



Study On Examining The Primary Market Driver Of CGD In India

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ABSTRACT

In order to enhance the proportion of natural gas in India's energy composition from its current level of 6.2 percent to 15 percent by the year 2030, the government has been implementing various measures concurrently. These activities are being undertaken with the aim of addressing environmental concerns. There is a proposed expansion of the natural gas trunk pipelines, establishment of liquefied natural gas (LNG) terminals on both the east and west coasts of the nation, and implementation of City Gas Distribution (CGD) networks throughout the country. This study employs a qualitative research design, utilising data gathered from several sources including one-on-one interviews featuring open-ended questionnaires, telephonic interviews, and material obtained from secondary sources. Secondary research involves the use of reliable data sources such as reports from esteemed government organisations like PNGRB, PPAC, MoPNG, and others. In the period from 2018 to 2021, the sectoral regulator has demonstrated impressive performance by allocating considerable geographical regions for the construction of City Gas Distribution (CGD) projects through various CGD rounds. In order to bolster the secondary research, the author has gathered primary data through the administration of expert interviews. These interviews involved 15 industry experts, each possessing an average of over 15 years of experience. The objective of these interviews was to get insight into the perspectives of these experts about the influence of market drivers on the expansion of the City Gas Distribution (CGD) sector in India.

Keywords: City Gas Distribution, CGD, Coal Replacement, Clean fuel, Energy, Natural Gas.

1. Introduction

In addition to the anchor clients such as power, fertiliser, petrochemical plants, and refineries, the City Gas Distribution industry holds significant importance. In order to promote the adoption of clean fuel in the transportation, home, and industrial sectors, the government sought to enhance the utilisation of Compressed Natural Gas (CNG) and Piped Natural Gas (PNG). Consequently, the Petroleum and Natural Gas Regulatory Board (PNGRB) awarded a total of 136 authorizations to City Gas Distribution (CGD) organisations during the 9th and 10th bidding rounds. The proposed initiative has the capacity to encompass approximately 53% of the country's geographical area (GA) and cater to approximately 70% of its inhabitants. The current count of compressed natural gas (CNG) stations is projected to have a significant growth, surpassing 10,000 in number. Similarly, there is a proposal to augment the quantity of domestic PNG connections from 5.5 million to 40 million. The CGD sector is projected to require an investment ranging from Rs. 900 to 1200 billion by the year 2030.

The growth of CGD networks has shown significant acceleration within the past 5-6 years. **Table 1** presents a comprehensive overview of the historical development and distribution of CGD networks.

Furthermore, it should be noted that the Petroleum and Natural Gas Regulatory Board (PNGRB) has already made public its plans for the 11th round of bidding, which has the potential to expand the city gas distribution (CGD) network to an additional 65 geographical areas. The government and the Petroleum and Natural Gas Regulatory Board (PNGRB) are continuously endeavouring to enhance the coverage of the City Gas Distribution (CGD) network across the nation. The government provides the essential impetus for the development of City Gas Distribution (CGD) infrastructure throughout the nation. Nevertheless, the transition

from alternative fuel sources to natural gas will occur solely when it attains cost competitiveness. The primary concern of customers is on the economic aspects of natural gas in comparison to other competing fuels. Consequently, the availability of domestic natural gas or imported liquefied natural gas (LNG) at a competitive price will enhance the rate of adoption of natural gas.

Table 1 CGD Network Expansion in India

	Category	Year	Category-wise % area of India	Cumulative	Category-wise population coverage (%)	Cumulative population coverage (%)	Category- wise GA	Cumulative GA
1	Pre-PNGRB		3.02	3.02	9.67	9.67	31	31
2	Round 1	2008	0.03	3.05	0.33	10.00	6	37
3	Round 2	2009	0.03	3.08	0.23	10.23	3	40
4	Round 3	2010	1.21	4.29	0.77	11.00	6	46
5	Round 4	2013	1.29	5.58	2.27	13.27	9	55
6	Round 5	2015	1.82	7.40	2.04	15.31	8	63
7	Round 6	2015	2.02	9.42	2.07	17.38	18	81
8	Round 7	2016	0.46	9.88	0.36	17.74	1	82
9	Round 8	2016	0.57	10.45	0.94	18.68	6	88
10	Section 42		0.61	11.06	1.57	20.25	6	94
11	Round 9	2018	23.82	34.88	26.38	46.63	86	180
12	Round 10	2018	19.92	52.8	24.32	70.86	50	230

Source: compiled by authors from published sources [15].

Natural gas is a necessary fuel used to power numerous activities in the domestic and commercial sectors. The demand for gas in households has been increasing over the years. It is used not just for cooking but also for several other activities like space heating, generating power, heating water, air conditioning, powering vehicles, etc. There is a greater focus on the single switch technology wherein the gas main supply switch needs to turn on, enabling households to carry out all these gas-related activities. In the commercial sector, the gas has more or less similar uses, but the demand is much higher due to large-scale operations. The Combined Heat and Power (CHP) model is getting popular.

1.1 Catalyst for growth of City Gas Distribution

The City Gas Distribution (CGD) network in India is anticipated to exhibit a compound annual growth rate (CAGR) of 10% from 2020 to 2030, according to the report titled "India City Gas Distribution Market By Type, By Source of Supply, By End Use, Competition, Forecast & Opportunities, 2015 – 2030." The expansion of the country's compressed natural gas (CGD) market can be ascribed to the convenient availability and accessibility of cost-competitive natural gas compared to other forms of liquid fuel. The period from 2020 to 2030 is expected to see significant expansion in the country's compressed natural gas (CNG) distribution network. This increase can be attributed to the increasing number of automobiles, as well as the expanding population and urbanisation trends observed throughout the country. Additionally, the development potential in the country's Compressed Natural Gas (CGD) market is substantial, given that the construction of the CGD network in India is a high-priority objective for the Indian Government.

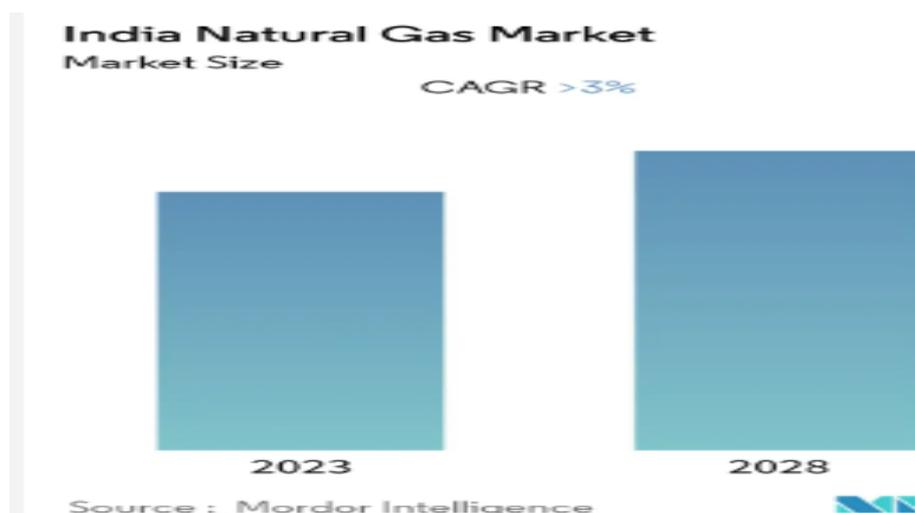


Figure1: Natural Gas Market 2023 vs 2028

1.2 City Gas Distribution Networks

The objective of implementing a municipal gas distribution network is to promote the utilisation of natural gas for fuel-related purposes among both residential and industrial sectors. Due to its relatively lower environmental impact, natural gas assumes a significant part in the realisation of the Indian government's ambitious objective to attain carbon neutrality by the year 2070. The issue of pollutant emissions stemming from conventional fuels such as petrol and diesel is a significant concern. However, natural gas presents itself as a viable and secure alternative to these fuels.

The government intends to expand the reach of natural gas distribution to encompass a greater number of households and commercial sectors as part of the city gas distribution project. Furthermore, this practise offers significant benefits as it addresses the issue of mortality among individuals residing in rural regions who are at risk of losing their lives when preparing meals through the utilisation of firewood, cow dung, and similar resources. These sources emit a significant quantity of soot and smoke, which can be highly hazardous when ingested in substantial quantities.

The utilisation of natural gas would enhance the quality of life for individuals. Piped gas connections are currently being implemented in residences located in major Indian cities such as Delhi, Mumbai, Kolkata, Bangalore, among others. The proposed strategy aims to construct piped gas connections in about 35 million businesses by the year 2029.

1.3 Government Initiatives related to CGD in India

In recent years, the government has implemented several measures in the City Gas Distribution (CGD) sector. As a result, there has been a rise in the number of firms being authorised and granted licences in Rounds 9 and 10 to engage in CGD operations across various regions within the nation. The regulations concerning the authorization of City Gas Distribution networks were revised in 2018. The implementation of updated laws has facilitated increased involvement from both the public and private sectors in the country's City Gas Distribution (CGD) market. As a result, the coverage of the CGD network has expanded to encompass 228 Geographical Areas (GAs), representing approximately 70.86% of the total population and 52.80% of the country's land area.

Compressed Natural Gas (CNG) is commonly employed within the transportation sector as a fuel source for vehicles. On the other hand, Piped Natural Gas (PNG) finds application as a fuel source for domestic consumers (such as houses), commercial consumers (including hotels, offices and canteens), as well as industrial consumers (such as dryers, boilers and furnaces) around the country. The automotive end use segment is the dominant force in the current Compressed Natural Gas (CNG) industry in India. This is mostly due to the rising environmental consciousness among customers and the concurrent increase in the number of CNG vehicles. Additionally, it is expected that the PNG segment would experience growth until 2030. This can be attributed to predicted developments in the CGD sector and the rising emphasis placed by the government on expanding the PNG network across the entire country.

The government's efforts to promote Smart City Projects and enhance gas pipeline infrastructures in the country are expected to stimulate the growth of the city gas distribution market. This is due to the anticipated installation of city gas distribution networks in households as a result of the new infrastructure developments. The implementation of diverse governmental initiatives aimed at encouraging the adoption of Piped Natural Gas (PNG) within both the industrial and commercial sectors is anticipated to positively impact the growth of the City Gas Distribution market in India.

In the domain of City Gas Distribution, the domestically sourced supply accounted for the largest proportion of the market share in the year 2019. The West region holds a dominant position in the market due to a significant number of projects in the initial phase of the CGD Bidding Rounds. Nevertheless, the growing

emphasis of the government on transitioning towards a gas-based economy has been driving the market for City Gas Distribution (CGD) in the Eastern and Southern areas of the country. Several prominent companies active in the India City Gas Distribution market include Indraprastha Gas Limited (IGL), GAIL Gas Limited, Mahanagar Gas Limited (MGL), Gujarat Gas Limited (GGCL), Adani Gas Limited, Maharashtra Natural Gas Limited (MNGL), and Central U.P. Gas Limited (CUGL), among others.

1.4 Industry Trends

According to the data from January 2020, a substantial portion of the urban gas distribution infrastructure is comprised of residential households. According to the Petroleum and Natural Gas Regulatory Board's Petroleum Planning and Analysis Cell, commercial units exhibit a relatively low proportion. As of January 2020, the total number of connections for Piped Natural Gas (PNG) in residential households amounted to 5.9 million, while commercial units and industrial establishments accounted for 29 thousand and 10 thousand connections, respectively.

The government has formulated a strategic initiative aimed at ensuring that by the year 2030, about 96% of the population in India will have access to natural gas connections. The significant increase in petrol and diesel prices has also prompted car owners to modify their engines to be compatible with compressed natural gas (CNG). As of January 2021, the number of Compressed Natural Gas (CNG) stations in India was recorded to be 2,713. Within the context of the CGD project, there would be a significant rise in the number of CNG stations, resulting in the establishment of new stations in various states and union territories.

The dominant entity in this industry is IGL (Indraprastha Gas Limited), which has facilitated the highest number of installations for piped natural gas connections. The market is projected to see a compound annual growth rate (CAGR) of 15% over the forthcoming five-year period. The growth trajectory would be propelled by the demand emanating from families.

2. Literature Review

The empirical investigation of customer-oriented service activities within the Taiwanese public sector was undertaken by **Chi-kuang Chen, Chang-hsi Yu, and Hsiu-chen Chang (2005)**. The research findings demonstrated a statistically significant and favourable correlation between the implementation of customer-oriented service initiatives and the enhancement of overall service quality. The study specifically discovered that the implementation of customer-centric strategies and active engagement with constituents in public sector organisations resulted in notable improvements in service quality, customer happiness, and operational efficiency. This study highlights the significance of placing customer-centric initiatives as a top priority in the public sector, with the aim of enhancing service quality and bolstering the overall efficacy of government organisations.

In a study article authored by **Professor Azhar and published in the OPEC Review in 2007**, a noteworthy discovery was presented regarding the importance of natural gas in India's energy management. The research emphasises the significance of natural gas as a crucial element in India's endeavours to broaden its energy portfolio and strengthen energy resilience. The substitution of carbon-intensive fuels such as coal and oil with natural gas has significantly contributed to the mitigation of greenhouse gas emissions and the improvement of air quality inside the nation. Furthermore, the findings of the study suggest that the enhanced use of natural gas across multiple sectors, such as power generation, industrial processes, and transportation, has played a significant role in fostering a more environmentally friendly and diversified energy mix in India. This discovery highlights the significance of natural gas as a more environmentally friendly and effective energy option within India's energy management framework.

In their comprehensive review of city gas distribution in India, **Kudaisya and Kar (2017)** provide a valuable insight into the dynamics of India's rapidly evolving natural gas sector. A significant research finding from their study highlights the transformative impact of city gas distribution networks in improving energy accessibility and reducing environmental pollution. The authors note that the expansion of city gas distribution has led to greater availability of cleaner natural gas for domestic, industrial, and transportation purposes, thereby contributing to reduced reliance on more polluting fuels such as coal and oil. This research underscores the critical role of city gas distribution in India's energy transition, aligning with the country's goals to enhance energy security, lower emissions, and improve air quality, while also promoting economic development through increased access to natural gas.

Birol's (2019) "World Energy Outlook" offers a thorough examination of worldwide energy patterns and delivers significant perspectives on the prospective trajectory of the energy industry. A noteworthy research discovery highlighted in the paper pertains to the escalating significance of renewable energy sources within the worldwide energy domain. This observation underscores the tremendous expansion of renewable energy sources, including solar and wind power, which are poised to emerge as the predominant means of electricity production in the forthcoming decades. This discovery highlights the trend towards adopting cleaner and more sustainable energy systems as countries endeavour to address climate change and decrease their reliance on fossil fuels. The insights presented in the paper provide a significant resource for policymakers, stakeholders in the energy business, and researchers, enabling them to make well-informed decisions and influence the trajectory of global energy transitions.

The **Annual Report for the fiscal year 2021-2022 by the Gas Authority of India Limited (GAIL)** provides valuable insights into the operational and financial performance of the organisation, as well as the current status of the natural gas business in India. The report highlights the robust financial performance of GAIL, characterised by increasing sales and earnings, which serves as evidence of the company's resilience and expansion within the market. The statement emphasises GAIL's continuous dedication to bolstering its position across the value chain, improving operational efficiency, and developing its infrastructure for the transmission and distribution of natural gas. The report also underscores the need of renewable energy sources, specifically focusing on GAIL's efforts to advocate for natural gas as a feasible alternative to traditional fuels. The report additionally highlights the organization's commitment to social responsibility and environmental stewardship through several initiatives. The GAIL Annual Report for the fiscal year 2021–2022 provides an overview of the organization's achievements, strategic objectives, and its significant role in fostering the development of the natural gas sector in India.

The **Energy Policy Review of India conducted by the International Energy Agency (IEA) in 2021** offers valuable insights into the energy landscape of India. The report emphasises the notable progress made by India in enhancing the availability of clean cooking fuels and power, alongside the ambitious targets set for renewable energy. The statement emphasises the efforts undertaken by the country to enhance energy security, increase the adoption of renewable energy resources, and encourage energy efficiency. The evaluation highlights various challenges, such as air pollution, subsidies allocated to fossil fuels, and the need for enhanced investment in grid infrastructure. The research conducted by the International Energy Agency (IEA) highlights the importance of implementing policy reforms to accelerate the energy transition in India, promote the diversification of its energy sources, and facilitate sustained economic growth in the long run. The Energy Policy Review yielded comprehensive findings of India's achievements, challenges, and prospective strategies in the realm of its energy industry.

The **Maharashtra Natural Gas Limited (MNGL) Sustainability Report for the period of 2021-2022** presents noteworthy discoveries regarding the company's sustainability performance. The research highlights MNGL's commitment to fostering economic development, upholding social responsibility, and promoting environmental sustainability. This statement showcases the company's commitment to promoting environmentally friendly energy solutions through the improvement of natural gas infrastructure and the adoption of energy-conserving technologies. The research additionally emphasises the endeavours of MNGL in fostering safety, employee welfare, and community involvement. Additionally, it underscores the company's involvement in reducing greenhouse gas emissions and advancing a more environmentally sustainable energy infrastructure. The MNGL Sustainability Report demonstrates the organization's dedication to implementing sustainable practises and highlights the positive impacts it has on both the environment and society at large.

Dubey et al. (2023) conducted a study that examined the potential future use of natural gas within the framework of climate targets that are becoming ever more rigorous. The findings of their research were published in the journal *Futures*. The findings of the study indicate that natural gas has been regarded as a temporary energy solution owing to its relatively lower carbon emissions in comparison to coal and oil. However, its position within an energy framework aimed at reducing carbon emissions is multifaceted. The implications of the research indicate that the future use of natural gas will be contingent upon the progress and implementation of sophisticated carbon capture and utilisation technologies, alongside the accessibility of low-carbon or renewable gases such as hydrogen and biomethane. The report highlights the imperative for policy support and innovation within the natural gas sector to facilitate its sustainable integration into a low-carbon energy system, as climate objectives become increasingly ambitious.

3. Significance of the study

The significance of this study relies in its ability to shed light on the crucial role of the CGD sector in India's sustainable energy transition, economic resilience, and inclusive development. The industry plays a significant role in promoting a sustainable and prosperous future for India by tackling environmental issues, improving energy affordability, and strengthening economic viability.

The aforementioned observations possess extensive ramifications for policymakers, corporations, and the general populace as they negotiate the dynamic energy environment in their pursuit of a more sustainable and affluent India.

4. Research Methodology

4.1 Objectives of the study:

1. To understand consumer behaviour related to the adoption of natural gas.
2. To study the factors influencing consumers' decisions, such as cost savings and environmental concerns.

4.2 Data Collection:

The interviews were arranged by the researcher at a mutually convenient time for the industry experts. The interviews were performed using three different methods: in-person, phone, or video conferencing. The selection of the method was based on logistical factors and the interests of the participants.

During the interview process, the researcher utilised open-ended questionnaires to collect information and expertise derived from the insights and experiences of experts. The researcher diligently recorded comprehensive observations during the discourse.

4.3 Sampling:

Considering the particular characteristics of the study, purposeful sampling is deemed to be suitable. The objective is to identify and recruit individuals who possess a high level of knowledge and expertise in the domain of Comprehensive Geriatric Care (CGD) in India. For this particular scenario, a group of 15 industry professionals, each with an average of over 15 years of practical expertise, were selected. The researcher initiated communication with potential participants by leveraging industrial networks, professional organisations, or referrals. The researcher provided a thorough explanation of the goal and objectives of the interview.

4.4 Variables of the study

Key demand drivers for the City Gas Distribution (CGD) sector in India, based on the provided information, include:

1. **Rising Vehicle Population:** The escalating quantity of automobiles in the urban transportation industry serves as a prominent catalyst. The increasing adoption of compressed natural gas (CNG) as a fuel for automobiles will result in a corresponding rise in the need for compressed natural gas distribution (CGD) services, which encompass the provision of CNG filling stations.
2. **Affordability:** The comparative cost of the CGD sector in relation to other sectors such as power and fertiliser renders it an appealing choice for both consumers and enterprises. The increased affordability of natural gas serves as a catalyst for the wider acceptance and use of this energy source.
3. **Economic Viability:** The utilisation of natural gas in lieu of alternative fuels has a significant economic benefit, hence serving as a prominent motivator. Both businesses and consumers exhibit a preference for natural gas mostly driven by its cost-effectiveness, hence contributing to an increased demand for this energy source.
4. **Environmental Concerns:** The increasing awareness of environmental issues, particularly within the automotive and industrial sectors, is a crucial factor contributing to market demand. Natural gas is widely seen as a more environmentally friendly substitute for conventional fossil fuels, which has resulted in its growing acceptance due to its reduced emissions characteristics.
5. **Coal Replacement:** Within the industrial sector, there exists a compelling necessity to substitute coal with alternative energy sources that possess a higher level of environmental cleanliness. This particular driving force significantly contributes to the increasing demand for natural gas. Industries are increasingly adopting natural gas as a viable alternative in their efforts to mitigate carbon emissions and adhere to environmental mandates.
6. **Energy Security:** The utilisation of natural gas has the potential to bolster energy security through a reduction in reliance on imported fossil fuels. This factor serves as a catalyst for government and industrial entities to allocate resources towards the development and enhancement of compressed natural gas (CNG) distribution infrastructure and related services.
7. **Government Policies and Initiatives:** The demand for natural gas can be greatly influenced by government support, which encompasses various incentives and policies aimed at increasing its use. The adoption of natural gas can be facilitated through the implementation of subsidies, tax incentives, and regulatory frameworks that are favourable towards its utilisation.
8. **Urbanization:** The current process of urbanisation in India is resulting in a heightened need for City Gas Distribution (CGD) services inside urban regions. The demand for cleaner and more efficient energy sources, such as natural gas, becomes increasingly evident when urban areas experience growth.
9. **Technological Advancements:** The development of technological innovations pertaining to natural gas, such as the enhancement of compressed natural gas (CNG) engines and associated infrastructure, has the potential to stimulate demand by increasing the convenience and cost-efficiency of transitioning to natural gas as an energy source.
10. **Infrastructure Expansion:** The ongoing construction of city natural gas (CNG) infrastructure, which encompasses the establishment of pipelines and distribution networks, serves to address the increasing demand for this energy source and promote its utilisation across diverse applications.
11. **International Energy Trends:** The CGD sector in India can be influenced by global energy trends and the acknowledgment of natural gas as a transitional fuel in the shift towards renewable energy sources, thereby aligning it with internationally recognised best practises.

The above-mentioned demand drivers jointly contribute to the accelerated expansion of the City Gas Distribution industry in India, rendering it an integral component of the nation's energy framework.

5. Analysis & Findings

The research findings indicate several key points regarding the City Gas Distribution (CGD) sector in India:

1. **Rapid Growth:** The development industry focused on corporate social responsibility (CSR) in India has shown substantial expansion in recent years. The expansion is propelled by a multitude of factors,

encompassing heightened market demand for natural gas as a more environmentally friendly and efficient energy alternative.

2. CNG Filling Stations: The proliferation of Natural Gas filling stations is increasing throughout the City Transport Sector. The rationale behind this growth is driven by the escalating use of natural gas as a viable alternative fuel for vehicles. Natural Gas is favoured in light of its reduced ecological footprint in comparison to conventional petrol or diesel fuels.

3. Affordability: The consumer goods and durables (CGD) industry exhibits a favourable affordability aspect, catering to both individual customers and enterprises. The affordability of this sector has rendered it more resilient in the context of volatile petrol prices, in contrast to other industries such as electricity generating and fertiliser manufacture.

4. Economic Viability: Natural gas has demonstrated economic viability in comparison to other competing fuels across various user segments within the CGD (City Gas Distribution) sector. The economic benefit associated with this technology plays a crucial role in its widespread adoption across diverse applications.

5. Environmental Benefits: The available data indicates that environmental considerations are significantly influencing the adoption and utilisation of natural gas. This phenomenon is especially evident within the automotive and industrial sectors; wherein natural gas is progressively being employed as a substitute for coal. Natural gas is characterised by lower emissions of pollutants and greenhouse gases, rendering it a more ecologically advantageous option.

6. Automotive and Industrial Segment: Within the automobile sector, there is a growing trend towards the use of natural gas as a more environmentally friendly substitute for conventional petrol and diesel fuels. In addition to the mitigation of pollutants, compressed natural gas (CNG) also has financial advantages for car owners. Within the industrial sector, there is a notable shift towards the utilisation of natural gas as a substitute for coal as a primary fuel source. This transition is contributing to a significant reduction in carbon emissions.

In conclusion, the research results emphasise the swift expansion and escalating significance of the City Gas Distribution business in India. The use of natural gas is being driven by its affordability, economic feasibility in relation to alternative fuels, and environmental advantages, particularly within the automotive and industrial sectors. The persistence of this trend is anticipated due to the increasing significance of environmental concerns and the demand for more sustainable energy sources within India's energy sector.

6. Discussions

The research findings highlight the notable expansion trajectory observed in India's City Gas Distribution (CGD) industry, which can be attributable to a confluence of influential variables. The increasing need for natural gas as a more environmentally friendly and efficient energy option is driving this growth. The increasing number of Compressed Natural Gas (CNG) filling stations in the City Transport Sector corresponds to the growing inclination for CNG, which is principally motivated by its diminished environmental impact in comparison to traditional petrol and diesel fuels. The sector's capacity to provide affordable options for both consumers and businesses serves as a resilient safeguard against volatile petrol prices, distinguishing it from other industries with high energy demands. Furthermore, the demonstrated economic feasibility of natural gas compared to competing fuels in various user categories within the City Gas Distribution (CGD) sector supports its attractiveness, particularly in a rapidly growing nation such as India. Simultaneously, the study emphasises the growing significance of environmental factors, particularly in the automotive and industrial sectors. Natural gas serves as a cleaner alternative to coal and contributes to reducing emissions, while also enhancing cost-effectiveness, so sustaining its increasing prominence. In summary, our findings shed light on the significant significance of the CGD sector in India's energy sector, which is expected to flourish as the country's developmental strategy increasingly prioritises environmental awareness and the adoption of cleaner energy sources.

7. Conclusion

India is currently pursuing a strategic direction to transition into a gas-dependent economy, as evidenced by the government's ambitious programmes targeted at substantially augmenting the proportion of natural gas in the country's overall energy composition. As of the year 2010, the proportion of natural gas in the overall energy composition was quite moderate, amounting to approximately 11%. However, the government has formulated a comprehensive strategy aimed at significantly increasing this percentage to an astounding 20% by the year 2025.

The City Gas Distribution (CGD) project plays a crucial role in achieving this strategic objective. This project is playing a crucial role in the effort to increase the adoption of natural gas throughout the nation. The CGD project is progressively incorporating additional families and business enterprises into its expansive network, so establishing a significant foundation for the expansion of the natural gas market in the foreseeable future.

One of the key advantages of this expansion is in the mitigation of India's dependence on petroleum-derived energy. The increasing adoption of natural gas by consumers and companies inside the CGD network contributes to a reduction in the country's susceptibility to price volatility and supply concerns commonly experienced in the petroleum industry. This strategic realignment not only improves energy security but also

fits with international sustainability objectives through the reduction of carbon emissions and dependence on fossil fuels.

It is noteworthy that the regulation and supervision of the urban gas distribution project are under the jurisdiction of the Petroleum and Natural Gas Regulatory Board (PNGRB), an organisation lawfully authorised by the Indian government for this specific task. The PNGRB assumes a pivotal role in guaranteeing the effective and fair advancement of the CGD sector, hence maintaining the energy security and sustainable development of the nation.

In conclusion, India has made intentional efforts to increase the proportion of natural gas in its energy composition as it progresses towards becoming a gas-oriented economy. The important role of the CGD project is in its extension, which serves to attract a greater number of families and companies to its network. This, in turn, contributes to the development of a more varied and sustainable energy landscape. Under the supervision of the PNGRB, India is strategically positioned to achieve its ambitious energy objectives and decrease its dependence on traditional petroleum-derived fuels.

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