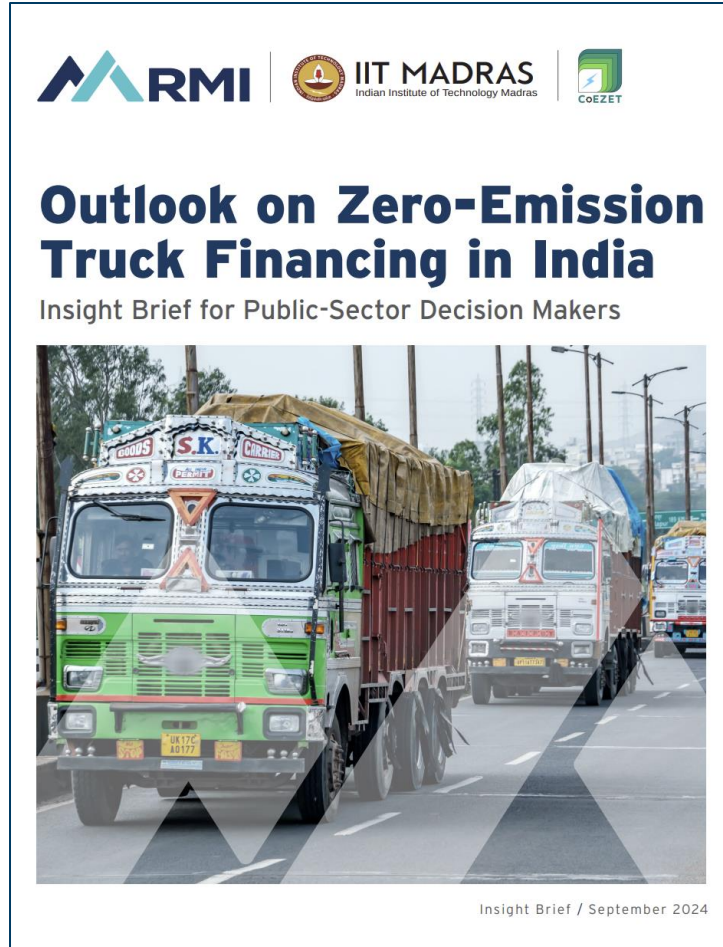


Financing the Zero-Emission Truck Transition in India

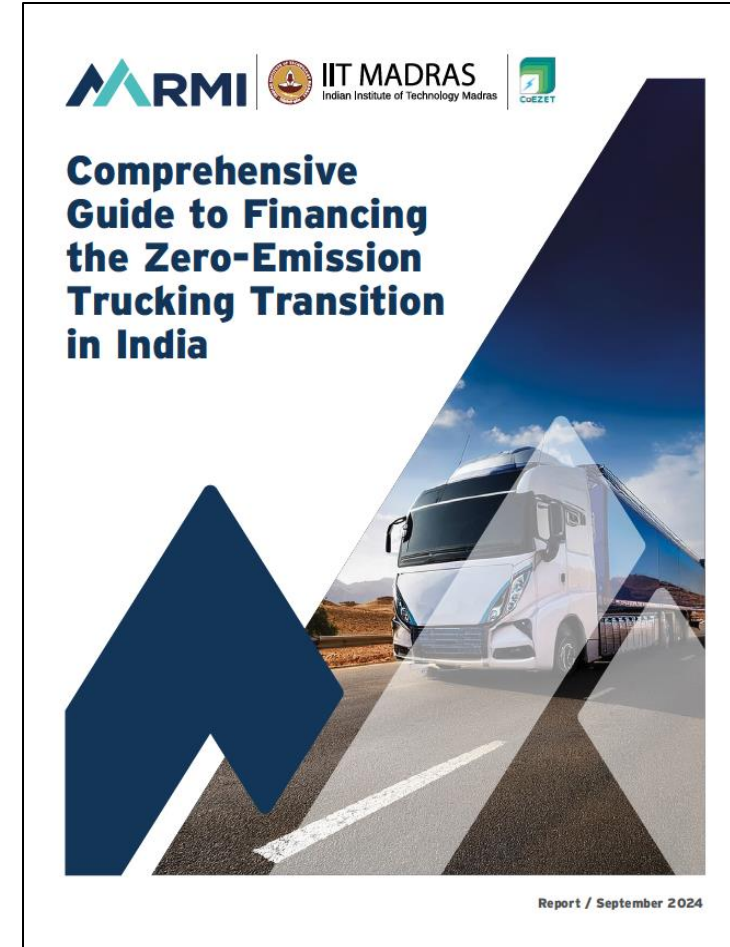
18th September 2024



Report Launch



An executive brief that details the importance of financing tools and strategies for their effective deployment

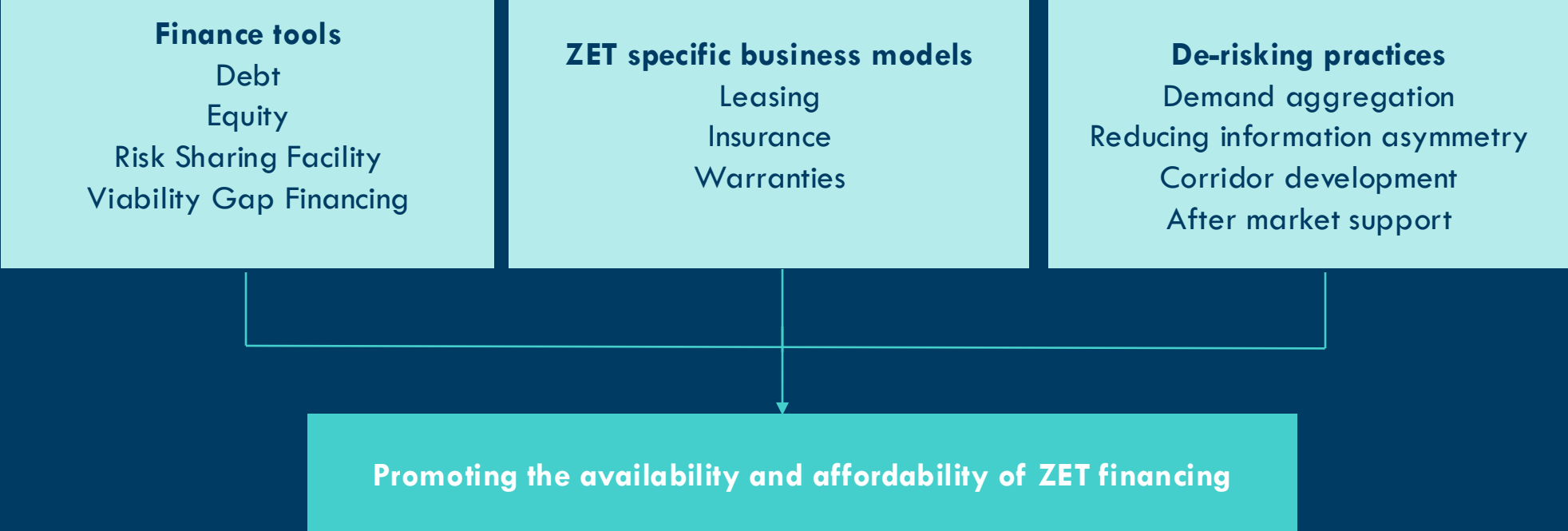


A comprehensive report that outlines stakeholders, identifies risks, and explains how financing tools, de-risking practices, and business models can work together to scale ZET financing.

Financing the Zero-Emission Truck Transition in India

Report Findings

Three Critical Financing Levers to Drive the Transition to Zero-Emission Trucking

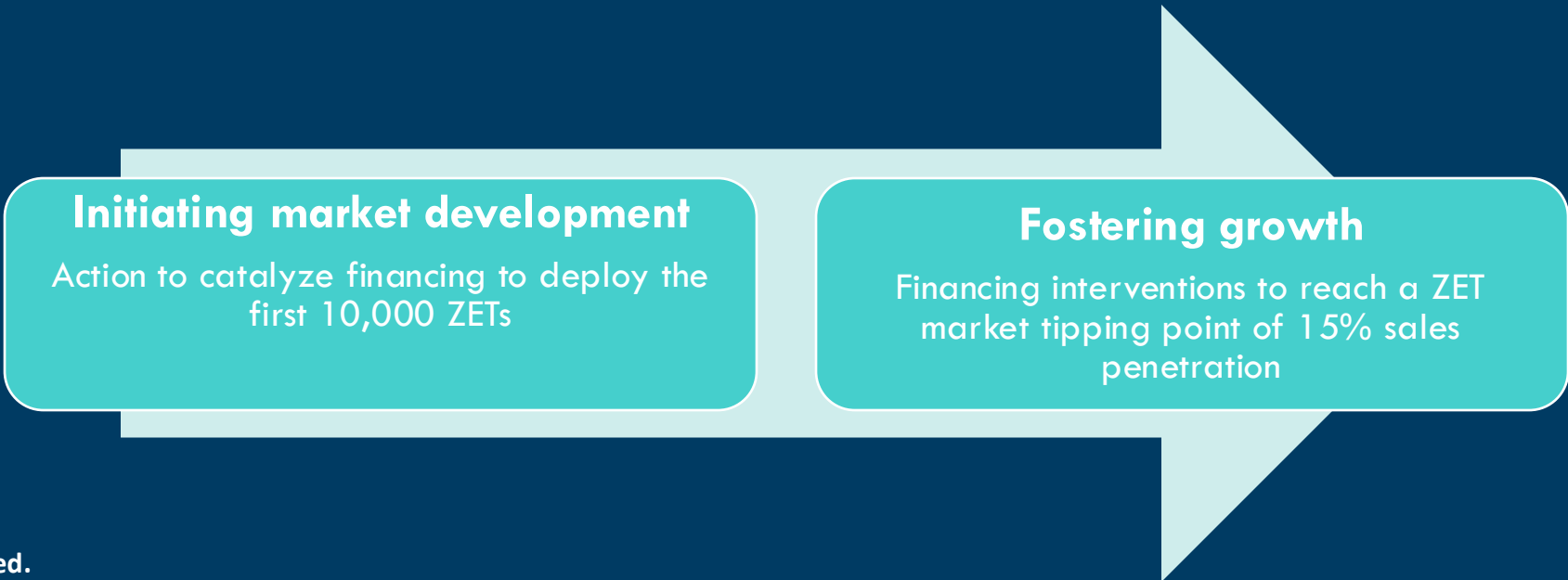


Funding the ZET Market Growth

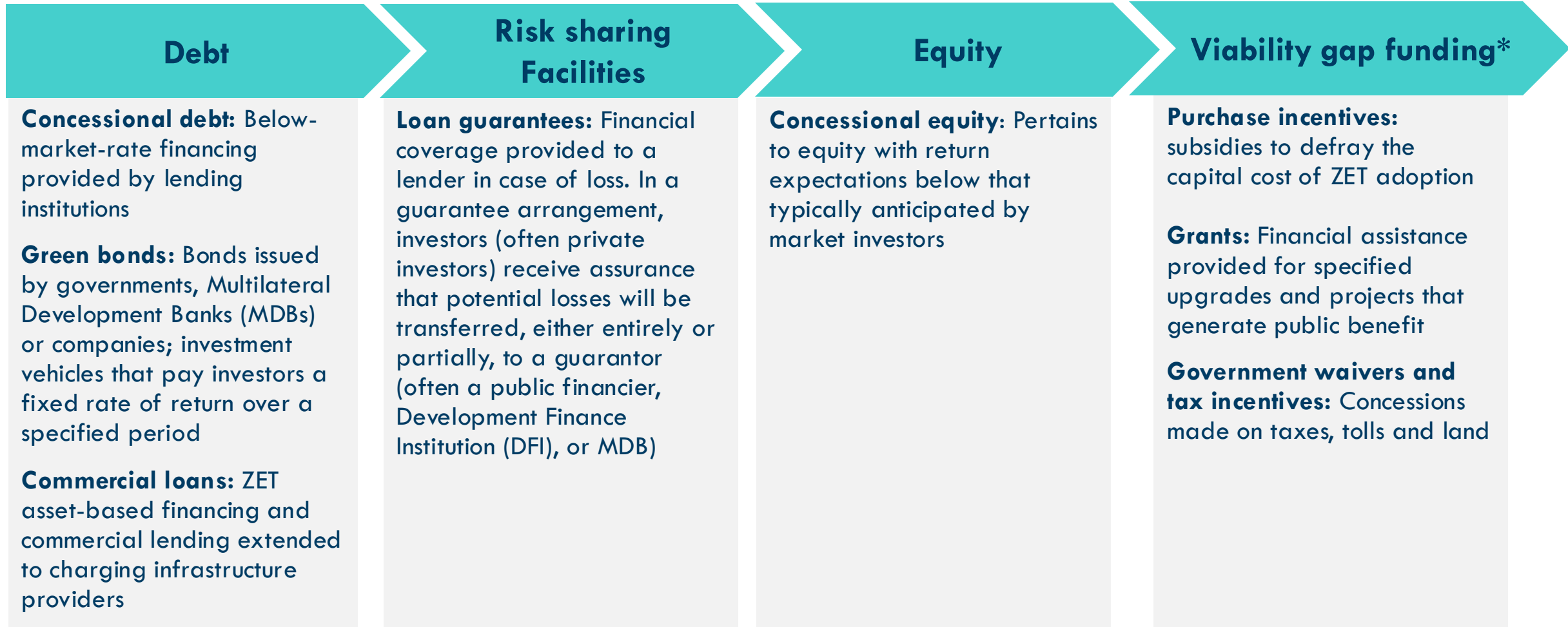
Investment in four activities is necessary to support holistic and sustained ZET market growth:



Different financial tools have proven effective in fostering growth at various stages of market development



Finance Tools | Overview of ZET Financing Tools



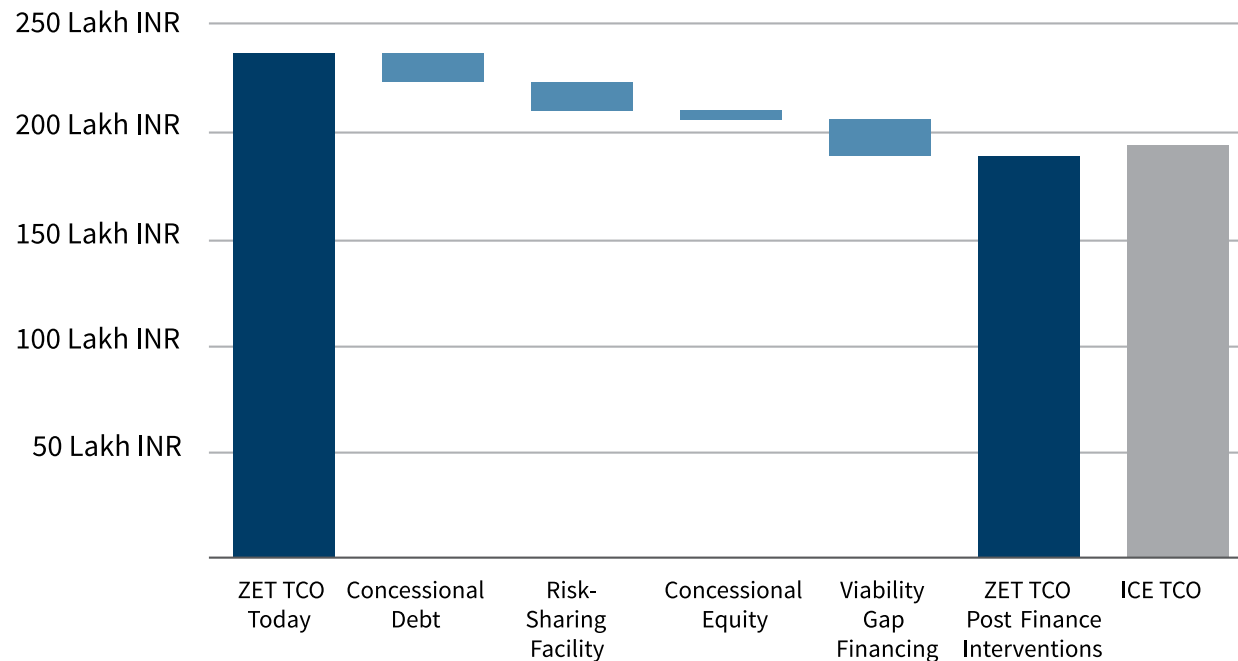
Finance Tools | Pathways to Finance ZET Deployment

	Financing Products	Potential Implementation Pathway
ZET Purchase	Loan Guarantees	DFIs such as the Small Industries Development Bank of India (SIDBI), with support from MDBs, set up a risk-sharing facility covering a share of losses.
	Concessional debt	MDBs and DFIs can develop concessional on-lending facilities for local financiers to offer longer tenure financing, and in turn, local financiers like NBFCs can on-lend to ZET buyers, offering debt at a longer tenure of seven to eight years.
ZET Charging	Viability-gap funding	The Ministry of Heavy Industries can provide a one-time grant for the development of public charging projects to offset the revenue-to-cost gap incurred by charge-point operators.
	Concessional equity	The Green Climate Fund or MDBs can establish a fund to blend public and private capital to invest in ZET fleets and charging infrastructure operators. The fund can seek a concessional rate of return, roughly a 15% internal rate of return (IRR) in 15 years.
Request grid infrastructure	Central financial assistance	Central financial assistance, through the allocation of grants, can support the development of requisite grid infrastructure and provide power at charging stations to charge the first 10,000 ZETs.
	Green bonds	The Government of India can issue a sovereign green bond for clean transportation through the Reserve Bank of India to initiate patient capital for grid infrastructure development.

Finance Tools | How Financing Tools Impact ZET Total Cost of Ownership (TCO)

Impact of finance tools on TCO of e-HDTs in 2026





Light blue bars show cost reduction potentials through various finance tools.



Note: The analysis is based on a bottoms-up calculation of the TCO of ZETs based on anticipated capital and operational costs for the year 2026. The monetized impact of each financial tool was then derived based on a unit-cost analysis comparing the baseline against how a financing tool could influence the interest rate, loan tenure, or electricity costs of ZET charging, affecting operational costs. The model seeks to achieve a 3% superior ZET TCO; thus, financing tools were modeled to achieve this threshold. See the *Comprehensive Guide to Financing the Zero-Emission Trucking Transition in India* for detailed documentation of the methodology used.



De-risking Measures | Ecosystem Enablers to Strengthen the ZET Market

De-risking measures	Description	Impact
 Demand aggregation	Consolidating the demand for ZETs to capitalise on economies of scale. Low demand poses challenges for OEMs in achieving scale in ZET manufacturing.	<ul style="list-style-type: none"> ✓ Lead to economies of scale for ZET manufacturing; ✓ Provide demand certainty to enable manufacturers to invest in ZET production capacities more confidently.
 Corridor development	ZET corridors are highway segments equipped with the necessary charging or refuelling infrastructure to facilitate seamless ZET mobility.	<ul style="list-style-type: none"> ✓ Mitigate the challenges associated with low charging utilisation; ✓ Unlock significant charging revenue potential; ✓ Reduce grid infrastructure costs through concentrated and region-specific demand planning.
 After Market support	Aftermarket support includes maintenance, repairs and technical assistance provided after the initial sale	<ul style="list-style-type: none"> ✓ Increase the likelihood that the product will retain its value over time and remain in operable condition; ✓ Make used ZETs more attractive to prospective buyers in the secondary market.
 Reducing Information Asymmetry	where actors do not have access to information regarding truck performance, including data on vehicle utilisation, downtime, range and battery performance.	<ul style="list-style-type: none"> ✓ Telemetric data provides comprehensive insights into the performance of ZET technologies, such as battery health, charging patterns and overall operational efficiency, enabling actors to prescribe a residual value to an asset more confidently

Business Models | ZET-specific Business Practices can Effectively Transfer Risk and Build Market Confidence

Vehicle leasing

- **Opportunity:** Adjustable truck lease contracts enable operators to operate a vehicle over a specified period without having to purchase it outright
- **Impact:** Reduces borrowers' liability as it transfers residual value risk and reduces downpayment



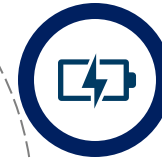
Insurance

- **Opportunity:** ZET specific insurance covers
- **Impact:** Insurance offers a safeguard for the borrower and the lender, as it enables both parties to recoup capital in case the ZET is damaged or rendered unusable



Mobility-as-a-service

- **Opportunity:** Bundled lease offerings including asset lease, fleet operation, and integrated charging infrastructure deployment
- **Impact:** transfers asset and business model risk to parties that have created businesses and economies of scale to manage these risks



Warranties

- **Opportunity:** Customizable warranties specifically for the battery and battery management system
- **Impact:** Warranties provide assurances regarding a vehicle's performance, quality and lifespan and can minimize perceived asset risk



Business models transfer risks and enable actors to better manage them

Actionable Opportunities for Governments and Financial Institutions

- **Governments** can build confidence and promote the shift to ZETs through financial incentives and tailored fiscal measures.
- **MDBs and DFIs** can partner with governments to offer concessional financing and reduce private-sector investment risks with loan guarantees.
- **Commercial investors** can contribute by creating specialized lending products and developing expertise in managing the risks of low and zero-carbon freight.

	Near term actions <i>6 months to 1 year</i>	Market-sustaining actions <i>1 year to 5 years</i>
Ministry of Finance	<ul style="list-style-type: none"> • Create a viability gap funding arm for public charging development 	<ul style="list-style-type: none"> • Collaborate and provide a sovereign grantee for risk-sharing facilities
Ministry of Heavy Industries	<ul style="list-style-type: none"> • Provide ZET incentives to defray ZET purchasing costs for the first 10,000 ZETs 	<ul style="list-style-type: none"> • Issue green bonds to support grid infrastructure development for ZETs • Work with MoPNG to develop targets for oil companies to shift a share of their retail locations to changing hubs
Ministry of Power	<ul style="list-style-type: none"> • Deploy high-power capacity chargers along corridors 	<ul style="list-style-type: none"> • Work with public sector undertakings to extend concessional debt to DISCOMs for line extensions and transformer installations for charging
Multilateral development banks	<ul style="list-style-type: none"> • Develop risk-sharing facilities to cover ZET market losses 	<ul style="list-style-type: none"> • Provide concessional finance to be further on-lent to local financiers
Domestic development financial institutions	<ul style="list-style-type: none"> • Work with MDBs and thought partners on viable risk-sharing facility structures 	<ul style="list-style-type: none"> • Become the issuing and implementing agency of risk-sharing facilities
Philanthropists	<ul style="list-style-type: none"> • Provide concessional finance to be further on-lent to local financiers 	<ul style="list-style-type: none"> • Develop and invest in grid readiness strategies for ZETs
Local finance institutions and banks	<ul style="list-style-type: none"> • Assess the financing intricacies of ZETs and invest in ZET pilots • Develop tailored lending products for ZETs and charge point operators, elongating loan tenure 	<ul style="list-style-type: none"> • Utilize and apply for the use of loan guarantees and increase lending to ZETs

Actionable Opportunities for Industry Actors and DISCOMs



	Near-term actions (6 months to 1 year)	Market sustaining actions (1 year to 5 years)
Fleets	<ul style="list-style-type: none"> • Work with financial institutions to reach the financing terms mutually agreed upon for ZETs • Formulate demand aggregation tie-ups 	<ul style="list-style-type: none"> • Explore leasing to spur near-term ZET adoption
OEMs	<ul style="list-style-type: none"> • Produce and sell timely, high-quality, safe and reliable ZETs and share proof points about ZET performance to create market confidence 	<ul style="list-style-type: none"> • Provide after-sales support and maintenance services to ZET end-consumers • Introduce warranties and buyback schemes for ZETs to build market confidence
CPOs	<ul style="list-style-type: none"> • Deploy high-power capacity chargers along corridors 	<ul style="list-style-type: none"> • Offer charging-as-a-service. • Work with financiers to better understand the risks of debt and equity investment in charging infrastructure development
Technology	<ul style="list-style-type: none"> • Develop battery state-of-health diagnostics systems to provide market actors battery operation and performance data 	<ul style="list-style-type: none"> • Support actors in analysing ZET freight flows to synthesis operational data
Insurance	<ul style="list-style-type: none"> • Evaluate the unique risks of operating and owning ZETs 	<ul style="list-style-type: none"> • Develop tailored compressive insurance products for ZETs
DISCOMS	<ul style="list-style-type: none"> • Develop capacity maps and power availability data within and along specific corridors • Work with state regulatory agencies, CPOs and fleets to plan for ZET charging demands 	<ul style="list-style-type: none"> • Develop and invest in grid readiness strategies for ZETs

The Interrelationship Between Financing Tools, De-risking Practices and Business Models



Identify a blend of financing tools to spur ZET market development

Concessional capital can foster market growth; unlocking further commercial and private investment



Implement de-risking practices to reduce market risk

De-risking measures work to mitigate risk, lowering expected loss



Develop ZET business models to more effectively manage and distribute ZET risk

Innovative business models offer a means to allocate risks to more suitable market actors



Mobilizing ZET Finance

Financing the Zero-Emission Truck Transition in India

Expert Panel

Panel discussion: Real-world insights for mobilizing ZET financing



Samhita Shiledar
(Moderator)
Principal,
RMI India Program



Jayant Prasad
Executive Director,
Ckers Finance



Saurabh Sood
Senior Transport Specialist,
World Bank



Sameer Aggarwal
Founder and CEO,
RevFin