



# **INDIA'S INFLECTION POINT:** *A Clear Path to Global Leadership in Decarbonization*



**India has reached a critical juncture** and must decide how quickly to ramp up decarbonization, grow its zero-emission (ZE) transportation industry, and become a driving force in the global green economy—continuing its dependence on diesel fuel and internal combustion engines, and thereby furthering catastrophic health and climate consequences, is no longer a viable option. It's time for decision makers to choose the clear path forward to realize India's 2070 goal of carbon neutrality by:

1. Developing clear, decisive ZE policies with strategic timelines, incentives, and phase-in plans.
2. Deploying initial vehicles in areas primed for electrification, known as first-success segments.
3. Collaborating across integrated partnerships to create a ZE transport roadmap.

## India's Electric Bus Success

India's electric bus procurement has achieved remarkable success with Phase 2 of the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles policy (FAME II). With **powerful incentives** and a **collaborative deployment strategy**, cities were able to reduce overall costs, which drove the early market and accelerated sustainable transportation. Approximately 7,000 ZE buses have been acquired under FAME II, 3,000 of which are in operation on Indian roads today.<sup>1</sup>

India can accelerate its transition to ZE medium- and heavy-duty vehicles (MHDVs) given:

- Its relatively low daily average freight distance of 200–300 kilometers;<sup>2</sup>
- An aging truck population averaging 10–15 years;<sup>3</sup> and
- 90% of road freight relies on diesel.<sup>4</sup>

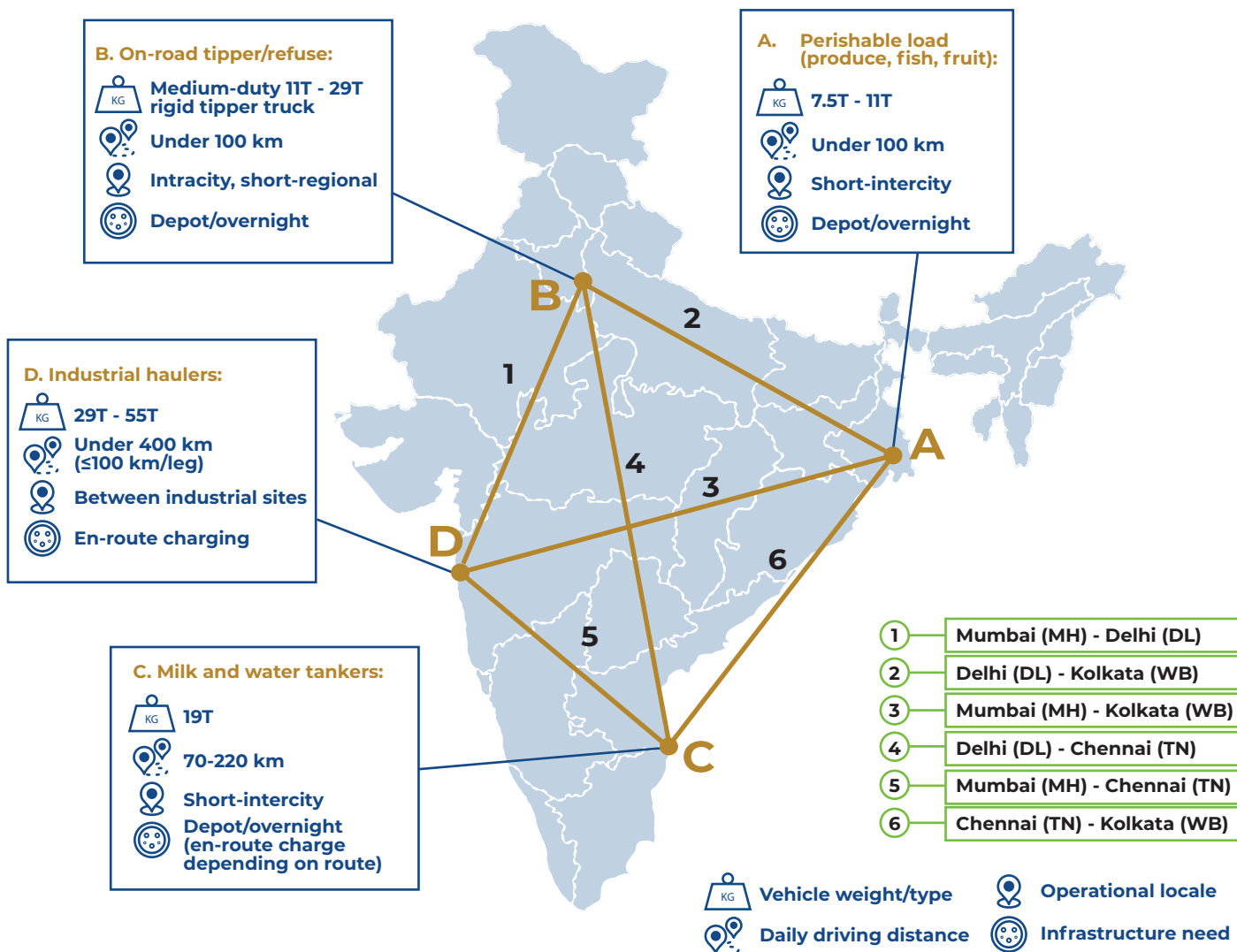
ZE-MHDVs improve air quality, save lives, and create new jobs.

- India's trucks and buses account for 70% of fuel consumption and over 70% of particulate matter emissions but constitute only 5% of its on-road fleet. In 2015, there were an estimated 74,000 deaths across India caused by transportation-sector pollution—with over 66% attributable to on-road diesel vehicles.<sup>5</sup>
- Decarbonizing commercial transport will spur vehicle manufacturing and bring major structural improvements to infrastructure, logistics, and digitalization. The logistics sector accounts for 5% of India's GDP and employs over 22 million people.<sup>6</sup>

# India's Golden Quadrilateral

Establishing a dedicated ZE corridor connecting first-success segments is vital to achieve long-term decarbonization goals. The Golden Quadrilateral and the two diagonal highway networks connecting Delhi, Mumbai, Chennai, and Kolkata account for 50% of India's goods traffic.<sup>7</sup> About half of the goods in these corridors are transported by road. Freight vehicles traveling these routes emit various pollutants that harm human health and contribute to smog formation: nitrogen oxides, particulate matter, sulfur dioxide, and volatile organic compounds.<sup>8</sup> Corridors like the Golden Quadrilateral that support high freight volumes are viewed as “no-regrets” locations for infrastructure investments, as they ensure high utilization of deployed charging equipment and are well positioned for strong public-private partnerships for development.

## GOLDEN QUADRILATERAL ROUTES



**The time to deploy is now.** With significant advancements in batteries and powertrain technology driving the widespread adoption of ZE-MHDVs in regions around the world, many commercial vehicle technologies are ready for electrification today. Deploying vehicles that have shorter routes/lighter loads and return to a depot to be cleaned or recharged is a critical first step.



Electrification of key first-success segments along the Golden Quadrilateral highway will lay the groundwork and establish the trade- and working-level experience needed for a wide-scale market transformation. Identifying and acting on the first-success vehicle segments is a strategy that has shown tremendous success globally in places like the United States, Europe, Latin America, and China.

**Visionary collaboration across all stakeholders** can unite solutions to develop the infrastructure and conditions required to realize the economic and environmental benefits of ZE-MHDVs. To learn more about the measures other nations are taking to reduce transportation emissions and the global ambition driving the ZE transition forward, visit [www.globaldrivetozero.org](http://www.globaldrivetozero.org).

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