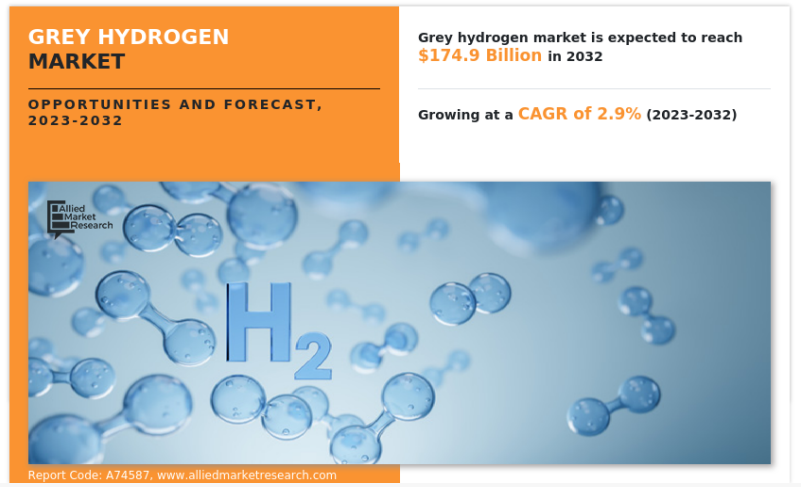
Grey Hydrogen Market Valued at $131.8 Billion in 2022, Estimated to Reach $174.9 Billion by 2032, Growing at 2.9% CAGR

WILMINGTON, DE , UNITED STATES, August 30, 2024 /EINPresswire.com/ -- Grey hydrogen is the form of hydrogen that is produced through the burning of coal or the reformation of natural gas without carbon capture technology.



Grey Hydrogen Market Analysis

The grey hydrogen market was valued at $131.8 billion in 2022, and is estimated to reach $174.9 billion by 2032, growing at a CAGR of 2.9% from 2023 to 2032.

Increased commercial viability, growth in energy demand and industrial applications, rise in demand for hydrogen as alternative fuel, and rise in demand for hydrogen from the transportation sector are the major grey hydrogen market trends for 2022.

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Climate change and net-zero commitments are major reasons for the shift from fossil fuels to alternatives such as synthetic fuels, renewables, nuclear fusion energy, green hydrogen, and others. This acts as a major restrain for the grey hydrogen market growth. Several advanced hydrogen technologies are being developed and countries are positioning themselves to become hydrogen superpowers. Hydrogen is not a direct substitute for coal, oil, and natural gas, but it can help to decarbonize parts of the economy.

Moreover, lacking policy frameworks and a complex value chain of the product discourages the grey hydrogen industry growth. Moreover, an increase in renewable resources and an increase in the production of blue and green hydrogen is expected to largely hamper the market growth during the projection years. Meanwhile, government policy and company strategies will offer lucrative grey hydrogen market opportunities.

The grey hydrogen market size is studied on the basis of source, production method, application, and region. By source, the grey hydrogen market is bifurcated into natural gas, coal, and others. The natural gas segment dominated the grey hydrogen market share for 2022 and is expected to maintain its dominance throughout the forecast period in terms of revenue. The natural gas segment is expected to grow at a higher CAGR as it has comparatively lower carbon emissions.

The primary feedstock used in SMR is natural gas, which is a fossil fuel. As a result, the production of grey hydrogen from natural gas generates significant carbon dioxide emissions, which contribute to climate change.

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In fact, grey hydrogen produced through SMR is responsible for a significant portion of global carbon dioxide emissions. transportation and industrial sectors. As a result, the production of hydrogen through the SMR process has also been increasing to meet this demand. There have been significant advancements in SMR technology, including improvements in reactor design and efficiency, catalyst technology, and heat recovery systems.

These advancements have made SMR more efficient, reducing the cost and environmental impact of hydrogen production. The expansion of natural gas resources in recent years has made natural gas more accessible and affordable, making SMR more economically viable. Depending on the production method, the market is further classified into steam reformation, gasification, and others. Steam reformation method garnered the largest grey hydrogen market share for 2022.

It is also expected to maintain its dominance throughout the projection period in terms of revenue. The production of grey hydrogen through SMR generates significant carbon emissions, with approximately 9-12 kg of carbon dioxide emissions produced per kilogram of hydrogen produced, according to the IEA.

However, advancements in SMR technology, including improvements in reactor design, catalyst technology, and heat recovery systems, have made SMR more efficient, reducing the cost and environmental impact of hydrogen production.

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By application, the market is divided into ammonia production, methanol production, refineries, chemical production, and others. The refineries segment garnered the highest market share for 2022 followed by the ammonia production segment.

The ammonia production segment is expected to grow at a higher CAGR during the projection period. Hydrogen is used in several industrial processes for metallurgy, chemical feedstock, glass, food & beverages sectors and thus acts as a driving factor for the ammonia production and methanol production segments.

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Iberdrola S.A.
Messer Group
Indian Oil Corporation Limited
China National Petroleum Corporation
Air Products & Chemicals Inc.
Reliance Industries Ltd - (RIL) India
Linde plc
Exxon Mobil Corporation
Orsted A/S
Air Liquide

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By source, natural gas is projected to grow at the highest CAGR of approximately 3.1%, in terms of during the grey hydrogen market forecast period.
By the production method, the steam reformation segment dominated the grey hydrogen market share by over 50% in 2021.
By application, the ammonia production segment is projected to grow at the highest CAGR of approximately 3.2%, in terms of during the grey hydrogen market forecast period.

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