (Germany).

In September 2024, TotalEnergies has announced the signing of a Heads of Agreement (HoA) with BOTAS for the delivery of 1.1 million tpy of LNG for ten years starting from 2027. This agreement has allowed TotalEnergies to strengthen its long-term presence in the Turkish LNG market. Natural gas plays a crucial role as transition energy, addressing the intermittency of renewable energy sources and reducing emissions by replacing coal in electricity generation.

In July 2023, Tenaris, a global manufacturer of steel pipes and related services, has made a significant move with its recent acquisition of the oil and gas division of isOplus. The deal, valued at $10 million, grants Tenaris ownership of isOplus's pre-insulated pipeline systems for district heating and anti-corrosion coatings in Europe.

Types Covered:

Mobile Pipelines

Fixed Pipelines

Distances Covered:

Upto 300 Km

More than 300 Km

Hydrogen Forms Covered:

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Gas

Liquid

Installation Types Covered:

Above-ground

Underground

Pipeline Structures Covered:

Metal

Plastics & Composites

Applications Covered:

Oil Refining

Chemical Manufacturing

Hydrogen Fuelling Station

Other Applications

End Users Covered:

Commercial

Residential

Institutional & Government

Industrial

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- Transportation

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand

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South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

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- Company Profiling
  - Comprehensive profiling of additional market players (up to 3)
  - SWOT Analysis of key players (up to 3)
- Regional Segmentation
  - Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)
- Competitive Benchmarking
  - Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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