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# Financing India's Electric Two- and Three-Wheeler Fleets

EXECUTIVE BRIEF

NOVEMBER 2022

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India has the world's largest fleet of two- and three-wheelers – its transition to electric requires financing of

**\$285 billion**

“ **Electric two- and three-wheeler fleets provide low-cost and zero-emission mobility to people and goods in our cities. The Government of India is focusing on innovative policy measures and national flagship schemes to scale up electric mobility in the country.**

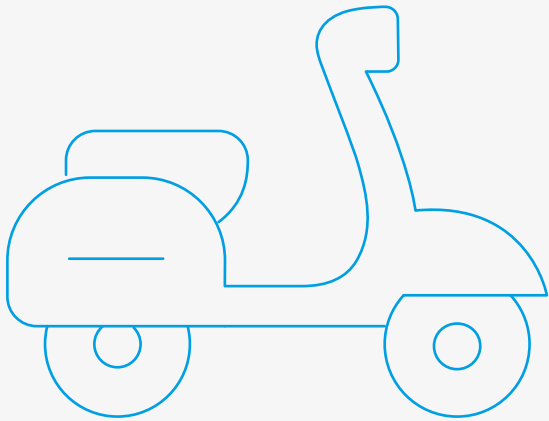
Sudhendu J. Sinha, Adviser, NITI Aayog, Government of India

Two-wheelers and three-wheelers account for over 80% of vehicle sales in India. Supported by government policies such as Faster Adoption and Manufacturing of Electric Vehicles (FAME), adoption of electric variants of two- and three-wheelers has been steadily rising in the past few years. There are about [45 certified vehicle manufacturers](#) of electric two- and three-wheelers in India in an otherwise consolidated auto market. Cumulative sales of these vehicles have reached an impressive [1 million units](#). However, this is still just 1 million out of India's total two- and three-wheeler fleet stock of 250 million – leaving immense room for sustained growth. Achieving 100% electrification of India's two- and three-wheeler stock requires a capital allocation of approximately \$285 billion.<sup>1</sup>

Although electric vehicles (EVs) are costlier to purchase, their running cost is much lower. So, the more an EV is used, the cheaper it gets. When gauged by total cost of ownership (TCO), they are already ideal for ride-hailing and last-mile delivery fleets, which have high daily utilization. These segments are leading the adoption of electric two- and three-wheelers in India and are likely to be among the first segments to transition completely to electric. For a rapid transition of fleets, capital flow to the ecosystem needs to grow multi-fold. Opening large capital pools will require de-risking of the market through deeper collaboration between stakeholders and business model innovation.



## TCO for two-wheeler delivery



ICE -

₹\* **2/km (¢2.4)**

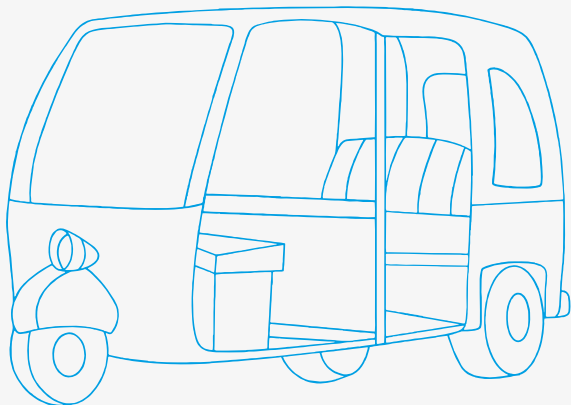
EV -

₹\* **0.52/km (¢0.6)**



This data is for fleets in Delhi. ICE two-wheelers run primarily on petrol. TCO for electric two-wheelers has been calculated after accounting for FAME incentives.

## TCO for three-wheeler delivery



ICE -

₹\* **2.25/km (¢2.7)**

EV -

₹\* **1.94/km (¢2.3)**






This data is for fleets in Delhi. ICE three-wheelers run primarily on compressed natural gas. TCO for electric three-wheelers has been calculated after accounting for FAME incentives.

\* ₹ is the symbol for INR

Source: [Roadmap for Delivery Electrification](#),  
Dialogue and Development Commission of  
Delhi, RMI India

TABLE 1 | Capital pools and their status with regards to lending to the EV ecosystem in India

Status	Capital pool	Description
 <b>Unlocked</b>	Private equity	Private equity has been the first pool of capital that has been unlocked. According to estimates, in 2021, <a href="#">the sector received \$1.8 billion in investments from 31 deals</a> . Several original equipment manufacturers (OEMs), fleet owners, fleet operators and infrastructure providers have been able to raise equity at healthy valuations.
 <b>Partially unlocked</b>	Venture capital (early stage)	Venture capital in the form of early-stage equity investments has been unlocked with investments flowing into several vehicle manufacturing and fleet build out and operations. While equity deals have played a crucial role thus far in supporting entrepreneurial opportunities, the role of venture debt has been limited, if any.
	Dedicated climate funds	The Green Climate Fund (GCF) has <a href="#">approved a fund of \$1.5 billion</a> for India's EV ecosystem. Similarly, the Global Environment Facility (GEF) Trust Fund has <a href="#">approved grant and co-financing facility of ~\$172 million</a> . Such funds are being channelled through multilateral banks and other implementation partners, mostly private equity; however, as these are new, the efficacy of their ground deployment is yet to be determined.
	Non-banking financial companies (NBCFs)	NBFCs are currently the main source of debt financing to this segment. NBFCs backed by OEMs and those specializing in vehicle financing are expected to play a greater role in financing EV fleets. Several Reserve Bank of India-approved NBFCs have spotted this opportunity and created a coalition called Electric Mobility Financiers Association to present a united front and further their ambitions.
	Multilateral banks	The Small Industries Development Bank of India (SIDBI), with the support from the World Bank, is planning to launch an Electric Vehicles – Risk Sharing Program (EV-RSP) – a \$250 million facility including a partial credit guarantee and discounted line of finance embedding several fundamental de-risking measures to enhance commercial loan availability. The lending industry is looking forward to the availability of low-cost funds for this sector facilitated by credit lines and risk covers from multiple multilateral banks.
	Green Bonds	Government of India has released a framework for sovereign green bonds, setting the obligations of the government as a green bond issuer. The <a href="#">framework</a> will facilitate attracting global and domestic investments in green projects in the country including supporting electric vehicles and promotion of public transport through its electrification and transport subsidies.
 <b>Locked</b>	Domestic and international banks	Private sector domestic banks are financing premium personal electric two-wheelers, but most domestic banks and international banks with commercial operations in India have largely stayed away from financing electric two- and three-wheeler commercial fleets. Some banks have shown interest in financing EV fleet portfolios of NBFCs.
	Other forms of patient capital (pension funds, sovereign wealth funds, country-to-country lending, etc.)	Patient capital is likely to play a crucial role for large-scale infrastructure roll-out. Charging, battery-as-a-service and vehicle-as-a-service are key areas where oil marketing companies and utility players are looking to diversify and can play a key role. They will further be able to access and deploy patient capital.

# Market and policy solutions

No individual stakeholder group can de-risk adoption for electric two- and three-wheelers fleets. Key stakeholder groups need to collaboratively engineer and test solutions.

Traditionally, the driver-cum-owner (DCO) model has dominated the two- and three-wheeler commercial fleets in India, but DCOs of commercial

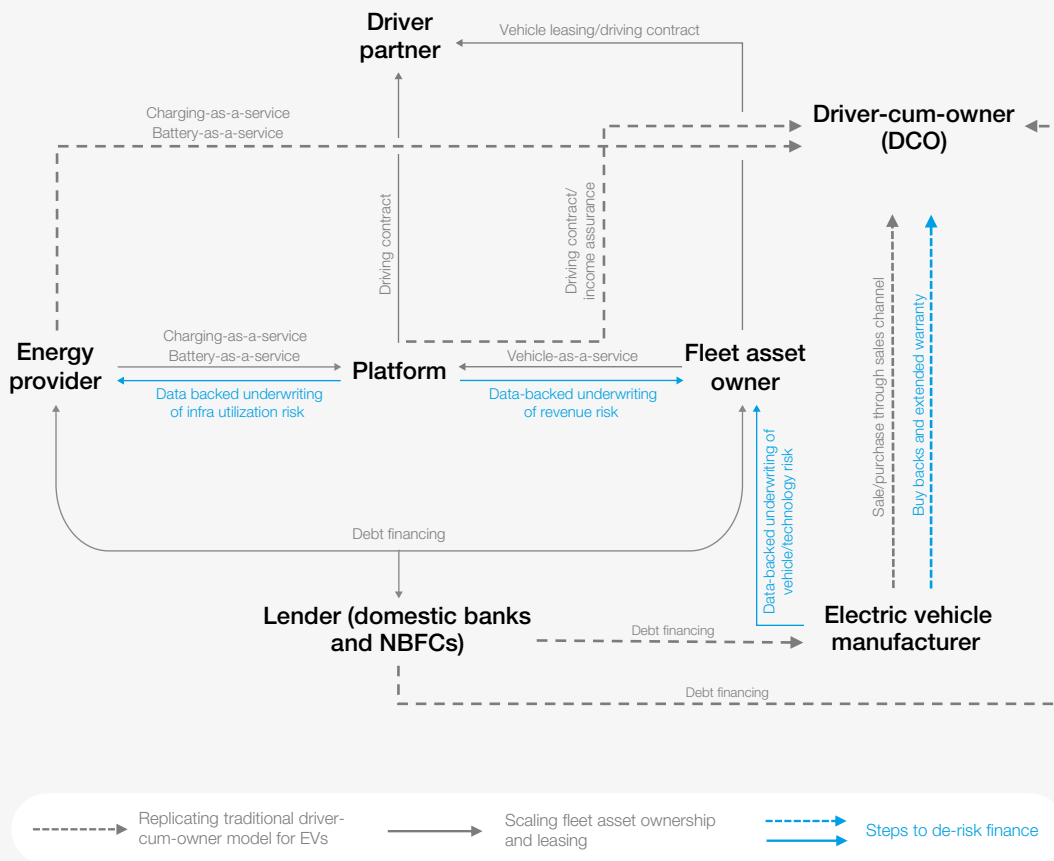
fleets are not yet comfortable to purchase EVs due to the higher upfront cost of acquisition, lack of confidence in new technology, unassured reliability and unestablished resale value. Entrepreneurs have recognized the TCO advantage of EVs for commercial operations and are introducing new business models – de-risking these business models will provide greater access to finance.

## Multistakeholder approach to market de-risking

The electric two- and three-wheeler fleet market comprises multiple stakeholders, and all of them

have a crucial role to de-risk the market and attract growth capital.

FIGURE 1 Market stakeholders and their roles for transitioning commercial two- and three-wheeler fleets to electric



### Market enablers

#### State/central government

- Long-term clarity on purchase incentives
- Long-term regulatory clarity
- Tax parity for vehicle leasing
- Credit enhancement through public sector intermediation

#### Reserve Bank of India

Priority sector lending status for EVs

#### Multilateral banks

- Lines of credit
- Risk cover



**A long-term policy roadmap is needed to attract greater investments.** Purchase incentives by central and state governments have been key drivers for adoption of EVs. However, a policy roadmap for demand incentives beyond the current term of policies (usually up to 3-5 years) can help. While it is understood that incentives will need to be phased out at some point in the future, a roadmap with timelines for a gradual phaseout can help support new corporate investment decisions. This can further be supported by an ambition for a combustion engine phaseout date for new two- and three-wheelers.

For fleets, state-level adoption mandates, like the ones proposed by [Delhi Electric Vehicle Policy 2020](#), and supported by incentives and finance, can provide certainty of demand.

**Residual value of electric vehicles needs to be established and vehicle performance and safety needs to be guaranteed.** Residual value of EVs is not yet established. This increases uncertainty, affects purchasing decisions, and availability and cost of financing. OEMs can set expectations on residual value of used vehicles through buy-back programmes, or battery and product warranties. Through use of data and analytics, vehicle manufacturers can track usage-based battery and vehicle health and can make that data available for stakeholders involved in resale.

Demonstrating viable unit economics for fleet operations will help build the necessary confidence in DCOs to make the transition. Vehicle safety concerns are already being addressed through more stringent standards. Vehicle manufacturers can further showcase steps being taken to ensure safety and, in the spirit of transparency, publish data on safety records, especially on battery fires, that has emerged as a key concern.

**A paradigm shift is required in traditional risk underwriting process.** Domestic banks have limited legacy data to lend to EVs or to fleet aggregators. Traditional underwriting processes are not conducive to gig-workers and new age fleet operators with limited or no formal credit history. The banks' understanding of the technology and the associated risks is also limited and hence they are reluctant to introduce competitive financing products.

**Risk underwriting for lending needs to be able to leverage data.** Unlike conventional vehicles, EVs and the supporting charging infrastructure are in equal part connected devices generating real-time data. These data sets can be leveraged to facilitate data-backed risk underwriting for lending. For example, vehicle manufacturers can make available anonymous and aggregated data sets on asset utilization and data on health of battery as the vehicle ages. Every stakeholder with access to such data points must play an active role in ensuring that this data can be shared without any risks to privacy and safety.

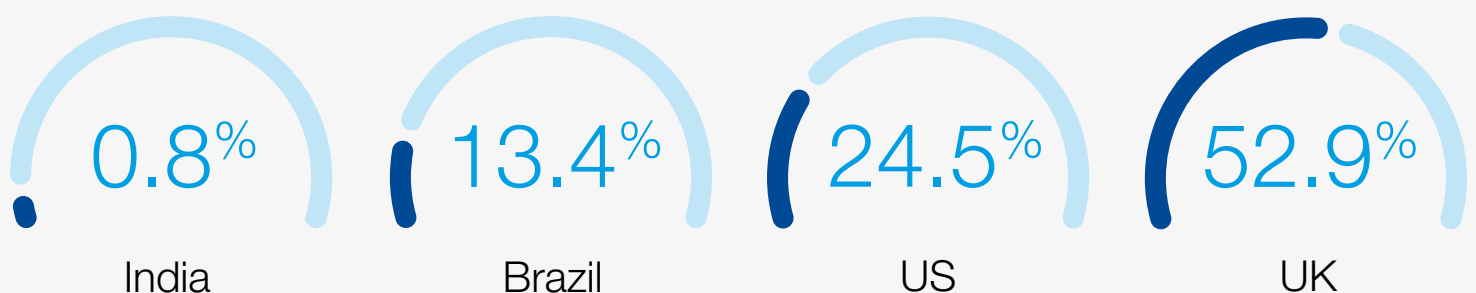
**Tri-partite agreements for fleets are needed to spread the risk.** To de-risk lending and cost of finance for large fleets, a tri-partite lending agreement between lenders, OEMs and fleet asset owners can spread the risk across parties. OEMs can underwrite technology risk, assure buy-back value and ensure after-sales service. Platforms can issue longer-term contracts to driver-partners, aggregators and third-party logistics providers for deployment of EVs to underwrite risk of insufficient demand – enabling higher asset utilization for vehicle-as-a-service partners – resulting in consistent revenue stream that allows lenders to underwrite EVs for commercial operations and provide low-cost debt-funding to EV fleets.



**Availability of capital is not the primary constraint for India's transition to electric two- and three-wheeler adoption. Capital will flow if we can first address the various risks that have been introduced in this technology transition. We need to collectively focus on solutions, that is to day, reliability of components, charging infrastructure and after sales network and this requires each stakeholder to take ownership of the risks under their control. Isolating and de-risking value and re-use of battery will be key.**

Nitin Seth, Chief Executive Officer, Reliance New Mobility

FIGURE 2 Vehicle leasing market penetration in 2020





**Support to vehicle leasing vis-à-vis individual ownership.** India has among the smallest share of leasing-based commercial fleets among large economies. Even as DCOs acquaint themselves with EV, fleet asset owners that rely on vehicle leasing can drive EV adoption in India's commercial fleets. Leasing of commercial vehicles for fleets has a higher tax burden as compared to individual ownership – parity in tax structures for EVs can help scale up EVs on the road.

**Preferential access to finance is required.** It has been a long-standing demand from the industry that the Reserve Bank of India provide priority sector lending (PSL) status to EVs, on the lines of [PSL for renewable energy projects](#) to help channel flow of funds to the sector. Priority sector lending mandates certain banks to direct a specified percentage of credit to priority sectors. A NITI Aayog, Government of India supported [Blueprint for Inclusion of EVs in Priority Sector Lending Guidelines](#) contends that considering socioeconomic potential, livelihood generation potential scalability, technoeconomic viability, and stakeholder acceptability, market-ready electric two-wheels, electric three-wheelers and commercial electric four-wheelers offer the ideal starting point for PSL inclusion.

**Ambitious policy to demonstrate sufficiency and diversity of charging infrastructure.** Charging and battery swapping infrastructure is still not dense and reliable. Close collaboration between infrastructure companies, fleet operators, platforms, lenders, public and private real estate owners, and governments is required to ensure suitable and timely roll-out. Platforms can coordinate with cities and charging infrastructure providers and share locations of their operating hubs to inform the placement of charging infrastructure. An ambitious policy to support large-scale deployment of charging and battery swapping infrastructure that creates stable cash-flows and attracts patient capital can be a game-changer.

**Government push for setting up of risk-sharing facilities for consumer and fleet finance.** New risks on technology and re-sale value have been introduced with the transition to EVs. Several of the points above highlight how various stakeholders involved can work together to de-risk the sector. However, to accelerate the market and steepen the learning curve for lenders, the government can work with multilateral banks and/or deploy its own special purpose vehicle (SPV) to provide sufficient first-loss risk guarantee to lenders. SIDBI-World Bank Electric Vehicles – Risk Sharing Program (EV-RSP) is an example of this. Government can play a key role ensuring greater deployment of risk capital and its efficient utilization.



**India's EV sector will need a lot of capital across supply chains, covering battery, charging infrastructure, manufacturing and technology. The government can look at establishing a dedicated financial institution for the sector, similar to Power Finance Corporation or NABARD, which is funded through various sources of capital, including banks, institutional funds, green funds and green tax-free bonds, and supported by priority sector lending. This institution will be able to build the sector expertise required for meeting the massive capital requirement and help in accelerating India's energy transition in mobility.**

Niranjan Gupta, Chief Finance Officer, Hero MotoCorp



# Moving emerging markets

The World Economic Forum's [Moving India](#) and Emerging Markets initiative brings together business leaders, policy-makers and third-sector actors to advance decarbonization of mobility in India and Indonesia. This brief is a part of the work undertaken by the Moving India network to advance capital allocation to India's EV ecosystem.

In 2023, the initiative will continue to leverage this network and align with India's priorities as host of G20/B20, champion agenda topics, such as

resilient, trusted and diverse supply chains for the energy transition in mobility; work with select state governments on creating a model policy framework to enhance investments in EV supply; support circularity in the new EV supply chains; and ignite the discussion on transition to zero-emission medium- and heavy-duty trucks.

To be a part of these deliberations, please contact the Moving India team.



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*Note: Contributors have provided inputs to the brief and do not necessarily endorse all messages presented in the brief.*

# Endnotes

1. Given India's rising incomes and vehicle ownership, we have assumed that the overall stock of two and three-wheelers to grow to 270 million. Capital cost for its transition to electric is calculated based on an average two-wheeler vehicle cost of \$1,000 for 264 million two-wheelers and average three-wheeler cost of \$3,500 per for 6 million three-wheelers (across vehicle categories, excluding e-rickshaws) – bringing overall capital cost to approximately \$285 billion. Electric vehicle turnover rate and cost of infrastructure have not been taken into consideration – and will require additional financing.



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