

India CNG Market By Source (Associated Gas, Non-Associated Gas, Unconventional Sources), By Application (Light Duty Vehicles, Medium/Heavy Duty Buses, Medium/Heavy Duty Trucks, Others), By Region, Competition, Forecast and Opportunities, 2020-2030F

Market Report | 2024-09-29 | 86 pages | TechSci Research

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Report description:

India CNG Market was valued at USD 22.7 billion in 2024 and is expected to reach at USD 48.45 Billion in 2030 and project robust growth in the forecast period with a CAGR of 13.3% through 2030. The India CNG (Compressed Natural Gas) market is experiencing significant growth driven by its advantages over conventional fuels. As India grapples with escalating air pollution and environmental concerns, CNG has emerged as a preferred alternative due to its lower emissions and cost-efficiency. Government policies and subsidies promoting cleaner energy solutions are further accelerating the market's expansion. The rise in vehicle adoption, especially among public transportation systems, and the expansion of CNG refueling infrastructure are contributing to this growth. Additionally, the push towards reducing the nation's reliance on imported crude oil and fostering energy security through domestic natural gas sources has bolstered the CNG sector. The market's growth is also supported by technological advancements in CNG engine systems and increasing investments in infrastructure development. With urban areas increasingly adopting CNG for public transport and commercial fleets, alongside growing awareness of environmental benefits, the India CNG market is set for robust expansion in the coming years, positioning itself as a key player in the country's energy transition strategy.

Key Market Drivers

Government Policies and Regulations

The Indian government has been a strong advocate for cleaner energy solutions to address environmental concerns and reduce pollution. Policies such as the National Clean Air Programme (NCAP) and the promotion of CNG (Compressed Natural Gas) usage through subsidies and tax incentives have significantly driven the growth of the CNG market. The government's commitment to expanding CNG infrastructure, including the construction of new CNG filling stations and pipelines, has created a conducive

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environment for CNG adoption. Additionally, regulations targeting vehicular emissions and air quality standards compel industries and consumers to switch to cleaner fuels like CNG, further bolstering market growth. The central and state governments' initiatives, including financial support and favorable policies for CNG infrastructure development, underscore their strategic focus on enhancing air quality and reducing greenhouse gas emissions.

Environmental Benefits

CNG is recognized for its environmental benefits compared to traditional fossil fuels. It produces lower levels of carbon dioxide (CO₂), nitrogen oxides (NO_x), and particulate matter, contributing to reduced air pollution and improved public health. As cities like Delhi and Mumbai grapple with severe air quality issues, the demand for CNG as a cleaner fuel alternative has surged. The lower emissions profile of CNG aligns with India's broader environmental goals and climate commitments. This shift is crucial for meeting stringent emission norms and improving urban air quality. The environmental advantages of CNG make it a preferred choice for both public transportation systems and private vehicles, further accelerating its adoption.

Infrastructure Development

The expansion of CNG infrastructure plays a crucial role in driving market growth. The Indian government and private players are investing significantly in the development of CNG refueling stations and pipelines, which enhances the accessibility and convenience of CNG for consumers. Initiatives to establish CNG networks in urban and semi-urban areas, coupled with advancements in CNG distribution technology, support the widespread adoption of CNG vehicles. Enhanced infrastructure not only facilitates easier refueling but also boosts consumer confidence in transitioning to CNG-powered transportation. The strategic expansion of CNG infrastructure across regions ensures that the market can meet the growing demand and support sustainable fuel adoption.

Rising Vehicle Conversion

The growing trend of converting traditional internal combustion engine (ICE) vehicles to CNG-powered engines contributes significantly to the expansion of the CNG market in India. Vehicle owners are increasingly opting for CNG conversion kits to take advantage of the lower fuel costs and environmental benefits. This trend is driven by the availability of affordable and reliable CNG conversion technologies and the incentives provided by the government for adopting cleaner fuels. The rising number of CNG conversion workshops and service centers further supports this trend. As more vehicle owners make the switch to CNG, the demand for CNG infrastructure and fuel continues to rise, bolstering market growth.

Key Market Challenges

Infrastructure Limitations

One of the primary challenges for the India CNG market is the limited infrastructure for CNG distribution and refueling. Despite significant investments in recent years, the network of CNG refueling stations remains inadequate, particularly in rural and semi-urban areas. This limitation affects the accessibility and convenience of CNG for consumers, potentially hindering market growth. The construction of CNG stations requires substantial capital investment and regulatory approvals, which can slow down infrastructure expansion. Additionally, the logistical complexities involved in establishing a widespread pipeline network to transport CNG from production facilities to distribution points contribute to infrastructure challenges. Addressing these infrastructure gaps is crucial for enhancing the market's reach and encouraging more consumers to switch to CNG.

High Initial Costs for Conversion

The initial cost of converting vehicles to run on CNG can be a significant barrier for many consumers. While CNG itself is cost-effective, the upfront investment required for installing CNG conversion kits and modifications can be substantial. This includes costs for purchasing and fitting CNG tanks, regulators, and other essential components. The high initial expenditure can deter vehicle owners from adopting CNG, particularly in a price-sensitive market like India. Although there are government incentives and subsidies available to offset these costs, they may not fully cover the expenses for all consumers. This financial barrier limits the widespread adoption of CNG vehicles and impacts market growth.

Regulatory and Policy Challenges

Navigating the regulatory and policy landscape poses another challenge for the CNG market in India. The sector is subject to various regulations and standards related to safety, emissions, and fuel quality. Ensuring compliance with these regulations requires constant updates and adherence to changing policies, which can be complex and resource-intensive. Additionally, the implementation of policies at the state and local levels can vary, leading to inconsistencies in CNG availability and usage.

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Regulatory hurdles can delay the deployment of CNG infrastructure and affect the overall efficiency of the market. Streamlining regulatory processes and ensuring consistent policy implementation across regions are essential for fostering market growth.

Competition from Alternative Fuels

The India CNG market faces competition from alternative fuels such as electric vehicles (EVs) and hydrogen. As the global automotive industry shifts towards more sustainable energy sources, alternative fuels are gaining traction, supported by advancements in technology and increasing government incentives. Electric vehicles, in particular, are becoming more popular due to their zero-emission status and growing charging infrastructure. Similarly, hydrogen fuel cells are emerging as a viable option for clean transportation. The rise of these alternative fuels presents a competitive challenge to the CNG market, as consumers and businesses may opt for these newer technologies over CNG. To remain competitive, the CNG market must emphasize its own advantages and continue to innovate in terms of fuel efficiency and environmental benefits.

Key Market Trends

Expansion of CNG Infrastructure

The expansion of CNG infrastructure is a key trend driving the growth of the India CNG market. The Indian government and private sector are significantly investing in the development of a robust CNG refueling network to improve accessibility and convenience for consumers. This includes the establishment of new CNG stations, expansion of existing networks, and the development of a comprehensive pipeline infrastructure for efficient CNG distribution. The government's focus on promoting CNG as a cleaner alternative to diesel and petrol has led to increased approvals and support for infrastructure projects. Additionally, cities with high pollution levels are prioritizing CNG infrastructure to combat air quality issues. This trend is expected to continue, with ongoing investments aimed at covering more urban and rural areas, thereby increasing the market's reach and adoption rates.

Government Incentives and Policies

Government incentives and policies are pivotal in shaping the India CNG market. The Indian government has introduced various subsidies and incentives to encourage the adoption of CNG vehicles, including tax benefits, reduced registration fees, and financial assistance for conversion kits. The focus on cleaner fuels aligns with the broader objectives of reducing vehicular emissions and improving air quality. Recent policies also include stricter emission standards for vehicles, which are driving the demand for CNG as a viable alternative. Additionally, supportive policies for the expansion of CNG infrastructure and the establishment of CNG as a priority fuel in urban transport are expected to further boost market growth. The continued evolution of these policies will play a crucial role in driving market dynamics and adoption rates.

Technological Advancements in CNG Vehicles

Technological advancements in CNG vehicles are transforming the market by enhancing fuel efficiency, performance, and consumer appeal. Recent innovations include improved CNG engine technologies, advanced fuel management systems, and enhanced safety features for CNG tanks and components. Automakers are investing in research and development to produce more efficient and reliable CNG vehicles, addressing previous concerns about performance and maintenance. The integration of hybrid technologies, where CNG is used in conjunction with electric power, is also gaining traction. These advancements not only improve the overall driving experience but also contribute to the market's growth by making CNG vehicles more attractive to consumers. As technology continues to evolve, it is expected to drive further adoption and integration of CNG into the Indian automotive market.

Increasing Environmental Awareness

Rising environmental awareness among consumers and policymakers is significantly impacting the India CNG market. Growing concerns about air pollution, climate change, and environmental sustainability are leading to increased adoption of cleaner fuel alternatives. CNG, with its lower emissions compared to diesel and petrol, is seen as a more environmentally friendly option. Public awareness campaigns and educational initiatives are further highlighting the benefits of CNG in reducing greenhouse gases and improving air quality. This shift in consumer behavior, coupled with the government's commitment to environmental sustainability, is driving demand for CNG vehicles and infrastructure. The trend towards eco-friendly solutions is expected to continue, influencing both consumer preferences and regulatory frameworks in favor of CNG.

Growth in CNG-Powered Public Transport

The expansion of CNG-powered public transport is a notable trend in the India CNG market. Many cities across India are

transitioning their public transport fleets to CNG to address urban air pollution and improve air quality. This includes the adoption of CNG buses, auto-rickshaws, and taxis, which are being integrated into public transport systems to offer cleaner alternatives to conventional fuels. Government initiatives and policies are supporting this transition by providing incentives for fleet operators and investing in the necessary infrastructure. The growth in CNG-powered public transport not only contributes to reduced emissions but also drives the overall demand for CNG fuel. As more cities implement similar measures, the market for CNG is expected to expand further, supported by increased usage in urban transport networks and continued government support.

Segmental Insights

Application Insights

The India CNG market was predominantly driven by the segment of Light Duty Vehicles, a category expected to continue its dominance throughout the forecast period. Light Duty Vehicles, which include passenger cars and small commercial vehicles, have emerged as the leading application segment due to their significant share in the overall vehicle population and the growing preference for cleaner fuels. The rise in environmental awareness, coupled with government incentives and subsidies for CNG vehicles, has bolstered the adoption of CNG-powered light duty vehicles. This segment benefits from a combination of cost-efficiency, lower emissions, and favorable policies aimed at reducing urban air pollution. The Indian government's focus on expanding CNG infrastructure and offering tax benefits for CNG vehicles has further fueled the growth of this segment. Additionally, advancements in CNG technology have improved vehicle performance and fuel efficiency, making CNG an increasingly attractive option for light duty vehicles. While Medium/Heavy Duty Buses and Medium/Heavy Duty Trucks also contribute to the market, the Light Duty Vehicles segment stands out due to its larger volume and broader consumer base. The increasing penetration of CNG in the light duty vehicle segment aligns with India's broader objectives of reducing vehicular emissions and promoting sustainable transportation solutions. The continuous expansion of CNG refueling stations and infrastructure supports the ongoing growth and dominance of this segment, ensuring its pivotal role in the Indian CNG market. Consequently, the Light Duty Vehicles segment is expected to maintain its leading position and drive the market's trajectory throughout the forecast period.

Regional Insights

The Northern region of India emerged as the dominant in the CNG market and is projected to maintain its leadership throughout the forecast period. This region, encompassing major states such as Delhi, Uttar Pradesh, Haryana, and Punjab, holds a significant share of the market due to several key factors. The extensive development of CNG infrastructure, including a robust network of refueling stations, has played a crucial role in supporting the widespread adoption of CNG vehicles. The Indian capital, Delhi, in particular, has been a major driver, with stringent air quality regulations and government initiatives promoting the use of CNG as a cleaner alternative to conventional fuels. Additionally, the Northern region benefits from a substantial urban population and a high density of vehicle ownership, which amplifies the demand for cost-effective and environmentally friendly transportation solutions. Government policies, such as subsidies and incentives for CNG vehicles, further bolster the market in this region. Moreover, the Northern region's strategic geographic location facilitates efficient distribution and availability of CNG, contributing to its dominance. As the Indian government continues to prioritize air quality improvements and sustainable transportation, the Northern region's existing infrastructure and supportive policies are expected to sustain its leading position. The region's ongoing investments in expanding the CNG refueling network and promoting CNG adoption among various vehicle segments underscore its pivotal role in the market. Consequently, the Northern region is well-positioned to retain its dominance in the India CNG market, driven by its advanced infrastructure, policy support, and high demand for cleaner transportation solutions.

Key Market Players

- Indian Oil Corporation Limited
- Bharat Petroleum Corporation Limited
- Hindustan Petroleum Corporation Limited
- GAIL (India) Limited
- Tata Power Company Limited
- Reliance Industries Limited
- Mahanagar Gas Limited
- Indraprastha Gas Limited

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□ Sabarmati Gas Limited

□ Gujarat Gas Limited

Report Scope:

In this report, the India CNG Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

□ India CNG Market, By Source:

- o Associated Gas
- o Non-Associated Gas
- o Unconventional Sources

□ India CNG Market, By Application:

- o Light Duty Vehicles
- o Medium/Heavy Duty Buses
- o Medium/Heavy Duty Trucks
- o Others

□ India CNG Market, By Region:

- o North India
- o South India
- o West India
- o East India

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the India CNG Market.

Available Customizations:

India CNG Market report with the given market data, TechSci 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).

Table of Contents:

1. Product Overview
 - 1.1. Market Definition
 - 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations
2. Research Methodology
 - 2.1. Objective of the Study
 - 2.2. Baseline Methodology
 - 2.3. Formulation of the Scope
 - 2.4. Assumptions and Limitations
 - 2.5. Sources of Research
 - 2.5.1. Secondary Research
 - 2.5.2. Primary Research
 - 2.6. Approach for the Market Study
 - 2.6.1. The Bottom-Up Approach
 - 2.6.2. The Top-Down Approach
 - 2.7. Methodology Followed for Calculation of Market Size & Market Shares
 - 2.8. Forecasting Methodology

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- 2.8.1.Data Triangulation & Validation
- 3. Executive Summary
- 4. Voice of Customer
- 5. India CNG Market Overview
- 6. India CNG Market Outlook
 - 6.1. Market Size & Forecast
 - 6.1.1.By Value
 - 6.2. Market Share & Forecast
 - 6.2.1.By Source (Associated Gas, Non-Associated Gas, Unconventional Sources)
 - 6.2.2.By Application (Light Duty Vehicles, Medium/Heavy Duty Buses, Medium/Heavy Duty Trucks, Others)
 - 6.2.3.By Region (North India, South India, West India, East India)
 - 6.3. By Company (2024)
 - 6.4. Market Map
- 7. North India CNG Market Outlook
 - 7.1. Market Size & Forecast
 - 7.1.1.By Value
 - 7.2. Market Share & Forecast
 - 7.2.1.By Source
 - 7.2.2.By Application
- 8. South India CNG Market Outlook
 - 8.1. Market Size & Forecast
 - 8.1.1.By Value
 - 8.2. Market Share & Forecast
 - 8.2.1.By Source
 - 8.2.2.By Application
- 9. West India CNG Market Outlook
 - 9.1. Market Size & Forecast
 - 9.1.1.By Value
 - 9.2. Market Share & Forecast
 - 9.2.1.By Source
 - 9.2.2.By Application
- 10. East India CNG Market Outlook
 - 10.1. Market Size & Forecast
 - 10.1.1. By Value
 - 10.2. Market Share & Forecast
 - 10.2.1. By Source
 - 10.2.2. By Application
- 11. Market Dynamics
 - 11.1. Drivers
 - 11.2. Challenges
- 12. Market Trends and Developments
- 13. Company Profiles
 - 13.1. Indian Oil Corporation Limited
 - 13.1.1. Business Overview
 - 13.1.2. Key Revenue and Financials
 - 13.1.3. Recent Developments
 - 13.1.4. Key Personnel/Key Contact Person

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- 13.1.5. Key Product/Services Offered
- 13.2. Bharat Petroleum Corporation Limited
 - 13.2.1. Business Overview
 - 13.2.2. Key Revenue and Financials
 - 13.2.3. Recent Developments
 - 13.2.4. Key Personnel/Key Contact Person
 - 13.2.5. Key Product/Services Offered
- 13.3. Hindustan Petroleum Corporation Limited
 - 13.3.1. Business Overview
 - 13.3.2. Key Revenue and Financials
 - 13.3.3. Recent Developments
 - 13.3.4. Key Personnel/Key Contact Person
 - 13.3.5. Key Product/Services Offered
- 13.4. GAIL (India) Limited
 - 13.4.1. Business Overview
 - 13.4.2. Key Revenue and Financials
 - 13.4.3. Recent Developments
 - 13.4.4. Key Personnel/Key Contact Person
 - 13.4.5. Key Product/Services Offered
- 13.5. Tata Power Company Limited
 - 13.5.1. Business Overview
 - 13.5.2. Key Revenue and Financials
 - 13.5.3. Recent Developments
 - 13.5.4. Key Personnel/Key Contact Person
 - 13.5.5. Key Product/Services Offered
- 13.6. Reliance Industries Limited
 - 13.6.1. Business Overview
 - 13.6.2. Key Revenue and Financials
 - 13.6.3. Recent Developments
 - 13.6.4. Key Personnel/Key Contact Person
 - 13.6.5. Key Product/Services Offered
- 13.7. Mahanagar Gas Limited
 - 13.7.1. Business Overview
 - 13.7.2. Key Revenue and Financials
 - 13.7.3. Recent Developments
 - 13.7.4. Key Personnel/Key Contact Person
 - 13.7.5. Key Product/Services Offered
- 13.8. Indraprastha Gas Limited
 - 13.8.1. Business Overview
 - 13.8.2. Key Revenue and Financials
 - 13.8.3. Recent Developments
 - 13.8.4. Key Personnel/Key Contact Person
 - 13.8.5. Key Product/Services Offered
- 13.9. Sabarmati Gas Limited
 - 13.9.1. Business Overview
 - 13.9.2. Key Revenue and Financials
 - 13.9.3. Recent Developments

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- 13.9.4. Key Personnel/Key Contact Person
- 13.9.5. Key Product/Services Offered
- 13.10. Gujarat Gas Limited
 - 13.10.1. Business Overview
 - 13.10.2. Key Revenue and Financials
 - 13.10.3. Recent Developments
 - 13.10.4. Key Personnel/Key Contact Person
 - 13.10.5. Key Product/Services Offered
- 14. Strategic Recommendations
- 15. About Us & Disclaimer

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