ICRA

PRESS RELEASE
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Alternative fuel penetration in Indian CV industry to touch 40-45% by FY2030 from 27% in FY2026: ICRA

- *Alternative fuel commercial vehicles (that ply on CNG[1], LNG[2] and EV[3] powertrains) to sustain their consistently rising penetration across various sub-segments*
- *Penetration levels to be higher in light commercial vehicles (LCVs) at 50-55%, vis-à-vis medium and heavy commercial vehicles (M&HCVs) at 25-30% by FY2030*

Rating agency ICRA expects CNG/LNG penetration in the commercial vehicles (CVs) industry to increase to 30-35% by 2029-30, while electric vehicle (EV) penetration is projected to rise to 10-15%, led primarily by the bus segment within the M&HCV category. Incentives provided under the PM E-Drive Scheme have significantly reduced the procurement cost, thus serving as a catalyst to accelerate the adoption of e-trucks going forward, in ICRA's view.

ICRA noted that CNG/LNG penetration in CVs has increased steadily to 25% in 2025-26 from 7% in 2020-21, emerging as a viable alternative to conventional petroleum fuels. Adoption of EV and hybrid technologies, while remaining modest at 2% in 2025-26, is expected to gain momentum over the medium term, backed by Government policies (incentives, subsidies and tax waivers) and an evolving EV ecosystem, which are likely to support affordability, going forward.

The share of diesel as a fuel for the CV industry in India has gradually declined to 67% in 2025-26 from 86% in 2020-21 owing to progressively stricter emission control norms and declining total cost of ownership (TCO) of alternative fuel technologies (CNG, LNG and EV), driven by regulatory support. Petrol adoption in CVs remained limited at less than 10% in 2025-26, with usage largely confined to the light commercial vehicle (LCV) segment.

Kinjal Shah, Senior Vice President & Co-Group Head, ICRA, said: "*While the focus remains on increasing alternative fuel penetration, adoption in the Indian CV industry continues to face key challenges including high upfront vehicle costs and infrastructure gaps. TCO remains a key factor for fuel technology adoption in a cost-sensitive market like India. Besides, other factors such as infrastructure readiness, range anxiety, sales and service network, route patterns and operating requirements are equally important in determining the pace of adoption of fuel technologies across CV sub-segments. In terms of operating economics, TCO for 11-12 tonnes (T) GVW[4] e-trucks is generally 15-25% lower than diesel or CNG trucks. In the 55-T GVW category, however, TCO for e-trucks is lower by 10-15% compared to diesel but 15-20% higher than LNG trucks. Overall, incentives provided under the PM E-Drive Scheme have significantly reduced the procurement cost, thus serving as a catalyst to accelerate the adoption of e-trucks.*"

The pace of adoption of various fuel technologies across CV sub-segments is also influenced by factors such as torque requirements, payload, distance to be travelled and affordability by fleet operators. Diesel and CNG/LNG account for the major part of vehicle sales in heavy-duty segments such as M&HCV (trucks) where long-haul operations and higher payload requirements remain key considerations, while LCVs (buses) have relatively higher penetration of petrol and CNG/LNG. Various government schemes and subsidies have been instrumental in driving

[1] *CNG - Compressed Natural Gas*
[2] *LNG – Liquefied Natural Gas*
[3] *EV – Electric Vehicle*
[4] *GVW – Gross Vehicle Weight*

electrification, particularly in LCV (trucks) and M&HCV (buses). While the Central Government has introduced policies to support adoption of alternative fuel technologies, several states have also launched their own initiatives to complement this push. State-level policies currently remain largely EV-focussed, with emphasis on demand incentives, infrastructure expansion and fleet electrification of state road transport undertakings.

"*Domestic CV original equipment manufacturers (OEMs) are stepping up research and development investments across multiple fuel platforms to align their product portfolios with emerging alternative fuel technologies. They are also focussing on modular vehicle architecture, which enables them to make more efficient transition across fuel technologies by standardising core components while integrating fuel-specific systems through interchangeable modules. OEMs are also prioritising the development of a domestic vendor ecosystem for alternative fuel technologies related auto components like battery management systems, motors, fuel tanks and engine peripherals to streamline manufacturing*," added **Shah.**

While the domestic OEMs have been investing in new product developments across alternative fuel technologies, the general approach has been gradual, with limited quantum of investments in the past, in tandem with the slow pace of adoption seen so far for alternative fuels. With the gradual emergence of alternative fuel vehicles anticipated over the medium term, the OEMs may face the risk of stranded capacity of diesel powertrain, although the existing manufacturing facilities of diesel vehicles can be realigned to manufacture alternative fuel vehicles. The costs associated with such realignment generally remain moderate for a shift towards CNG/LNG platforms, and relatively higher for other platforms like EV, hydrogen internal combustion engines and hydrogen fuel cell vehicles. The market is evolving rapidly, with new entrants in the e-buses and e-trucks segments challenging the incumbents and thereby increasing the competition.

"*The Indian CV industry is gearing up for transition towards alternative fuels with several external and internal factors at play. While the industry growth in volumetric terms may remain largely unaffected with the said transition underway, the incremental rise is likely to be increasingly dominated by alternative fuels. While these investments remain critical for a seamless transition towards alternative fuels, their impact on profitability and credit quality of the domestic CV OEMs remain monitorables*," added **Shah**.

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