Moving towards cleaner fuels

The rise of CNG, hybrids and EVs

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Introduction

As climate changes intensify, consumers across segments are demanding sustainable alternatives – and the automotive industry is no exception. Clean(er) fuel options make up a rising share of India's passenger vehicle market and this trend is expected to only strengthen in the years ahead. This research article examines the current market dynamics in terms of consumer demand, manufacturer preferences and government policy, aiming to identify which of the three broad types of 'green alternatives' – compressed natural gas (CNG), hybrid and electric vehicles (EVs) – are likely to come out ahead in the longer term.

Consumers: Demanding greener alternatives

While 'pure' petrol and diesel vehicles continue to dominate the Indian market, the share of CNG, hybrid and electric vehicles is rising rapidly. Over April-December 2024[1], registrations of CNG and hybrid cars increased by 14% and 13%, respectively. EV registrations, which lagged slightly in the first half of the year, achieved an impressive 23% growth by the end of December. In contrast, fossil-fuel-powered vehicles saw marginal (petrol 7%; diesel 1%) growth during the same period.

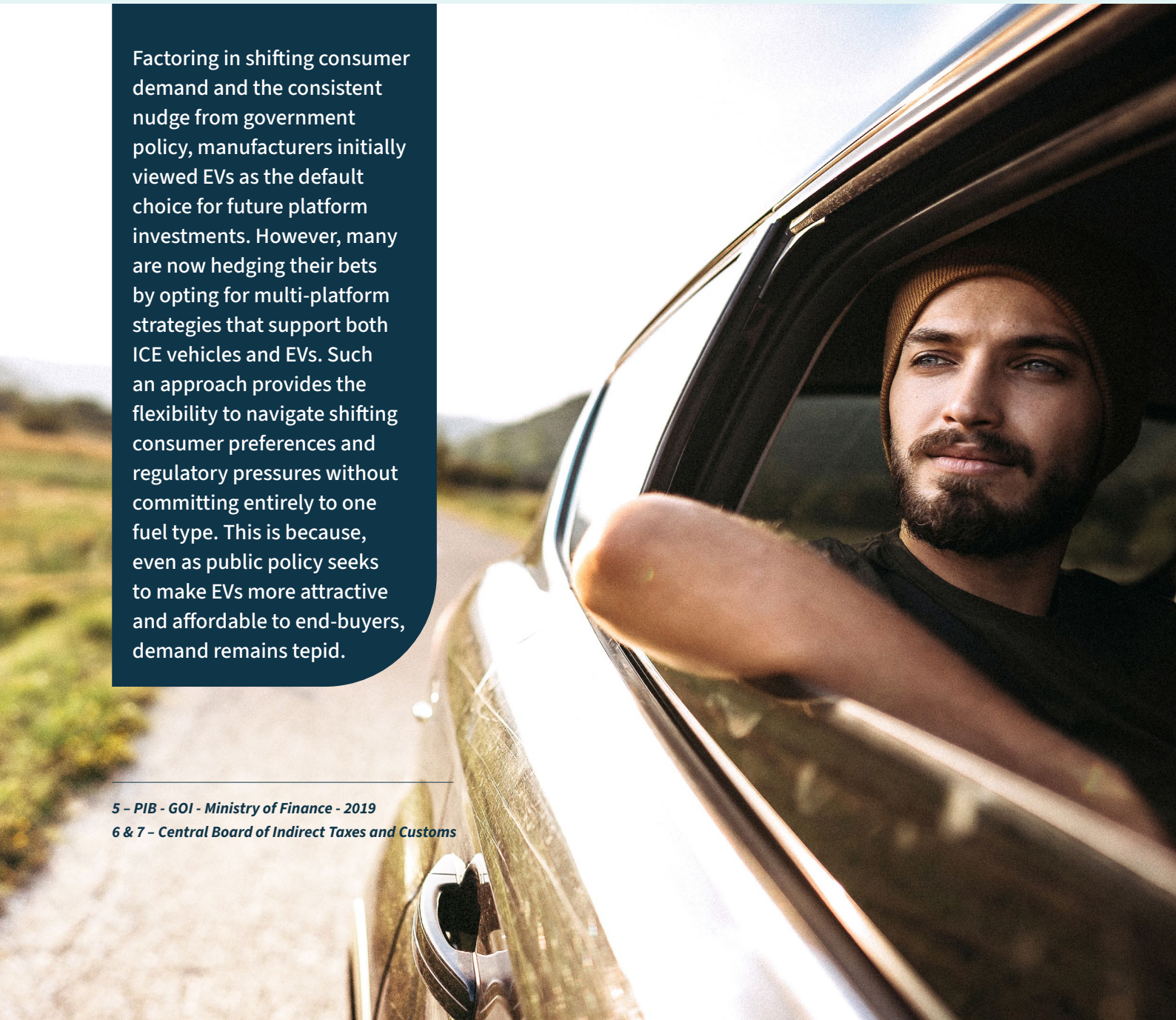
According to Deloitte's Global Automotive Consumer Study 2025[2] , the percentage of Indian consumers preferring an internal combustion engine (ICE) engine for their next vehicle declined from 53% in 2023 to 49% in 2024, while 46% expressed a preference for hybrids or EVs. A separate, Grant Thornton survey[3] found that 40% of Indian respondents prefer hybrids and 17% favour EVs. Looking ahead, ICRA estimates that, between 2024 and 2028, the share of CNG cars in India's total passenger vehicle sales could rise from 14% to 18%, while hybrids and EVs may quadruple their shares, albeit from a low base, to 8% each (Given the current surge in CNG sales, these projections may well prove conservative). Separately, according to an S&P report[4], the share of ICE vehicles in India will decline significantly – from 97% in 2019 to around 35% by 2035 – as hybrid electric vehicles (HEVs) and battery electric vehicles (BEVs) gain popularity.

1 – Ministry of Road Transport and Highways
2 – Deloitte - Global Automotive Consumer Study 2025
3 – Grant Thornton - Shifting Gears Report - 2024
4 – S&P - Automotive Industry in India Defies Global Disruptions – 2024

Policy: Pushing hard for EVs

Clearly, public policy plays a key role in shaping automakers' investment decisions. Increasingly-stringent emissions regulations and especially the upcoming Bharat Stage 7 (BS7) norms – will, at a broad level, push them to produce cleaner vehicles. At the same time, to help meet its ambitious goal of having EVs make up 30% of all passenger vehicles by 2030, the government has introduced several initiatives, including the Faster Adoption and Manufacturing of Electric Vehicles (FAME-II) scheme, various Production Linked Incentive (PLI) schemes and reduced GST rates on EVs (as low as 5%[5]) (Hybrids, meanwhile, are subject to a steep 43%[6] rate, only slightly lower than the 48%[7] charged on petrol-fuelled cars.) Further, the government has recently allocated funds to install ~22,000 fast chargers and to expand the EV-charging network across both urban and rural India. Additionally, efforts are underway to reduce India's reliance on imported batteries and other major components, with a focus on fostering indigenous EV technology.

Factoring in shifting consumer demand and the consistent nudge from government policy, manufacturers initially viewed EVs as the default choice for future platform investments. However, many are now hedging their bets by opting for multi-platform strategies that support both ICE vehicles and EVs. Such an approach provides the flexibility to navigate shifting consumer preferences and regulatory pressures without committing entirely to one fuel type. This is because, even as public policy seeks to make EVs more attractive and affordable to end-buyers, demand remains tepid.



5 – PIB - GOI - Ministry of Finance - 2019
6 & 7 – Central Board of Indirect Taxes and Customs

Doubts about EVs

Some of the key concerns for potential EV buyers include driving range, charging time and, most critically, the availability of adequate charging infrastructure. Additionally, nearly 9 out of 10 consumers in India, as per the Deloitte survey, express concerns about the cradle-to-grave environmental impact of EV battery lifecycles, questioning the end-to-end sustainability of such vehicles.

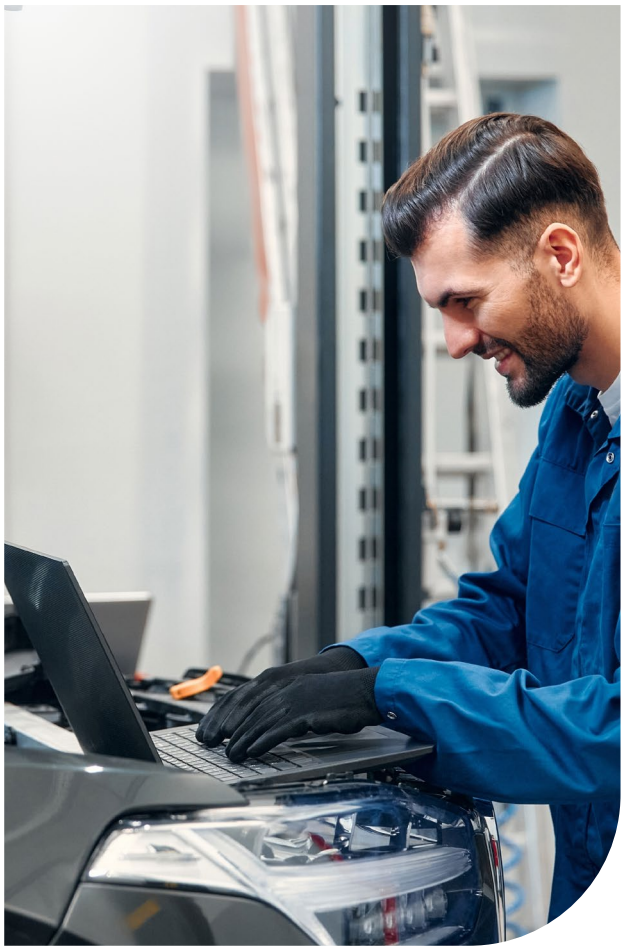
Uncertainties around maintenance costs and battery life further contribute to a broader fear of the unknown, deterring potential EV buyers. Indeed according to an assessment by ***Ayvens*** on the total cost of ownership (TCO) for battery electric vehicles (BEVs) and ICE vehicles, BEVs have a higher initial purchase price but enjoy only a small advantage in terms of the TCO over a vehicle's lifetime.

To address cost-related challenges, automakers like Tata Motors and MG Motor are offering attractive financing options and discounts. Yet, infrastructure concerns persist, with only ~25,000 Electric Vehicle Public Charging Stations (EVPCS) available nationwide compared to a projected future requirement of 1.32 million EVPCS, limiting the practicality of EV ownership.

Even at the global market level, carmakers such as Ford, Mercedes-Benz and General Motors, which began their EV journeys with optimism, have recently scaled back production, citing challenges in meeting consumer preferences. Similarly, last year, car rental giant Hertz decided to replace 20,000 EVs with petrol-powered cars, attributing the decision to operational challenges and a noticeable shift in consumer demand.

Hybrids: A pitstop along the way?

Hybrids were initially seen as a transitional technology bridging the gap between ICE and EVs. While both hybrids and EVs entail high upfront costs, hybrids are now, quite literally, pulling ahead – mainly because they can automatically switch to an ICE above a certain speed, or if the battery depletes. This dual capability alleviates range anxiety, a major barrier for EV adoption. By combining fuel efficiency with the convenience of traditional ICE technology, hybrids offer a balanced and practical solution. This dual energy system is particularly advantageous in India, where the EV infrastructure remains underdeveloped.



One of the primary challenges facing hybrids is their relatively high sticker price and maintenance costs, partly owing to the steep, 43% GST rate. Automakers like Toyota Kirloskar, which introduced the first hybrid car in India as far back as 2010, have been urging the government to reduce this rate, arguing that it is only slightly lower than the 48% charge on petrol cars. On the other hand, non-hybrid manufacturers contend that reducing taxes on hybrids could slow India's green transition, as hybrids still rely on fossil fuels.

Despite their cost disadvantages, hybrids are finding a niche market in India, with a penetration rate of ~2.5% as of early 2024. In response, major automakers like Maruti and Hyundai are introducing hybrid models tailored to the preferences and needs of Indian consumers. Still, whether hybrids remain a transitional technology or become a long-term favourite will depend on a mix of consumer adoption and market dynamics. It is therefore crucial for the government to focus on facilitating market-based solutions, allowing consumers to determine the trajectory of green mobility.

The case for CNG

CNG vehicles have been part of the automotive ecosystem for years but there is today a growing move towards personal ownership of such cars, as opposed to them being used primarily for commercial purposes. CNG is gaining popularity not only for its environmental benefits but also its cost-effectiveness and a fast-expanding fuelling network. Maruti, Toyota and Hyundai are responding to this shift by introducing mid-range CNG models, moving beyond the entry-level vehicles typically favoured by taxi and fleet operators.

In FY24, in fact, more CNG car variants were introduced than for any other fuel type, followed by hybrids and EVs. Notable releases, such as the Tata Nexon iCNG – India's first turbocharged CNG vehicle – and Hyundai's dual-cylinder CNG Grand i10 NIOS, demonstrate how automakers are catering to eco-conscious buyers seeking both sustainability and performance. The number of available CNG models has grown from 13 to 25[9] in the past year, supported by a network of over 7,000[10] fuelling stations nationwide. Current trends suggest that demand for CNG vehicles will stay robust in the medium-to-long-term.

However, certain factors continue to deter potential buyers, including the shorter driving range of CNG vehicles compared to ICE engines, reduced trunk space and a less-extensive fuelling infrastructure than for petrol or diesel vehicles. Addressing these challenges will be crucial to sustaining the momentum of CNG adoption and ensuring it remains a viable option for eco-conscious consumers.

9 - Jato Dynamics Estimate as of September 2024

10 - Petroleum and Natural Gas Regulatory Board (PNGRB)

Emerging green fuel alternatives

Beyond CNG, hybrids and EVs, other green fuel options are gaining traction in India. Flexi-fuels, such as ethanol-blended petrol (E20) and biodiesel, allow vehicles to run on multiple fuel types, reducing reliance on fossil fuels. The government aims to achieve 20%[11] ethanol blending by 2025-26 and 5%[12] biodiesel blending by 2030, enhancing energy security and cutting emissions. Compressed Bio-Gas (CBG), derived from organic waste, is another promising alternative, with the Sustainable Alternative Towards Affordable Transportation (SATAT) programme driving its adoption. Meanwhile, hydrogen-based fuels, including hydrogen-CNG (H-CNG), are being explored for their potential to decarbonise heavy transport. These alternatives, supported by policy initiatives, could play a vital role in India's transition to cleaner mobility solutions.

11- PIB - India's Ethanol Push/ A Path to Energy Security - 2024
12 - International Energy Agency - 2024

Shaping what's next

As India seeks to move ahead on green automotive technologies, a balanced policy approach towards CNG, hybrids and EVs is crucial if the country is to meet its sustainability targets. Current challenges, such as infrastructure limitations, high installation and maintenance costs and range anxiety, continue to hinder consumer adoption.

On the policy front, while the government has introduced a range of measures to promote cleaner alternatives, these are predominantly focused on EVs, with hybrid-vehicle ownership actively disincentivised by high taxes. Viewed holistically, the push towards greener transportation appears somewhat fragmented. While the government prioritises EVs, market trends currently favour CNG and hybrid vehicles. Ultimately, the viability of each alternative should be guided by market forces, with policymakers enabling informed consumer choices. Government must collaborate with industry to create a cohesive policy framework that addresses technological advancements, infrastructure, affordability and consumer awareness, ensuring a balanced and inclusive transition to cleaner energy solutions.

Sustainable Mobility from Ayvens

Ayvens is on a mission to decarbonise mobility and is leading the change through its Consultancy Services. It is working closely with its customers and partners to design low-emission solutions. With its expertise and scale, Ayvens is working on mobility strategies that will not only address today's challenges but also create new opportunities. Avyens Consultancy helps companies with advice on sustainable mobility, fleet rightsizing and safety. To know more, please contact Ayvens India at: https://www.ayvens.com/en-in/contact-us/

About Ayvens

Ayvens is a leading global sustainable mobility player born from the acquisition of LeasePlan (founded in Amsterdam in 1963) by ALD Automotive (founded in Paris in 1968), part of the Societe Generale group. It has been improving mobility for decades, providing full-service leasing, flexible subscription services, fleet management and multi-mobility solutions to large international corporates, SMEs, professionals and private individuals. With 14,500 employees across 42 countries, 3.3 million of vehicles and the world's largest multi-brand EV fleet, Ayvens has been leveraging its unique position to lead the way to net zero and spearhead the digital transformation of the mobility sector.

(The company is listed on Compartment A of Euronext Paris (ISIN: FR0013258662; Ticker: ALD). Societe Generale Group is Ayvens' majority shareholder.)

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Ayvens in India

ALD Automotive India was founded in 2005 whereas LeasePlan India in 1999. Today, as Ayvens it boasts a fleet of more than 46,500 vehicles and is a leading fleet management and vehicle leasing company in India catering to more than 1800 corporate customers in over 280 locations across India. Headquartered in Mumbai it has a direct presence in Delhi, Pune, Hyderabad, Chennai, Bengaluru and Kolkata. Through these offices and its supplier tie-ups, Ayvens has an operational reach in all major cities and can meet varied corporate car leasing requirements anywhere in the country.

About IMA

IMA is a niche economic, business and market research firm that provides insights and analysis to top management audiences in India through multiple channels. For 30 years, IMA's research and opinion have informed the perspectives of investors, industry and government.

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