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FICCI

DRIVING **ZEV TRANSITION**

-From Center to State

November 2024



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Annexure 39





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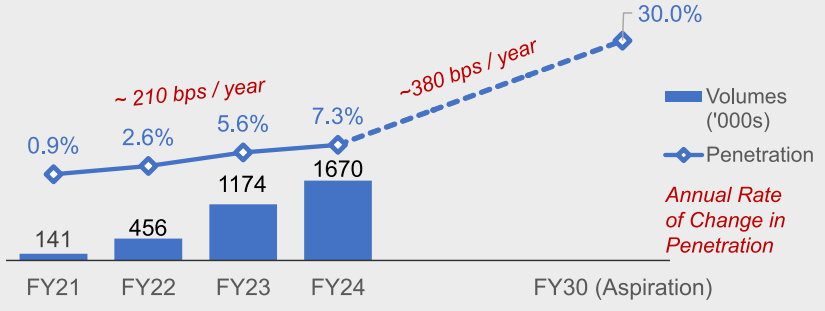
Market Development of **Zero Emission Vehicles in India**

1.1. National Perspective

India's ZEV Market: A Key Imperative, Needs to Quadruple in Penetration to Achieve National Targets

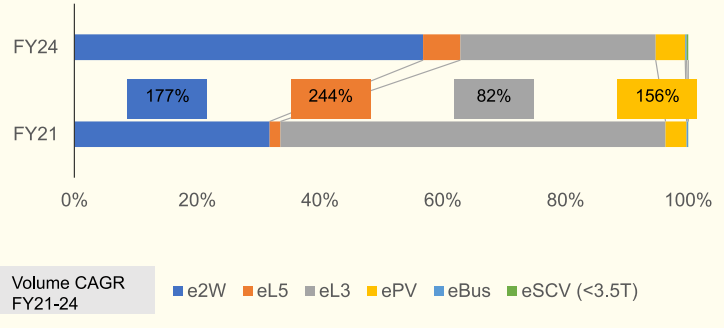
- Transition to ZEVs is being driven as one of the key strategies for decarbonisation, and reducing dependence on imported fuel, while reducing vehicular pollution in key cities.
- Transport sector is in focus to drive India's net zero goals by 2070 as it is responsible for ~14% of the country's energy related direct (Scope 1) CO_2 emission largely driven by road transport sector (~90% share)
- This is also a key opportunity for Indian industry development as the market shifts

ZEV penetration rose rapidly at ~200bps per year between FY21-24; but needs to nearly double this rate to achieve EV30@30



Demand side trends	Supply/ Charging side trends
1 Improving favorability of EV TCOs (Total Cost of Ownership)	1 Greater localisation in auto-electronics, EV components; Technology development
2 Multiple electric vehicle product options in 4W, SCV, MHCV	2 Auto PLI capacities coming onstream
3 Lowering trend in battery cost, de-linking of battery from vehicle	3 Commissioning of capacities under PLI ACC to come onstream
4 PM E-DRIVE Scheme, & PM-eBus Seva deliveries	4 Working on Upstream Issues in Charging Infrastructure

EV volumes driven by e-2W, other segments have also emerged



EV Volumes have been considered only for mentioned categories and do not include vehicles which are not registered or for those states for which data is not available at Vahan portal (TG). EV penetration calculation considers electric and total volumes for registered 2W, 3W (also including e-rickshaw/e-cart), Light Goods Vehicles (SCV), 4W and bus

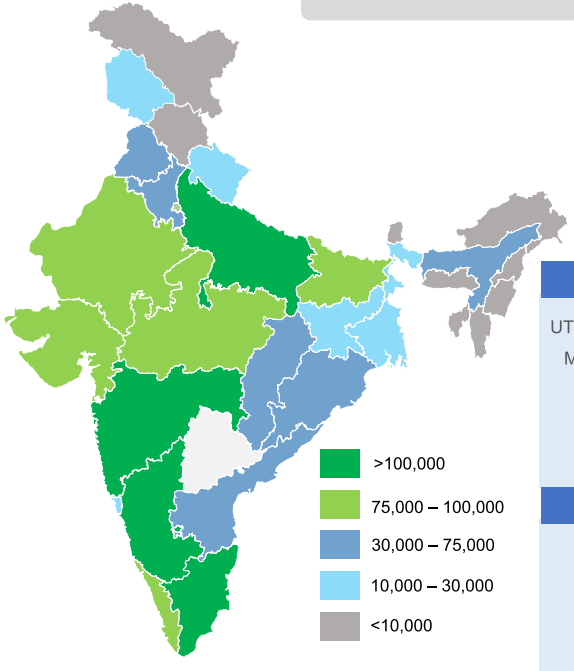
Source: Niti Aayog, MoRTH (Vahan Portal)

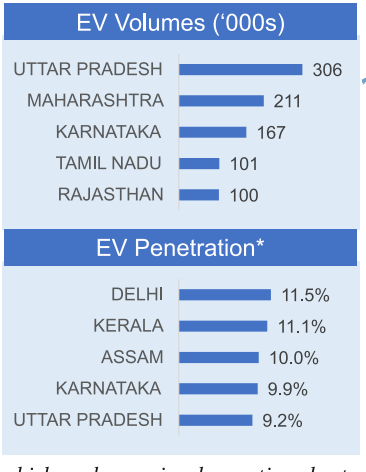
1.2. State Level Overview

Overall: State-wise Trend on Contribution to EV Transition

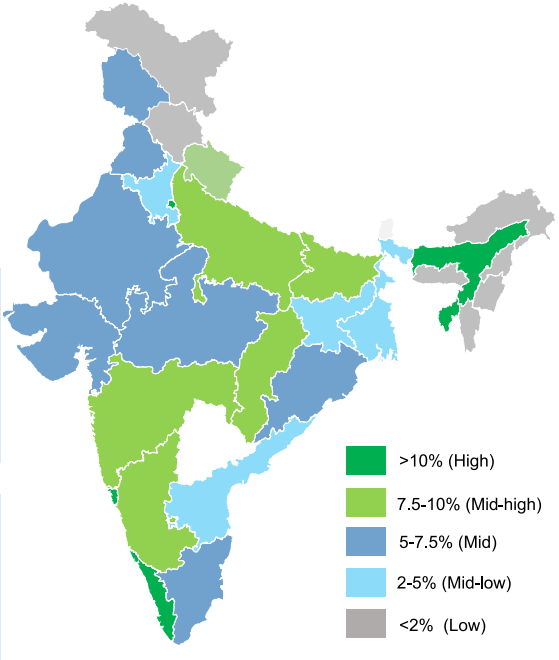
- Sales in UP – market leader in EV volumes – has been driven by e3Ws (~80% share of total EV sales in the state) while e2W sales has driven sales in MH, KA & TN states – next states in EV volume
- GJ, OD, KL and PB have had among the highest CAGR growth in volumes between FY21-24
- Within states, MH saw the highest gain in market share for EV sales in the past three fiscals
- DL has achieved high aggregate EV penetration driven by multiple segments
- High overall penetration for KL and KA which was driven by e2W and for AS & UP was driven by e3W segment

FY24
EV Registrations





FY24
EV Penetration



Note: EV Volumes have been considered only for registered vehicle under previously mentioned categories. States with negligible EV registrations and those with data not available at Vahan portal (TG) are not highlighted. EV penetration calculation considers electric and total volumes for registered 2W, 3W (also including e-rickshaw/e-cart), Light Goods Vehicles (SCV), 4W and bus.

** Top 5 in Penetration data among states with significant EV volumes only (top 17 by FY24 EV registrations - mentioned on Page 10), though select other UTs/ States may have higher EV penetration.*

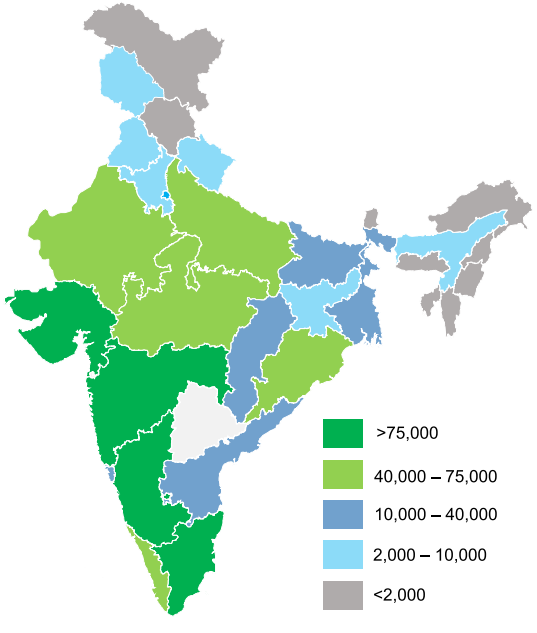
Source: MoRTH (Vahan portal)

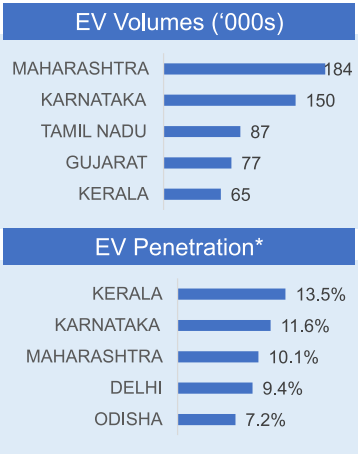
e2W: State-wise Trend on Contribution to EV Transition

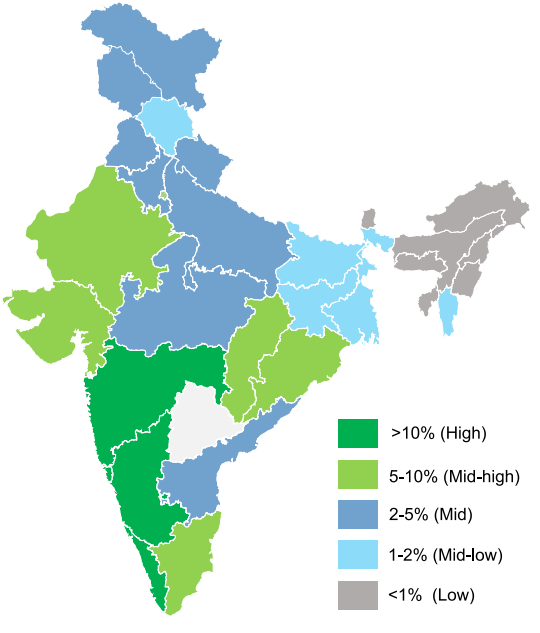
FY24 e2W Registrations

- Top 5 states contribute ~60% of total e2W sales
- MH, KA, TN, GJ and KL led in overall e2W sales in FY24. In these states along with OD and AP, e2W sales comprised >80% of total EV sales
- GJ has seen the highest gain in market share within states for e2W sales in the past three fiscals

FY24 e2W Penetration







Note: EV Volumes have been considered only for registered e2Ws. States with negligible EV registrations and those with data not available at Vahan portal (TG) are not highlighted.

** Top 5 in Penetration data among states with significant total EV volumes only (mentioned on Page 10), though select other UTs/ States may have higher EV penetration.*

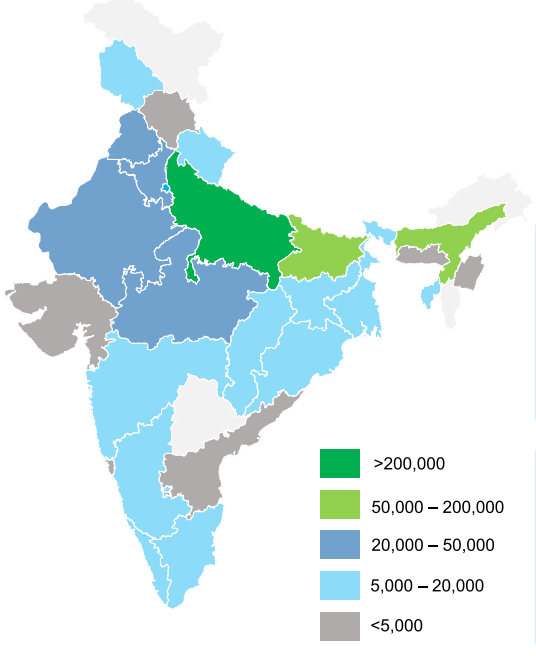
Source: MoRTH (Vahan portal)

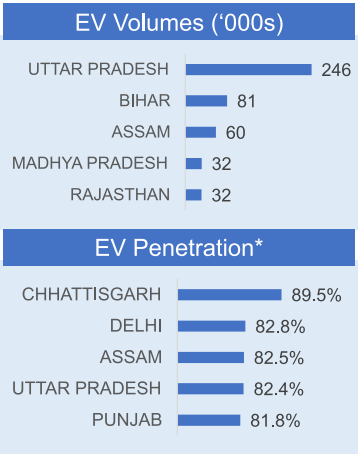
e3W: State-wise Trend on Contribution to EV Transition

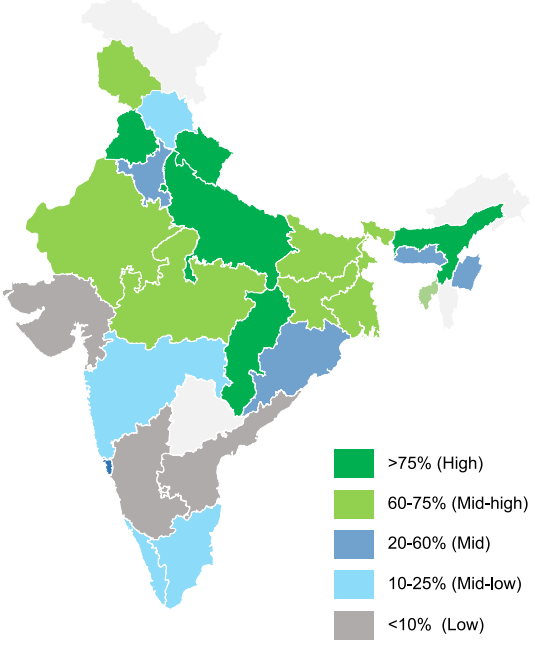
FY24 e3W (L3+ L5) Registrations

- UP leads e3W sales with BR coming next with volumes one fourth of UP
- Spread of sales is wider in 3W - Top 5 states contribute to only 32% of e3W (L3+L5) sales in contrast to ~53% at an aggregate level across the considered segments.
- UP has seen the highest gain in market share within states for e3W sales in the past three fiscals
- Among top 5 states in e3W volumes (UP, BR, AS, MP, RJ), every nine in ten of sales of e3W are from e-rickshaw/e-cart category
- CG leads in e3W penetration with ~90% of 3W sales being electric. Within L5 segment as well, the state showed >70% EV penetration
- DL comes next with ~60% eL5 penetration. AS and WB also have >30% EV penetration in the L5 segment.

FY24 e3W (L3+L5) Penetration







Note: EV Volumes have been considered only for registered e3Ws (also including e-rickshaw/e-cart). States with negligible EV registrations and those with data not available at Vahan portal (TG) are not highlighted.

** Top 5 in Penetration data among states with significant total EV volumes only (mentioned on Page 10), though select other UTs/ States may have higher EV penetration.*

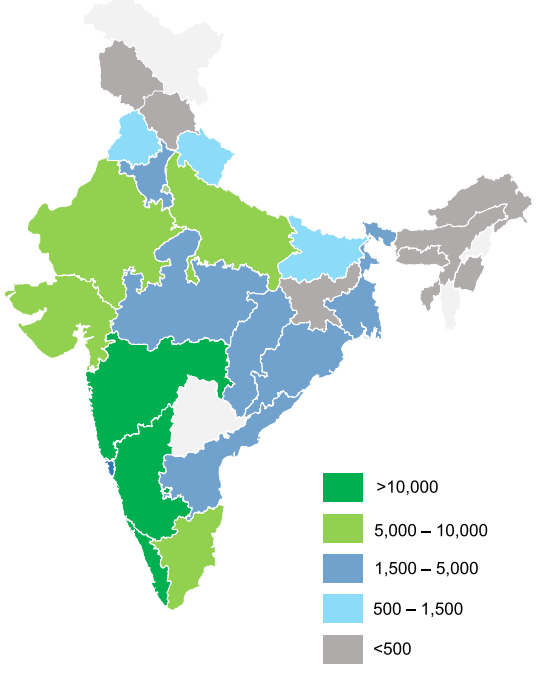
Note: e3W refers to L5 category (goods + passenger) as well as e-rickshaw & e-cart

Source: MoRTH (Vahan portal)

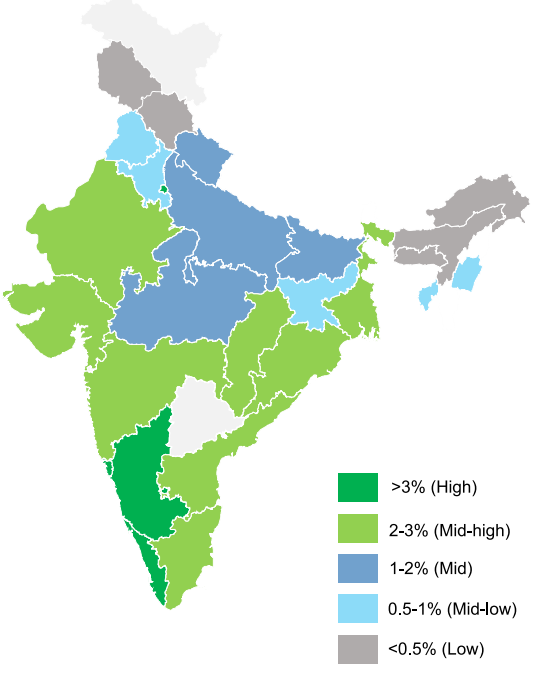
e4W: State-wise Trend on Contribution to EV Transition

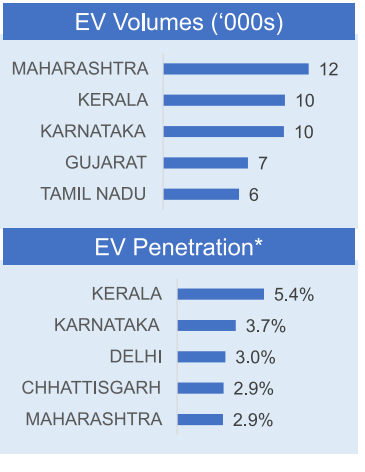
- >8% of EV sales in KL, GJ, DL and WB comes from ePVs
- UP and GJ both have seen among the highest gain in market share within states for e4W (PV) sales in the past three fiscals
- KL led in electric Passenger car penetration.

FY24 e4W (PV) Registrations



FY24 e4W (PV) Penetration





Note: EV Volumes have been considered only for registered e4Ws. States with negligible EV registrations and those with data not available at Vahan portal (TG) are not highlighted.

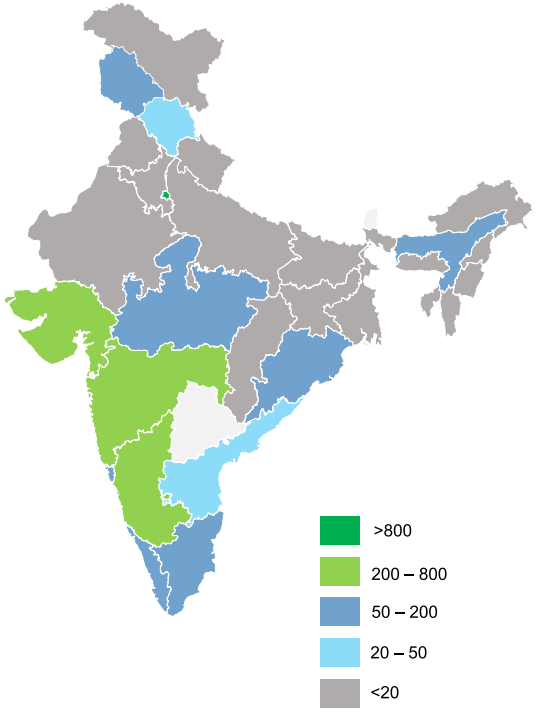
** Top 5 in Penetration data among states with significant total EV volumes only (mentioned on Page 10), though select other UTs/ States may have higher EV penetration.*

Source: MoRTH (Vahan portal)

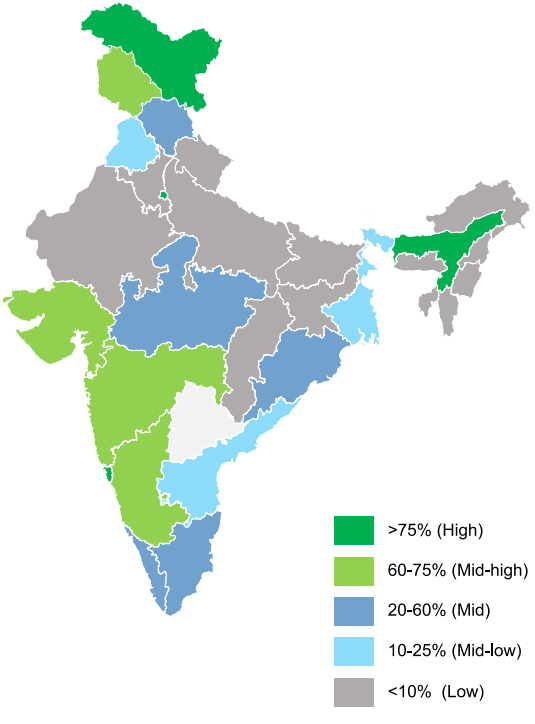
eBus: State-wise Trend on Contribution to EV Transition

- In FY24, DL showed highest e-bus offtake followed by MH and KA.
- Due to the inconsistent/bulky nature of ebus offtake from STUs, UP showed nil offtake in FY24, however had shown ~380 ebus offtake in the previous fiscal
- Every four out of five e-bus sales in FY24 was registered in the top 5 states
- Considering FY21-FY24, top 5 states (DL, MH, KA, UP and GJ) together contribute ~80% of e-bus registrations
- Last fiscal, more than half of e-bus sales in DL was electric

FY24 eBus Registrations



FY24 eBus Penetration



EV Volumes

DELHI	1327
MAHARASHTRA	664
KARNATAKA	596
GUJARAT	243
ASSAM	178

EV Penetration*

DELHI	57.6%
ASSAM	14.0%
KARNATAKA	7.0%
MAHARASHTRA	6.8%
GUJARAT	5.2%

Note: EV Volumes have been considered only for registered eBuses. States with negligible EV registrations and those with data not available at Vahan portal (TG) are not highlighted. Owing to inconsistent e-bus registrations by STUs, select states have had nil e-bus registrations & penetration in FY24 - namely UP (FY23: 381 ebus registrations, 5% ebus penetration), UK (FY23: 23, 2%), BR (FY23:1, 0%).

** Top 5 in Penetration data among states with significant total EV volumes only (mentioned on Page 10), though select other UTs/ States may have higher EV penetration.*

Source: MoRTH (Vahan portal)

Top 5 states contribute more than half of the EV volumes in FY24, though spread of sales has improved over past 4 years

State	FY24 EV Sales (in '000s)	FY21-24 Sales CAGR	EV Penetration FY24					Change in EV share FY21-24
			Overall	e2W	e3W	ePV	eBus	
UTTAR PRADESH	306	113%	9.2%	2.1%	82.4%	1.4%	0.0%	7.8%
MAHARASHTRA	211	182%	8.7%	10.1%	15.2%	2.9%	6.8%	8.1%
KARNATAKA	167	135%	9.9%	11.6%	9.1%	3.7%	7.0%	8.7%
TAMIL NADU	101	104%	5.6%	6.0%	12.3%	2.6%	1.8%	4.7%
RAJASTHAN	100	130%	7.2%	5.7%	60.7%	2.6%	0.3%	6.2%
BIHAR	96	94%	7.6%	1.4%	70.6%	1.0%	0.0%	6.1%
GUJARAT	88	277%	5.2%	6.2%	4.4%	2.1%	5.2%	5.0%
KERALA	81	233%	11.1%	13.5%	15.6%	5.4%	1.8%	10.7%
MADHYA PRADESH	77	168%	5.6%	3.8%	61.1%	1.1%	1.7%	5.2%
DELHI	76	87%	11.5%	9.4%	82.8%	3.0%	57.6%	8.8%
ASSAM	64	92%	10.0%	0.8%	82.5%	0.3%	14.0%	7.7%
ODISHA	52	237%	7.1%	7.2%	26.0%	2.3%	2.1%	6.9%
CHHATTISGARH	42	193%	7.8%	6.1%	89.5%	2.9%	0.0%	7.4%
ANDHRA PRADESH	36	145%	4.3%	4.5%	6.2%	2.1%	0.8%	4.0%
HARYANA	33	121%	4.2%	2.0%	54.4%	0.8%	0.3%	3.7%
PUNJAB	32	222%	5.3%	2.4%	81.8%	0.8%	0.8%	5.1%
WEST BENGAL	26	47%	2.6%	1.6%	60.0%	2.0%	0.6%	1.7%

- Between FY21 - FY24, the spread of EV sales among states improved, with GJ, KL and OD showing more than 200% CAGR over FY21-24. Among top 5 states, MH sales grew at >150% CAGR
- UP features highest by sales volume, largely driven by higher sales and penetration in the e3W segment
- On the other hand, MH & KA sales are driven by e-2W sales
- KL, KA & DL have the highest penetration of e-4Ws

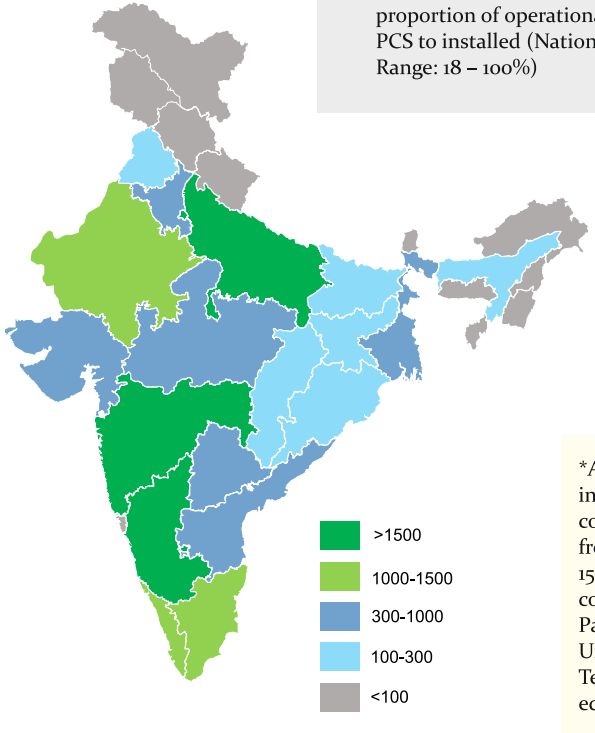
Note: Sales refer to registrations; EV sales data for Telangana not available at Vahan portal. Penetration is taken as EV registrations among all registrations for the segment. Top 5 states in penetration / basis CAGR growth / Change in Penetration have been highlighted. Data for states with significant EV volumes (top 17 by FY24 Registrations). EV Penetration has been arrived at considering total volumes for registered 2W, 3W (L5 & e-rickshaw/e-cart), SCV, 4W (Passenger car) and bus.

Source: MoRTH (Vahan portal)

Several states have started showing progress in EV charging infra., now need to gather speed

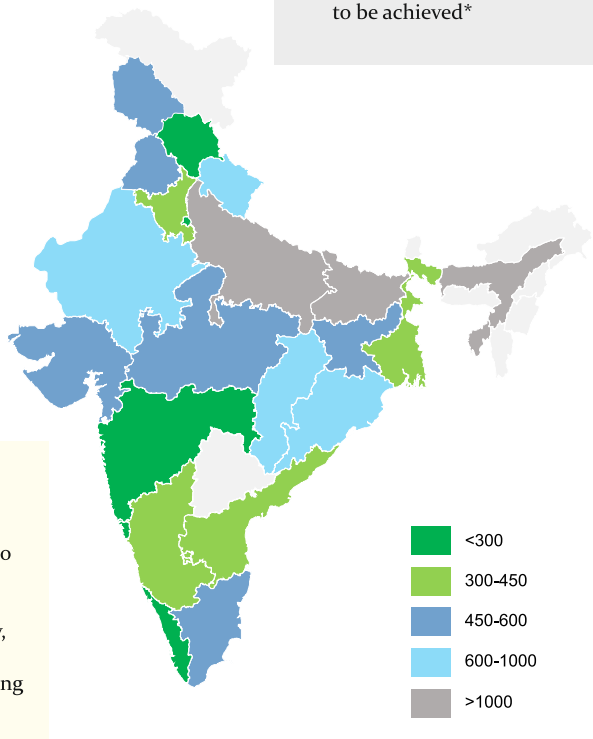
No. of Public Charging Stations Installed
(Nationally: ~25,000
Of which Operational: ~12,100, as of Feb 2024)

- DL, MH, KA and UP lead in the number of installed Public Charging Stations (PCS)
- DL, MH also lead in proportion of operational PCS to installed (National Range: 18 – 100%)



of EV Stock per Operational Public Charging Station
(Nationally: ~430 EVs / operational charger)

- Among states with significant EV sales DL, MH and KL lead in # of EVs per operational charger, though global benchmarks are still to be achieved*



*As per Niti Aayog, charging infrastructure requirement is considered dynamic, ranging from 1 Charging Point per 20 to 150 EVs, depending upon the composition of EVs, Running Patterns, Terrain & Geography, Urbanization Pattern and the Technology of EVs and Charging equipment

Note: States with negligible EV sales are not highlighted, EV sales data for Telangana not available at Vahan portal. For graph on # of EV / Operational chargers, states with stock of >2000 vehicles (e2W, e3W, ePV and eBus) have been considered. # of EV Stock has been arrived as a summation of EV sales till 30 Oct 2024.

Source: BEE, PIB, MoRTH, Niti Aayog


ABB



2

Levers of **Government Impetus**

2.1 Central Policy & Regulatory Support

Wide Ranging Support across multiple Central Ministries

Demand Creation

- **PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE)** – Oct'24 to Mar'26 (Demand Incentives – ₹3,679 Cr, eBus - ₹4,391 Cr)
- **Electric Mobility Promotion Scheme (EMPS) 2024** - ₹778 Cr outlay - provides incentives to buyers of e-2W and e-3W
- **PM e-Bus Sewa** – ₹3,435 Cr outlay – 38,000+ buses – FY'25 to Fy'29
- **Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME II)** – ₹11,500 Cr outlay – 13.2 L EVs incentivized (Jun 2024)
- **MoRTH notification advising states to waive Road tax on EVs (2023), and mandating states to waive registration on EVs** (2021)
- **MOF**: Lower GST on EVs, Income Tax deduction on EV Loan
- **MoRTH:** Green Licence plates for EVs

Supply Ecosystem

- **MHI's Scheme to Promote Manufacturing of Electric Passenger Cars** – to attract investments from global EV players by reducing import duty to 15% (Mar'24)
- **MHI's PLI for Automobile & Auto Component Industry (PLI-AAT) (2021)** - (FY' 23 – FY'28) – ₹25,938 Cr outlay
- **MHI's PLI for Advanced Chemistry Cell (PLI-ACC)** – ₹18,100 Cr outlay
- **FAME Requirements for Localization of components and Phased Manufacturing Program**
- **MeitY's Scheme for Promotion of Electronics Components & Semiconductors (SPECS)** – (Apr'20 to Mar'29), which also incentivized some EV components
- **Ministry of Finance (MoF):** To support the 'Make in India' initiative of the Government of India, the Ministry of Finance rationalised customs duty for various vehicle categories battery packs and cells (2019)

Charging Infrastructure

- **MoP has been issuing & revising guidelines, incl.**
  - De-licensing EV charging infra., provision of revenue sharing model at Re 1 / kWh for land use between government / public entities;
  - Ceiling limit on cost of supply by DISCOM to a PCS as 0.7X Average Cost of Supply (ACoS) during solar and 1.3X ACoS during non – solar hours;
  - Safety requirements for EV charging stations, etc.
- **PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE)** (Charging Infra – ₹2,000 Cr)
- **GST on EVs and chargers/ charging stations for EVs has been reduced to 5%** (Feb 2022)
- **2022: National Highways Authority of India (NHAI) to develop 3K Hectares of 'Wayside Amenities' with charging facilities** at more than 600 locations across 22 states along the National Highways in the next five years, on PPP Model
- **FAME II allocated ~₹1000 Cr to incentivize** charger development
- **Ministry of Housing & Urban Affairs (MoHUA) amended the Model Building Byelaws 2016** to establish charging infra. in private and commercial buildings

Source: BEE; PIB; MoRTH: MHI; MeiTY; MoP; MoF; MoHUA

2.2 State Policy & Regulatory Enablers

At the Crossroads: State EV Policies Gearing Up for Next Phase

States have supplemented Central Govt. efforts for EV transition in India through providing for multiple interventions in stated policies:

The following section is basis the stated policies & initiatives of 18 states having significant FY24 EV volumes (TG and those mentioned on Page 10), though most other states also offer support for Evs

Several States have Launched EV Policies over the Years, Many Reaching Sunset Soon

2017	2018	2019	2020	2021	2022	2023	2024-25
KA 1.0	AP 1.0 KL 1.0	UP 1.0 TN 1.0 MP 1.0 PB 1.0 DL 1.0 BR 1.0	TS 1.0	OD 1.0 MH 1.0 AS 1.0 GJ 1.0 WB 1.0	**UP 2.0** **PB 2.0** HR 1.0 CG 1.0 RJ 1.0	**BR 2.0** **TN 2.0**	**Policy Sunset/ Draft 2.0 Policy in Circulation** AP KA DL KL MP GJ MH TS

State Policies have covered following interventions, though these vary by state and status of implementation

Coverage is basis **stated policies**, this may include discontinued incentives/ policies as well as initiatives not implemented on ground

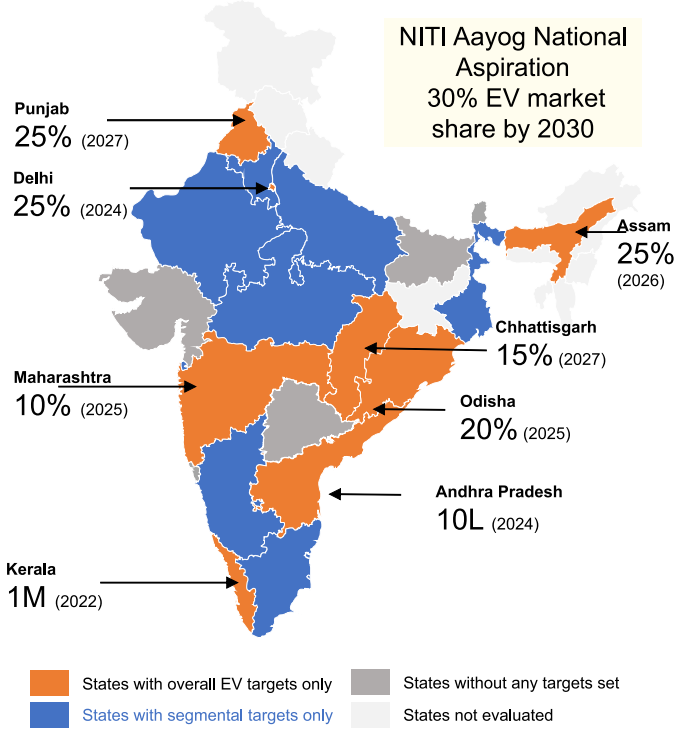
Demand Creation		Supply Side Interventions		Charging Infra. Support	
Alleviate Upfront Cost	• Purchase Incentives • Tax Waivers	**Investment & Employment**	• Capital Expenditure • Employment Generation • Land Related	**Purchase Subsidy**	• EVSE Purchase Subsidy • Battery Swapping Subsidy • SGST Reimbursement
Support Circularity	• Retrofit Kit, Scrapping • Swapping	**Operational Cost Exemptions**	• GST Waivers • Interest Waiver • Electricity Duty/ Tariff	**Operational Cost/ Incentive**	• Electricity Duty • Concessional EV Tariff
Ease Operational Cost	• Vehicle Financing • Parking Waivers/ Preference	**R&D Support**	• R&D Center (Entity Level) • Quality Certification • Patent Registration	**Infra. Support**	• Land Cost/ Tax rebate • Upstream Electricity Infra. • Renewable Energy Integration
Mandate Adoption	• Green Zones • Mandates	**Infrastructure**	• R&D COEs • EV Cluster/ Park	**Charging Infra. Mandates**	• Govt. Complexes/ Land • Residential Areas • Commercial Complexes

Source: State EV Policy Documents

2.2.1. DEMAND CREATION

State Aims – Setting The Stage To Align With National Aspirations

EV penetration of 10-25% was targeted by 2025 or earlier by several states, while others have set a 15-25% target for 2026/2027



Segmental Penetration Aims

e2W (10 -25%) **(NITI:** 35-40%)	**e3W (25-30%)** **(NITI:** 26-29%)
MH: 10% (2025) PB: 25% (2027) RJ: 15% (2027)	MH: 20%(2025) PB: 25% (2027)* RJ: 30% (2027)
e4W Car (5 -10%) **(NITI:** p: 9-11%, c: 20-25%)	**Govt. Fleet**
MH: 5% (2025) RJ: 5% (2027)	AP: 100% (2024) UP: 100% (2030) HR: 100% (2030)
eBus **(NITI:** 13-16%)	**Aggregator**
***STU*:** MH: 15%*(MSRTC)* (2025) AP: 100% (2029) TN: 30% (2030) HR: 100% (2030) ***All Bus Public Transport*:** MH: 25%* (2025) DL: 50% (2024) UP: 100%* (2030) MP: 100% (2028), 100%* (2026)	MH: 25%* (2025) MP: 100% (2030) HR: 100%* (2030)

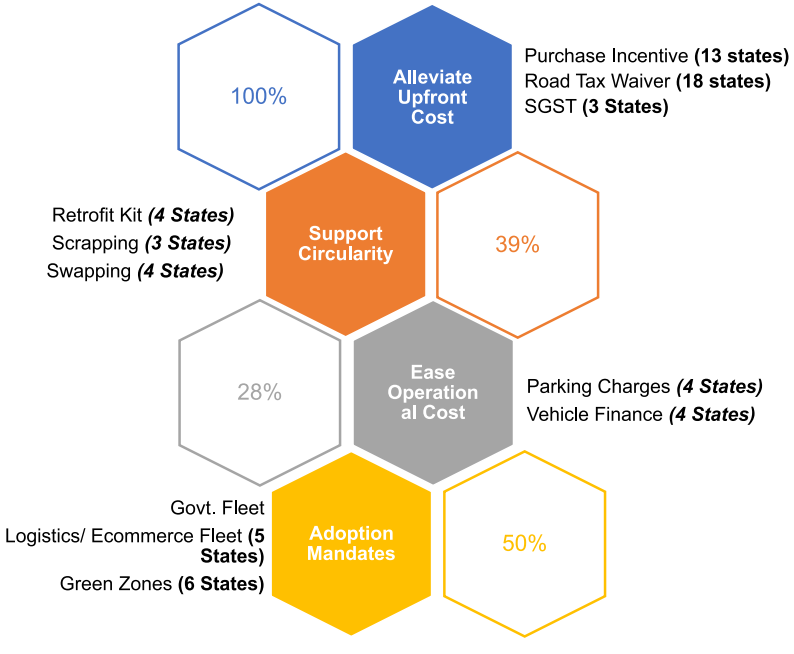
p: Passenger; c: Commercial
*In select cities

- As several of the target timelines come close to the finish line - in overall target achievement, MH is close to achieving it.
- e3W segmental targets have been achieved in a couple of states (RJ, OB), and are close to being achieved for e2W for MH. In e4W targets, progress is seen in RJ, which eBus targets are achieved in DL.
- States with highest penetration of >10% in FY24 (DL, KL, AS) had set aggressive targets, though converse may not be true as multitude of factors have been involved.

Source: State EV Policy Documents; NITI Aayog; MoRTH

Planning Levers to Turn the Adoption Wheel Forward

STATE	EV Purchase Subsidy	Road Tax	SGST	Retro-fitment	Scrapping	Swapping	Parking Charges	Vehicle Finance	Adoption Mandate	Green Zones
UP	Y	Y				Y				Y
MH	Y	Y			Y	Y		Y	Y	Y
KA#		Y	Y							
DL	Y	Y			Y	Y		Y	Y	
RJ	Y	Y	Y	Y		Y				
TN	Y	Y		Y						
BR	Y	Y							Y	
GJ	Y	Y								
TS		Y		Y				Y		
AS	Y	Y		Y			Y			
KL#	Y	Y								Y
MP#		Y					Y			Y
OD	Y	Y					Y	Y		
CG	Y	Y	Y		Y		Y		Y	
AP#		Y							Y	Y
HR	Y	Y								
PB	Y	Y								
WB		Y								Y



% of states out of the 18 covered states, whose policies include at least one initiative mentioned under the category

Mapping of state initiatives is basis stated policies, and may include discontinued incentives/ policies as well as initiatives not implemented on-ground

Source: State EV Policy Documents; State Government Orders; Press Information Bureau

Filling The Gaps: Aiming to Selectively Supplement Central Coverage on Fiscal Lines

State Mention of Vehicle Subsidy for Specific Vehicle categories

	2W (c)	2W (p)	3W L3	3W L5	4W (c)	4W (p)	Bus	SCV N1	Ambulance	Tractor	eCycle
# of states Mentioning Subsidy	11	11	10	12	11	10	9	9	1	1	2
UP#	Y#	Y#	Y#	Y#	Y#	Y#	Y#	Y#	Y#		
MH	Y#	Y		Y	Y	Y	Y	Y			
KA											
DL	Y	Y	Y	Y	Y#	Y#		Y			
RJ	Y#	Y#	Y#	Y#	Y	Y	Y	Y			
TN	Y			Y	Y		Y	Y			Y
BR	Y	Y			Y	Y	Y				
GJ	Y#	Y#		Y	Y	Y					
TS											
AS	Y	Y	Y	Y	Y	Y					
KL#				Y#							
MP#											
OD	Y	Y	Y	Y	Y	Y	Y	Y			
CG	Y	Y	Y	Y	Y	Y	Y	Y			
AP#											
HR					Y	Y	Y	Y		Y	
PB	Y	Y		Y			Y	Y			Y
WB	Y	Y	Y	Y	Y						

- States have mentioned to incentivize several additional categories not covered by erstwhile central demand incentives such as FAME, especially **e4W for Individual use and eSCVs, and sometimes** niche/ emerging segments basis vehicle mix in state - such as eTractors (HR); **eAmbulances & e-school buses** (UP), **eCycles** (TN, PB).
- Subsidy has been instituted as 10-15% of Vehicle Cost OR ₹5-10 K per KWh of battery size, or a combination (Higher in AS: 40%, or in certain segments – 3W: 25% (KL#), e-cycles: 20% - 50% (TN, PB), 4W: 30% (RJ), Bus: ₹20K/ ₹1L per KWh (TN, RJ) | Lower in PB: ₹3 K per KWh)

₹10K/ KWh	MH*, TN, RJ, BR, OD, GJ, AS, WB
15% Cost	UP, OD, HR
₹5K/ KWh	DL, MH, RJ, OD
10% Cost	UP (*SCV*), CG
₹30K Flat	OD (*3W*)

	Max. Subsidy Amount	OR	Vehicle Price Bracket	# of Vehicles to be Incentivized
2W	₹5 K- ₹30 K /150K		<₹1.5 L: GJ, AS	10K–2L
3W	₹10 K- ₹50 K /150K*		<₹5 L: GJ, AS	10K–75K
4W	₹ 50 K- ₹150K /1000K		<₹15 L: GJ, AS ₹40–70L: HR	1K–35K
Bus	₹150 K- ₹2500 K			0.2K–1.5K
SCV	₹30 K- ₹100 K			1K–10K
eCycle	₹4 K- ₹10 K			10K–30K

- Some leading states had instituted a short-term early bird incentive, doubling/ providing incentive only for a limited period of time and no. of vehicles (*MH, UP). In some others, no. of vehicles incentivized has **annual caps** to allow longevity of the incentive (TN).
- Multiple modes of disbursement have been followed – Directly to customer (DL, OD), to customer after verification from dealer (GJ, UP), through OEM (MH) etc.

Note: Information as per stated policies of 18 states analyzed. This may include discontinued incentives/policies as well as initiatives not implemented on ground

(c): Commercial; (p): Private;. # Incentives discontinued as time limit/ policy sunset reached. ■ *Segments not covered in FAME II*

Source: State EV Policy Documents; State Government Orders; Press Information Bureau ■ *Segments covered in FAME II*

State Tax Waivers designed to provide further relief, though timeframe, exemption proportion, and vehicle caps may vary

Road Tax/ State Tax Exemption

- Can comprise 4-18% of the vehicle cost, on which 50-100% waiver/ rebate has been mentioned for EVs by all evaluated states for the policy period/ certain # of vehicles or initial few years. Couple of states have also introduced **Incentive Tapering** based on this (BR, CG). UP has linked exemption phase-wise to **state EV manufacturing**.
- This support is also mentioned by those states not offering upfront purchase subsidy at all (KA, TS, MP, WB, AP), or for all segments (BR-3W, KL – 2W & 4W). Some states have covered niche/ emerging segments such as **Tractors** (TS, HR); **Ambulances & school buses (UP)**; **MHCVs** (BR, AP), **eCycles** (TN, PB), **boats** (KL)

St.	e2W	e3W	e4W	eBus	eSCV	Other (Specific)
UP	100% Year 1-3.; 100% for those also Manufactured in UP – Year 4 & 5					
MH	100%					
KA#	100%#					
TN	100% for those Manufactured in TN					
RJ	100%					
BR	75% - 1st 10K then 50%	50%	75% - 1st 10 K then 50%	75% - 1st 2 yrs then 50%	50%	MHCV: 75% - 1st 2 years then 50%
GJ	50%					
KL#	50%#			50%#		Boats: 50%#
MP#	1%, 15 K#	1%, 12 K#	1%, 6K#	1%, 1.5 K#		
TS	100%, till FY26					
DL#	100%#					
AS	100%					
OD	100%	100%	100%, 4 yrs	100%, 4 yrs		
CG	100% - 2 yr | 50% - 2 yr | 25% - 1 yr					
AP#	100%#					
HR	100%, 30K	100%, 15K	75%, 10,000	75%, 1000		
PB	100%					
WB	100%		100%			

Permit Fee Waiver

- Mentioned for E-autos in many states in the light of 2018 MoRTH notification. Few states mention to give E-Auto permits priority instead (OD, CG, AP, PB). DL has an open permit system on first come first serve basis for individuals
- Permit waivers have also mentioned as extended to other categories of transport vehicles in few states (TN, BR, RJ). MP provides for possible permit exemption for 5000 shared eRickshaws

SGST Reimbursement

- For all vehicles in KA & RJ and for Buses & Goods Carriages in CG. Fleet leasing service exempt from SGST in AP

Note: Information as per stated policies of 18 states analyzed. This may include discontinued incentives/policies as well as initiatives not implemented on ground

 # Discontinued due to time limit/ Policy Sunset. DL has recently withdrawn this for 2 & 4 W

Source: State EV Policy Documents; State Government Orders

Easing The Transition: Innovative Support to Evolution of Circularity, Development of Vehicle Finance

CIRCULARITY

RETROFITMENT (4 States)

15% of cost / ₹10 K per KWh, up to usually ₹10 – 15 K

Usually for 3W, couple of states have instituted for other vehicles: 2W (TN); 4W & bus (RJ)

AS: 3W L5M: 15% of cost or up to max ₹15,000

RJ: 15% of the retrofit kit cost for first 3K 3W (up to ₹10K) | 2K 4W (up to ₹15K) | 200 Bus (up to ₹2.5L)

TS: 3W: 15% of the retro-fitment cost 5K 3Ws (up to ₹15K)

TN: 10,000/KWh (up to ₹15K for first 30K 2W | 20K 3W)

SCRAPPING (3 states)

Subsidy on EV purchase after ICE scrapping (in same category basis matching contribution from the dealer or OEM) for 2W, 3W Auto (L5), SCVs in a couple of states (MH, DL), for 4W (MH), and bus (CG)

MH: 2W: ₹7,000 | 3W: ₹15,000 | 4W/SCV: ₹25,000

DL: 2W: ₹5,000 | 3W: ₹7,500

CG: Additional monetary support via separate transport fund for bus operators wishing to scrap their vehicles

SWAPPABLE BATTERIES (4 states)

Incentive offered either as specific incentive (RJ) **or as 50% of the incentive to be provided for vehicles with fixed batteries**

RJ: 2W: ₹7,000 | 3W: ₹15,000 | 4W: ₹25,000

DL, MH: 50% of the subsidy applicable to the fixed battery model to be provided to customer, and remaining to the battery swapping energy operator

UP: 50% of the subsidy applicable to the fixed battery model provided to customer

VEHICLE FINANCE

EV LOAN INTEREST COST REDUCTION

DL: 5% Interest subvention for Vehicle Finance for 3W and SCV categories if the loan is availed from Delhi Finance Corporation's empaneled finance providers

OD: 5% Interest subvention in the policy period for purchase personal EVs, buses, goods carriers; 100% interest free loans to State Government employees for EV purchase

BENEFIT FOR PRODUCTS AMENABLE TO EV FINANCE

MH: Addl. Incentives (basis net value after other incentive) to OEM for vehicles with extended battery warranty (5 yrs) and buyback agreement, up to ₹12,000 in total incentive (incl. demand incentive)

Note: Information as per stated policies of 18 states analyzed. This may include discontinued incentives/policies as well as initiatives not implemented on ground

Source: State EV Policy Documents; State Government Orders

State Feedback

What Worked Well

- **Allowing Fungibility:**

Due to the nascent nature of the market esp. when the policies were being framed, identification of segmental caps may have been different from the market development curves. Caps can be reallocated to continue incentive even for faster growing segments

Operational Ease: Implementation of the demand subsidy, direct to customer

Outreach: Aggressive promotion of EV policy and demand incentive worked, along with regular reviews and stakeholder consultations.

Looking to the Future

Revision of Vehicle Segments for provision of Demand Incentives

- Basis the adoption trends, few State Govt are considering revising the demand / adoption incentives. Few States are considering providing incentives to e-trucks and e-cycles.
- Few states are considering providing incentives to emerging/ niche segments

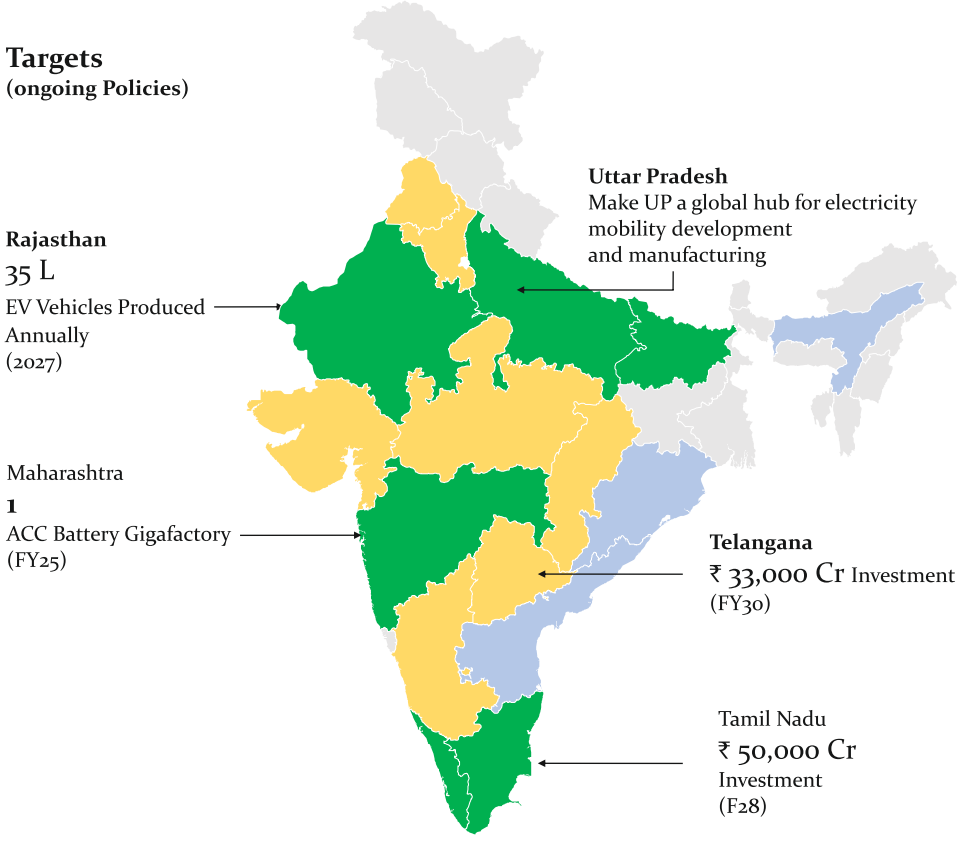
Preferential Parking

- State Govt are working on providing non fiscal incentives like preferential parking for EVs.

Source: Interviews with State Government Officials of Select States; FICCI EV Committee

2.2.2. SUPPLY ECOSYSTEM SUPPORT

Steering the Shift: States are looking to attract EV industry investment through thrust sector incentives



Most states among those analysed provide for some incentives to EV Supply Ecosystem through Various Policies

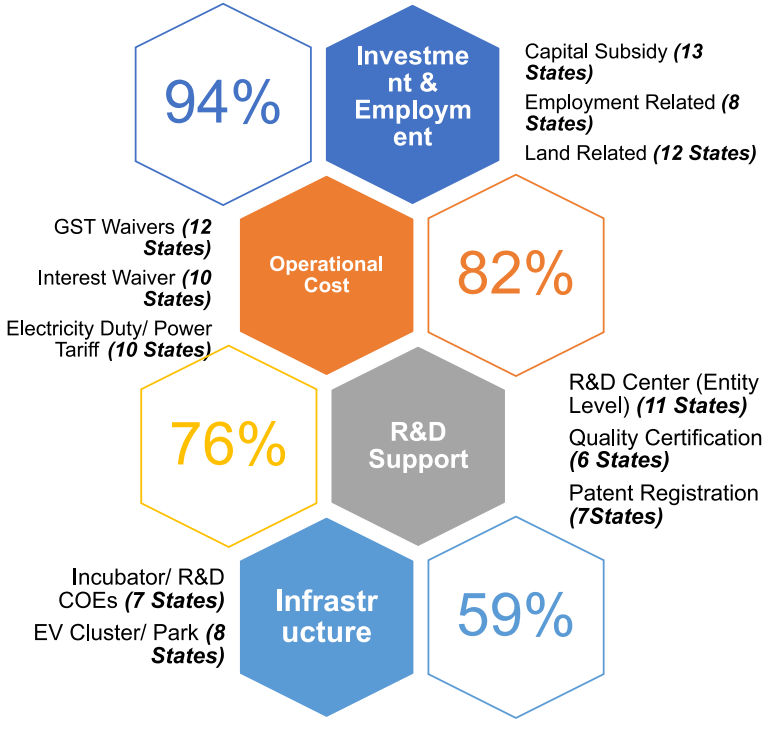
- EV Policy
- Industrial & Investment Policy
- MSME Policy
- Startup Policy
- IT & ESDM Policy
- Electronics Policy

- **However, of these, 7 States** namely UP, RJ, BR, MH, TS, TN and KL(#) provide greater benefits/easier qualification for EVs over sectors such as auto and auto components, though 14 have identified EV as thrust, focus, priority or sunrise sectors
- Some states have set targets for investment, employment in EV Sector, while a couple have set targets in terms of EV production volume (RJ) or specific product manufacturing unit (MH)
- Apart from focus on general EV OEM investments, some states have provided special emphasis on specific vehicle segments, e.g. e-tractor manufacturing, or elements of the value chain e.g. battery manufacturing.

Note: Information is basis analysis of EV related policies of 17 states analyzed (excl. DL) # including states with policies sunset reached – KL, KA, MP, AP*
Source: State Policy Documents; State Government Orders

Laying the tracks: State frameworks for EV Industry Development

STATE	Investment	Employment	Land	SGST	Interest	Power	R&D	Quality Cert.	Patent Registration	CoEs	EV Cluster / Park
UP	v		v				v	v	v		v
MH			v	v	v	v					
KA#	v		v			v	v			v	
TN	v	v	v	v	v	v	v	v	v	v	v
RJ*	v	v	v	v	v	v	v				v
BR		v	v	v	v						
GJ	v	v		v	v			v	v		
KL#	v	v	v	v	v	v		v	v	v	v
MP#^	v			v	v	v					
TS	v		v				v				v
AS	v				v		v				
OD	v	v	v	v		v	v	v	v		
CG	v			v			v			v	v
AP#	v		v	v	v	v	v	v	v	v	v
HR	v	v	v	v		v	v		v	v	
PB		v	v	v	v	v	v			v	v
WB											



% of states out of the 18 covered states, whose policies include at least one initiative mentioned under the category

Mapping of state initiatives is basis stated policies, and may include discontinued incentives/ policies as well as initiatives not implemented on-ground. # Policy sunset reached

**RJ provides these Incentives for Large & Mega, not MSME. ^ MP provides these incentives only to MSME*

Source: State EV Policy Documents; State Government Orders; Press Information Bureau

■ *States with EV incentives as Thrust Sector over & above Auto/ Auto Components*

Fuelling the engine: Capital Incentives and Operational Cost Designed to Power EV sector expansion

Investment Incentive

- Many of the leading states in EV industry development have offered investment subsidy – usually 10% to 30% of the eligible fixed capital investment (EFI) subject to the max. limit for each category of the project
  - States have linked subsidy amounts to geographic location of industries, with higher subsidies in underdeveloped regions. **Depending on location, this can even be up to 125% of EFI in some states**
  - Most states have defined EFI as the project cost which, apart from **plant machinery & equipment,** also often includes land & **land development, building & civil infra., sustainable / clean energy infra.** and associated **utilities**
  - Some states may limit incentives to certain no. of units in the state
- While some states such as GJ offer this only for SMEs, Few such as HR, UP, OD, KA(#), TS and TN have offered incentives to large and above industries only. Ultra-mega categories have also had a tailored/ custom incentive possible in most states
  - Definition of MSME and large and mega is basis investment amount and may vary by state
- Capital Subsidies for large and mega units have been generally disbursed in equal installments over 10-20 years up to ₹50 Cr. per year

SGST Reimbursement	• 50% to 100% reimbursement up to certain limit, largely on net SGST, except in TN & PB where reimbursement is on gross SGST • Limit may be as proportion of the EFI and no. of years for which this is available
Interest Subsidy / Subventions	• Extended to MSMEs and large industries and generally ranges up to 5% on term loan. • 11 States offers subsidies on term loan while AS provides interest subsidy on working capital loan
Incubation Centre / Startups Support	• Incubation Support where host institutes will be provided 50% -100% capital grants up to ₹1 Cr. Further supported and publicized through contests with significant prize money e.g. EVangelise (iCreate) prizes of total ₹1.12 Cr. • Led to the emergence of new battery technology, rise of startups in EV and diverse value chain e.g. T-Hub (TS), iCreate (GJ)
EV Cluster/ Park	• Plug & play facilities to attract mid-sized manufacturing and improve attractiveness of a given location. • Land can also be offered at lower rate to ancillaries in integrated projects (AP) • TN has successfully spread EV industry across southern and central regions such as Hosur through cluster approach

Note: Information is basis stated policies of among 17 states analyzed (excl. DL). This may include discontinued incentives/policies as well as initiatives not implemented. # Policy sunset reached

Source: State EV Policy Documents; State Government Orders; Press Information Bureau

State Feedback

What Worked Well

Tailor-made incentives for EV manufacturing

- Focus on specific industry category (mega industries), specific components (EV battery manufacturing) and FDI incentives. Few States have provided scale up loans or assistance to EV startups.

Access to top leadership and ease of facilitations

- Openness and direct access to the top leadership lead to the state attract big players
- Launch of single window clearances has enabled the EV players to secure necessary business-related departmental clearances electronically in a time-bound, transparent, and hassle-free manner

Centre of Excellence / R&D Hubs

- Few States have set up dedicated CoE for E-Mobility or have included EV as focus sector for R&D Hub which have led to the emergence of EV startups

Support to Ancillary Units

- State Govt are offering land to dependent ancillary units at the same rates that are offered to OEMs in the area, up to 50% of the land allocated to the OEM thus leading to the development of EV ecosystem

Looking to the Future

Extending incentives to other investment categories / components for EV manufacturing

- Focus on simplifying supply side incentives and attract investment from other categories of EV industries for less than mega industries.
- State Govt is considering providing R&D incentives for emerging technologies in EV.

Provision of Specific Components Incentives

- Work on creating supply side support for specific components, battery manufacturing and battery recycling

R&D Fund Pool Mechanism

- Few States are developing fund pool mechanism for pilot / prototype EV projects through grants or reduced interest rates

Infrastructure Support

- Few States are proposing to set up EV Clusters / EV Parks to develop the complete EV ecosystem

Source: Interviews with State Government Officials of Select States; FICCI EV Committee

2.2.3. CHARGING INFRASTRUCTURE DEVELOPMENT

Mapping The Charge: State level roadmaps for EV Charging network expansion, and planned mandates

Target in Numbers

NATIONAL	**4.44 lakh** Target cumulative no. of public EV chargers by 2030 as per Bureau of Energy Efficiency	In every **1x1 km grid** In urban areas*	On every **20 km** on both sides of highways, expressways, major roads*
STATE LEVEL	• 1,00,000 slow and fast charging stations by 2024 (AP); 1,00,000 public and semi-public charging stations by 2026 (WB) • 1 charging / swap station for every 15 EVs in the state	Every 3 km x 3 km grid in cities basis erstwhile MoP Guidelines on EV Chargers (MH, KA, UP, KL), target cities (DL, PB)	• **Along highways and prominent roads, every 25 Km** (PB, MH, TN, UP, WB, KL)/30 Km (HR)/50 Km ((MP, TG, KT, AP) • **No km target** (OD) • **Identification of highway stretches to be EV ready** (MH, WB)
DISTRICT LEVEL	• >20 PCS and 5 Swap stations per district (UP)		
CITY LEVEL	• 1 charging / swap station for every 10 EVs in target cities (PB) • 2,375 public and semi-public charging stations in target 7 cities by 2025 (MH)		
STATE GOVT. ENTITY	• 277 PCS across the state by various government entities / PSUs till the year 2028 – (BR)		

Mandates

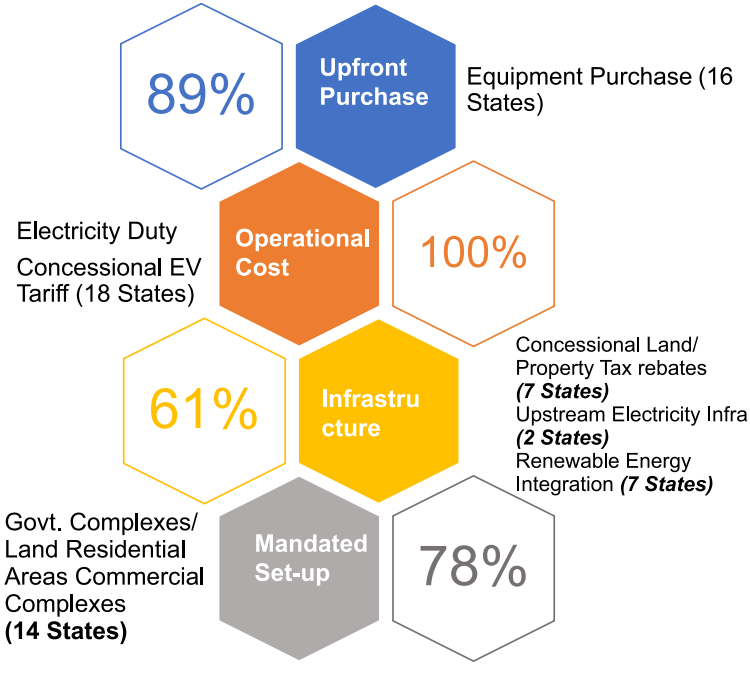
Residential, Institutional & Commercial Complexes	Government Complexes	Pilot Projects
• New buildings/ large complexes mandated to have parking spots amenable for EV chargers. *(MH, PB, DL, KL#, AP#, MP#)*	• At Transport hubs (bus depot/ airports), Municipal Parking, government complexes etc. *(GJ, KA#, MP#, UP, AP#, OD, HR)* • For last mile connectivity/ 2W - Charging points at metro stations & bus depots (TG, KA#), under flyover bridges (CG), Night time Community charging (TG)	• Model EV cities identified to adopt EVs, charging infrastructure, and new EV enabling building codes. (WB, AP#, UP, MP#, MH)

Note: Mapping of state initiatives is basis stated policies, and may include discontinued incentives/ policies as well as initiatives not implemented on-ground.
 # Policy sunset reached

Source: State EV Policy Documents; State Government Orders; Press Information Bureau

Powering Up: State Initiatives Designed to Support Charging Infra.

STATE	EVSE Purchase	Battery Swapping	EV Charging Tariff	Land/Property Tax	Upstream electricity	RE Integration	Mandate
UP	Y	Y	Y	Y	Y	Y	Y
MH	Y		Y	Y			Y
KA#	Y	Y	Y			Y	Y
DL	Y	Y	Y	Y			Y
RJ	Y		Y	Y	Y	Y	
TN	Y	Y	Y				
BR	Y		Y				Y
GJ	Y		Y				Y
TG			Y			Y	Y
AS	Y		Y				
KL#	Y	Y	Y				Y
MP#	Y	Y	Y			Y	Y
OD	Y		Y	Y			
CG	Y	Y	Y				Y
AP#	Y	Y	Y			Y	Y
HR	Y	Y	Y				Y
PB	Y		Y	Y		Y	Y
WB			Y	Y			Y



% of states out of the 18 covered states, whose policies include at least one initiative mentioned under the category

Note: Mapping of state initiatives is basis stated policies, and may include discontinued incentives/ policies as well as initiatives not implemented on-ground.

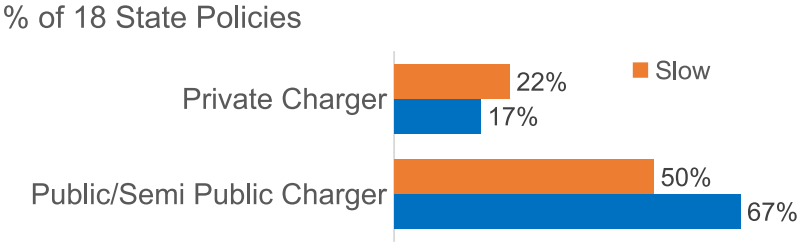
■ *Top 5 States by PCS installation*

 # Policy sunset reached

Source: State EV Policy Documents; State Government Orders; Press Information Bureau

Priming the route: 20-25% capital subsidy usually slated for public chargers with a cap on incentive and number of chargers incentivized

Most states have provided for incentivizing fast EVSEs for Public Charging Stations, and slow EVSEs for private use



- Generally, 20-25% capital subsidy has been instituted for purchasing EVSE/ Battery Swapping Capex, up to ₹ 10 L for Fast chargers and between ₹ 10-50k for Slow chargers (Lower Incentive Cap for Private Charging)
- SGST reimbursement for EVSE capex instituted for select states *(RJ – DC Fast chargers)*; Additional incentive to cover installation cost (excluding land) is offered in BR (₹ 10k-1 L)

Public Charging:

- While higher incentive to the tune of **50-75%** of capex was instituted in select states *(MH, BR)*, both states had a similar cap of incentive value per charger as other states.
- Min. value of charging stations have been mentioned in couple of states. (UP, HR)
- Subsidy is limited to charging stations not supported under FAME in select states. *(GJ, MH, and HR)*
- Focus on incentivizing only fast chargers by select states *(RJ, CG, KA #)*. No. of chargers to be incentivized have ranged from 250 – 2000 (both fast & slow chargers) and 60-300 for only fast chargers, except in MH which covers 15,500 chargers.

Private Charging

- Financial incentive for private charging infrastructure is instituted in a few states (BR, DL, OD, TN, PB, AP #)
- Support is largely focused on slow chargers & some states offer this only for slow chargers.*(BR, DL - at higher 75%-100% of incentive*
- Select states are supporting EV charging infra. for aggregators providing similar subsidy as public charging infra. (TN)

Battery swapping – Supported by two types of incentive

- **Capex subsidy** to the tune of 20-25% of capex typically including the battery cost
- **100% SGST reimbursement of battery cost:** Followed by select states like DL, AP #, CG
- A minimum capex requirement is also applicable in select states for setting up Swapping infrastructure to incentivize larger swapping stations (HR, UP)

Note: Information is basis stated policies of 18 states. This may include discontinued incentives/policies as well as initiatives not implemented on ground. # Policy sunset reached
Source: State EV Policy Documents; State Government Orders; Press Information Bureau

Beyond capex subsidy: Incentives for Upstream and Land

Electricity Tariff Support

- Most state EV policies have supported operators to reduce cost of charging through offering special EV charging tariff - which is generally lower than commercial rates. Special EV tariffs coupled with Time-of-Day rebates are also in some states *(HR, KA #, MH, TS, UP, DL etc.)*
- Single part tariff, which is also stipulated within MoP's 'Guidelines for Installation and Operation of EV charging Infrastructure 2024', is also a step in the right direction being taken ahead by few states

Upstream Electricity Infrastructure

- Reimbursement for first 100 fast PCS/ swapping stations (up to ₹5 lakhs per PCS) - RJ
- 100% financial support for Behind the Meter Power Structure – UP

Renewable Energy Integration

- Procurement of RE power through **open access for low/ irrespective of demand size** *(MP #, AP #, RJ, UP, DL, OD)*
- **Access to net metering** *(MP #, TG)*
- RE access at **low connection cost / zero wheeling charges** – *KA#, RJ, OD*
- **'Power Banking'** for setting up of captive renewable energy facilities – *PB, RJ, DL*

Concessional Land/ Property Tax

- Certain ULBs provide **property tax rebates** to residential owners for installing private charging infra. in the premise (MH)
- **Concessional lease rentals** to be offered to private Energy Operators for setting up public charging / swapping stations (OD, DL, WB, PB; using RE power - RJ, OD)
- Instead of charging rentals, land is provided at revenue sharing @₹1 per kWh, to Private Entities (UP, AP)
- Viability gap funding for PCS (MP #)

Fast-track Permissions

- Municipalities issue provisional **online permissions** immediately to set-up charging / battery swapping stations
- **Fast-track electricity connections** from DISCOM for charging/ swapping service providers *(MP #, WB, UP, PB, AP #)*
- **Single window clearance** *(PB, UP)*

Note: Information is basis stated policies of 18 states. This may include discontinued incentives/policies as well as initiatives not implemented on ground. # Policy sunset reached

Source: State EV Policy Documents; State Government Orders; NCRPB; Press Information Bureau

State Feedback

What Went Well

Upstream Charging Infrastructure Support

- Reimbursement cost of upstream infrastructure and setting up of behind the meter power structure has been seen in some states.
- Physical visit of PCS locations to check reasons for them being non-operational

Concentration of PCS at high demand areas

- Focused set-up of EV charging infrastructure in high demand cities, including through charging hubs

Revenue Share Model

- Implementing revenue sharing model for offering land to private entities for setting up of EV charging stations on lease for certain fixed period.

Looking to the Future

Proliferation beyond Top Cities

- While focus has been given to 1million plus cities, State Govt is working on developing the EV charging infrastructure in tier 1 and tier 2 cities.

Dedicated Nodal Agency for EV Charging Infrastructure

- Few states are setting up dedicated nodal agencies to support development infrastructure for EV charging

Fiscal Incentives

Encouraging OEMs to set up charging infrastructure

- State Govt. will encourage OEMs to support setting up of charging infrastructure

Source: Interviews with State Government Officials of Select States; FICCI EV Committee



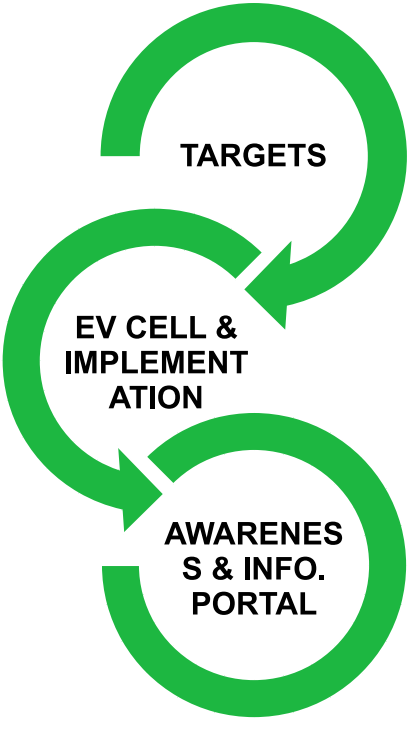
3

Driving the **Next Leg** of **Growth**

3. Driving the Next Leg of Growth

Crunch Time: Comprehensive, Micro-level execution focus is the need of the hour

A crucial period for the EV industry to attain critical mass lies ahead, as India aims to leapfrog from 7% EV penetration to our goal of 30% in the next 5-6 years. State support is crucial to supplement and operationalise Central Government's efforts, in order to create micro-level enablers for EV adoption, support Industry Eco-system Deepening and charging infra. development



- As State EV Policy periods come to a close, and initial green shoots start to allow some learnings from the policy impetus thus far, there is an opportunity for all states to review/renew EV policies till 2030 with aggressive targets and determined implementation
- Time-bound quantifiable goals/ milestones with regular progress reviews will enable policymakers to aim high, assess the impact of policies and make timely adjustments

- Several stated policies are coming to a close, and initiatives have not have been implemented in uniformly
- Dedicated inter-departmental EV cell/central coordination/ steering agency can ensure that policies are implemented consistently and effectively.
  - Focus on coordinating efforts across departments, addressing barriers as they arise, and engagement with private and public stakeholders
  - Ensure widespread implementation of national guidelines and operationalisation of stated state level policies through appropriate Government Orders and reviews

- **One stop state online consumer EV portal/ app, and publicising the same can help build awareness, reduce misunderstandings, and motivate adoption**
  - Easily accessible information simplifying complex policies, TCOs and benefits, providing actionable information on charging stations, and policy updates.
  - The portal/app can have redirects from other central govt., state transport & other deptt. websites

Bridging the Gap: On-ground fiscal support to evolving market requirements

STATE FISCAL SUPPORT TO ACCELERATE PENETRATION TRAJECTORY

SPECIAL EMPHASIS:

1. States with low EV volumes
2. Micro-level regional strategies (penetration in mid-tier cities and rural areas)
3. Phasing from developing vehicle segments to emerging segments/ prevalent use cases in the states
   - Tractors
   - Motorcycles
   - SCVs for various uses
   - Ambulances
   - MHCVs for various uses
   - Port logistics
   - School buses
   - Private fleet buses

Road tax and SGST Exemption

1. Have significant benefit in reducing ICE-EV upfront price difference
2. Can be continued/ instituted for next 5 years

Purchase Subsidy

1. Has closed/ not implemented in some states
2. Further support is required for next 5 years
3. Can be provided direct to customers
4. For nascent segments, volumes to be incentivized can be made fungible to be in line with market development

Booster Incentives

1. To help develop market comfort and critical mass for the new technology.
2. Can be offered for limited timeframe and for certain vehicle segments
3. Can be relevant for states with low EV volumes/ those far from their target

"Fee-Bate"

1. For continuing fiscal incentive for EVs, some states had provided for creation of an umbrella, non-lapsable 'State EV Fund', to be funded through taxes & levies on inefficient or polluting vehicles, which can be implemented

Practices with Promise, once the Rubber hits the Road

AWARENESS DRIVES

For demand generation and awareness generation esp. in small towns/ rural areas

E.g. "Switch Delhi" Campaign by state govt. in DL, "Go Green Yojana" in GJ, enables workers in organized and unorganized sectors to avail the EV subsidy.

MANDATING ADOPTION

for demand aggreation amenable categories with a defined phase wise road-map and operationalization.

These include for STU buses, govt. owned 4W fleet., ULB waste mgt. fleet, fleet aggregators for last mile connectivity and delivery

Govt deptt./PSUs can also run e2w procurement schemes for employees

GREEN ZONES

can increase awareness, mandate adoption and curb pollution

These have been mentioned in policies such as PB, UP, MH, WB, AP, but have seen 'non-uniform progress.

This needs detailed planning and implementation plans with expansion milestones.

VEHICLE FINANCE

Lack of an established resale market and uncertainty of vehicle life lead to unavailability/high cost of EV finance, further deepening price gap between EV & ICE Vehicles

Interest subventions on EV loans (as instituted in DL, CG, AS policy) can help reduce cost of vehicle finance where available; while development of financeable products can be spurred by incentivizing products with Extended Warranty/ Buyback arrangements (mentioned in MH)

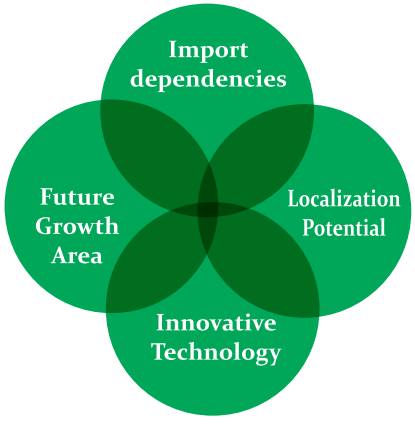
Bedrock of Localisation to be Strengthened

Thrust Sector Incentives

- To support the nascent EV industry in developing and competing with imported products, states would need to institute specific EV supply side policies as thrust areas with attractive support
- Providing greater benefits/ easier qualification for EV over sectors such as general auto & auto components.
- **Capital subsidy** can be offered as a key support, and **flexibility** can be offered to choose among **capital subsidy, turnover based subsidy or SGST reimbursement** basis investment amount.
- Start-ups to be encouraged with land at attractive rates/ longer payment periods.

Focus Down the Value Chain

- As the EV market develops, the need to develop localized value chain increases, which is a good opportunity for states to tap for industry development efforts.
- While battery is being already focused on by some states (GJ, TS, AP, UP etc.), states can have comprehensive plans for developing as a hub for **certain segments along the value chain.**
- There are several areas which show good localization potential basis **India's strengths**, and **existing hubs including MSME** ones.



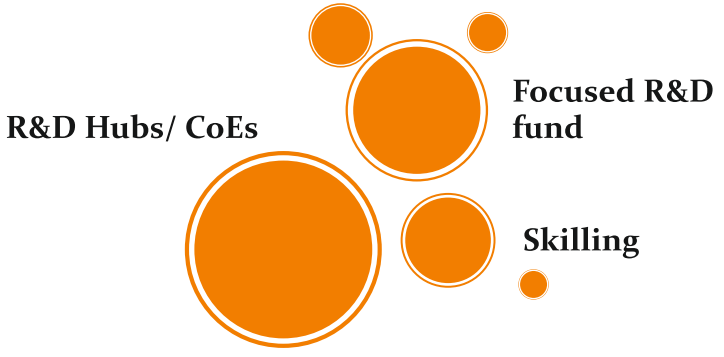
- **Material/ mineral strengths** e.g. Copper (used in motor windings, battery busbars, magnetic components), Aluminum
- **Processing strengths:** Mechanical parts requiring casting, stamping, forging, machining; Software
- **Existing industries utilizing similar skills:** Pumps, HVAC, electronics
- Capital Equipment
- Magnets
- Battery
- EVSE
  Power Electronics
- Testing Facilities
- Recycling Facilities

For these focus areas, the following can be planned to be developed:

- EV Parks / Clusters
- Testing hubs
- Pilot plants for new technologies
- Fiscal Subsidies
- R&D support

Innovation and Sustainability to be the Twin Pillars along the Pathway

Build R&D and Skilling around Focus Areas



Specialized skills in battery technology, electric powertrains, and software are needed

- Incentivize the companies with higher R&D spend
- Support start-ups with grants including for prototype testing and scale-up loans (e.g. in TG - T-Fund, TN - Tamil Nadu Emerging Sector Seed Fund), esp. through challenge programs such as iCreate (GJ)
- Support/schemes for skilling and direct employment subsidy
- Encourage women participation in EV manufacturing /skilling

Focus on Sustainability as Market Matures

- *As EV proliferation increases, so would end-of-life battery packs and other e-waste*
- State Govt. can create an e-marketplace for the resale of used batteries for 2nd life.
- Capital subsidy for setting up of the sustainable/ clean energy technologies can also be provided either through inclusion within eligible fixed capital investment or through a separate sustainable infrastructure subsidy.
- State Govt. can slowly mandate the setting up of battery recycling plant by OEMs/ Battery Manufacturers e.g. HR mandates Large & Mega units to compulsorily establish a battery disposal/ recycling/material recovery facility at their proposed plant for claiming any incentive under the policy

Smoothing Charging for the Future (1/2)

Role of the State to plan and implement Charging infrastructure support is **Key at Micro level, through state EV nodal cell**

1. **Building regional plans / state level charging plans vs. only city levels:** As EV proliferation increases and 2nd tier and rural areas also start getting penetrated, charging infrastructure development in these regions becomes important for which detailed phase wise planning can be instituted, apart from planning for focus cities and highways with a 5 year implementation roadmap.
2. **Charging infrastructure basis vehicle type & charger type – fast vs slow, residential/ captive/ semi-public/ public**

Personal vehicles are expected to be largely charged using home or workplace charging to ease which

- Mandates on charging infrastructure readiness for housing societies and workplaces can be implemented through ULBs
- Easy approvals from stakeholder (e.g. RWA/ AoAs and Discoms) can be ensured
- Fast charging community chargers can be introduced

High growth segments like non captive fleet aggregators, delivery operators, MHCVs are expected to predominantly use fast charging PCS, for whom PCS/ hubs may be set up at appropriate locations

- State Govts. can identify high-demand land parcels in partnership with land owning govt. agencies, geospatial analysis and consultation with fleet players & CPOs etc.

PROMISING PRACTICES

Parking Spaces can be Utilized

- Municipal corporations can integrate public charging in parking spaces and Commercial Complexes
- Mandated proportion of parking slots esp. in areas close to workplaces and commercial complexes can help

Land to Private CPOs on Revenue Sharing

- MoP suggestion to lease govt. land for setting up EV charging stations on revenue sharing model at Re 1/ kW to private entities as well (while this is a mandate for govt. entities). This is being carried forward in a couple of states

Smoothing Charging for the Future (2/2)

3. Power Access & Charging Cost

Concessional one-part EV Tariff

Upstream Electricity Infrastructure Development Cost for Charging infra can be subsidized/ taken up by State Govt.

Easing RE Access

- Open access for low/ irrespective of demand size
- Also, concessional land for RE based charging station can be offered

Fast Track Electricity approvals

SGST Waiver on Charging as a Service

4. **Ensuring Uptime for Installed Chargers:** More than half of chargers are not operational in certain states, due to lack of power connection, vandalism, incompatible charging standard, lack of maintenance etc.

- Continuous monitoring and upkeep of installed EV chargers is required. Repair alerts may be generated when a charger becomes non-operational.
- Grievance redressal mechanism for aggrieved user to be made available if a nonoperational PCS is identified.

Annexure

State Codes & List of Abbreviations stn.

State / Union Territory	Code
Andhra Pradesh	AP
Andaman and Nicobar Islands	AN
Arunachal Pradesh	AR
Assam	AS
Bihar	BR
Chattisgarh	CG
Chandigarh	CH
Dadra & Nagar Haveli	DN
Daman & Diu	DD
Delhi	DL
Goa	GA
Gujarat	GJ
Haryana	HR
Himachal Pradesh	HP
Jammu and Kashmir	JK
Jharkhand	JH
Karnataka	KA
Kerala	KL

State / Union Territory	Code
Ladakh	LA
Madhya Pradesh	MP
Maharashtra	MH
Manipur	MN
Meghalaya	ML
Mizoram	MZ
Nagaland	NL
Odisha	OD/OR
Pondicherry	PY
Punjab	PB
Rajasthan	RJ
Sikkim	SK
Tamil Nadu	TN
Telangana	TS/ TG
Tripura	TR
Uttar Pradesh	UP
Uttarakhand	UK/UA
West Bengal	WB

Additional	Addl.
Automotive	Auto.
Carbon di oxide	CO2
Carbon di oxide equivalent	CO2e
Compound Annual Growth Rate	CAGR
Crores (100,00,000)	Cr
Department	Deptt.
Electric Bus	eBus
electric 4 Wheeler Passenger Vehicle	ePV/e4W
Electric Small Commercial Vehicles	eSCV
Electric Three Wheeler	e3W
Electric Two wheeler	e2W
Electric Vehicle	EV
Especially	Esp.
Etcetera	Etc.
Example	E.g.
Gross Domestic Product	GDP
Government	Govt.
Internal Combustion Engine	ICE
Kilometer	Km
Lakh (1,00,000)	L
Lithium Ion	Li-ion
Medium & Heavy Commercial vehicle	MHCV

Management	Mgt.
billion	bn
Million	mn
Medium or Heavy Commercial Vehicle	MHCV
Oil Marketing Company	OMC
Original Equipment Manufacturer	OEM
Passenger Vehicle	PV
Private Equity / Venture Capital	PE/VC
Production Linked Incentive	PLI
Public Charging Station	PCS
Public Sector Unit	PSU
Research & Development	R&D
Small Commercial Vehicle	SCV
Special	Spl.
State Goods & Services Tax	SGST
State Transport Undertaking	STU
Technology	Tech.
Thousand (1000)	K
Three Wheeler	3W
Total Cost of Ownership	TCO
Two wheeler	2W
Urban Local Body	ULB
Zero Emission Vehicle	ZEV

EV Purchase Subsidy

2 W	Rate	Up to	Vehicle #
UP#	*15%*	*₹5 K*	*2 L*
MH#	*₹10 K/ kWh* ₹5 K/ kWh	*₹100 K* ₹10 K	1 L
TN	₹10 K/ kWh (c)	₹30 K	6k p.a. (0.3 L)
GJ#	₹10 K/ kWh	₹20 K	- (<₹1.5 L)
RJ#	₹5 K/ kWh	₹10 K	1 L^
BR	₹5 K/kWh	₹7.5 K	0.1 L
DL	₹5 K/ kWh	₹30 K	-
AS	₹10 K/ kWh, 40%	₹20 K	1 L (<₹1.5 L)
OD	₹5 K/ kWh	₹20 K	-
CG	10%	₹150 K	-
PB	₹3 K/ kWh	₹10 K	0.5 L

3 W	Rate	Up to	Vehicle #
UP#	*15%*	*₹12 K*	*50 K*
MH	*₹10 K/ kWh* ₹5 K/kWh	*₹100 K* ₹30 K	10 K ^^
TN	₹10 K/ kWh	₹40 K	15K p.a. (75 K)
RJ#	₹10 K/ kWh	₹20 K	50 K
GJ	₹10 K/ kWh	₹50 K	- (<₹5 L)
KL#	25%	₹30 K	-
DL	₹5 K/kWh	₹30 K	-
AS	₹10 K/ kWh, 40%	₹50 K	75K (<₹5 L)
OD	₹30 K	-	-
CG	10%	₹1.5 L	-
PB	₹3 K/ kWh	₹30 K	28K

4 W	Rate	Up to	Vehicle #
UP#	*15%*	*₹1 L*	*25 K*
MH	*₹10 K/ kWh* ₹5K/kWh	*₹100 K* ₹1.5 L	-
TN	₹10K/ kWh (c)	₹1.5 L	3k p.a. (15 K)
RJ	₹30K/ kWh	₹0.5 L	22 K
BR	₹10K/ kWh	₹1.25 L	1 K
GJ	₹10K/ kWh	₹1.5 L	- (<₹15 L)
DL#	₹10K/ kWh	₹1.5 L	1 K
AS	₹10K/ kWh, 40%	-	35K (<₹15 L)
OD	₹10K/ kWh	₹1.5 L	-
CG	10%	₹1.5 L	-
HR	15%	₹6 - 10 L	2K (non-FAME)

Bus	Rate	Up to	Vehicle #
UP#	15%	₹20 L	0.4 K
MH	10%	₹20 L	1 K
TN	₹20K/ kWh	₹10 L	300p.a. (1.5 K)
RJ	₹1 L/ kWh	₹5 L	0.5 K
BR	₹10K/ kWh	₹25 L	-
OD	10%	₹4-5L	-
CG	10%	₹1.5 L	-
HR	10%	₹10 L	0.2 K

Note: Information is basis stated policies of 18 states. This may include discontinued incentives/policies as well as initiatives not implemented on ground

Items in italics & underlined refer to early bird incentive and have been discontinued; # Incentives discontinued as cap/time limit/ policy sunset reached; ^ fixed + swap; (c) Commercial Vehicles; ^^ L5 only;

Green Font: Among Highest in the category. Blue Cell Color – High Subsidy both in rate & cap

Note: Data refers to general purchase incentives for new vehicles with fixed battery, excluding battery swapping, retro-fitment and other incentives

Source: State EV Policy Documents; State Government Orders

Public Charging infrastructure Subsidy

State	Charger Type	% Incentive	Max. Value	# of Chargers	Remark
UP	Fast & Slow	20%	₹10 L	2000	Charging station to have capex excluding land of minimum ₹25 L
MH	Fast & Slow	Fast - 50%; Slow - 60%	Fast - ₹5 L; Slow - ₹10k	Fast - 500; Slow - 15,000	
RJ	Fast				SGST reimbursement upto specific amount and specific number of charging stations
HR	Fast & Slow	20%	Public: ₹5 L Semi Public: 50k	Public: 200 Semi Public: 2000	Public: Fixed capital investment > ₹25 L; Semi Public: Cater to >1000 inhabitants/ people per day and have 10 charging units
MP	Fast & Slow	25%	₹1.5 L-small stn., ₹2 L-medium stn., ₹10 L large	300 small; 100 each medium & large	
KL#	Fast & Slow	25%	Fast: 10 L Slow: 30k	Fast: 100 Slow: 300	Fast - DC chargers >100V; Slow: DC Charger <100V
GJ	Fast & Slow	25%	₹10 L	250	
AS	Fast & Slow	25%	₹10 L	500	
BR	Fast & Slow	DC Fast: 50%; Other: 75%	DC Fast - ₹10 L; Others - ₹50k to 1.5 L	DC Fast - 60; Others - 1,200	Cat.1-AC Slow/Moderate charger (3 Guns); Cat 2-ACFast (2 guns); Cat3- DC Slow/Moderate charger (2 guns); Cat 4-DC Fast
CG	Fast	25%	₹10 L	300	
AP	Fast & Slow	25%	₹3 L	5000	Subsidy excluding land, cost of electricity connection, DTR, any civil costs
TN	Fast & Slow	25%	Fast: ₹10 L Slow: ₹1 L	Fast: 200 Slow:500	
KA#	Fast	25%	₹10 L	100	

Note: Information is basis stated policies of 18 states. This may include discontinued incentives/policies as well as initiatives not implemented on ground

 # Refer to policies where policy sunsets reached

Source: State EV Policy Documents; State Government Orders

Private Charging & Swapping infrastructure Subsidy

PRIVATE CHARGING INFRASTRUCTURE

State	Charger Type	% Incentive	Max. Value ₹	# of Chargers	Remark
BR	Slow	75%	50,000	600	Additional incentive of ₹10k as Installation cost (ex-land)
DL	Slow	100%	6,000	30,000	
OD	Fast & Slow	-	5,000	20,000	For housing societies
TN	Fast	25%	10,00,000	50	e-aggregator charging stations
PB	Fast & Slow	-	Slow - 3000; Fast - 10,000	Slow - 8000; Fast - 2,000	Including semi public
AP#	Fast & Slow	25%	Fast: ₹10 L Slow: ₹30k	Fast: 100 Slow: 300	Fast - DC chargers >100V; Slow: DC Charger <100V 100% SGST reimbursement for DC Fast chargers

BATTERY SWAPPING STATION

State	Incentive (% of capex and/or SGST reimbursement)	Max. Value	# of Chargers	Remark
UP	20%	₹5 L	1000	Fixed capital investment (ex-land) > ₹15 L
HR	20%	₹10 L	100	FCI>₹50L
MP#	25%	-		
KL#	25%	₹10 L	50	
DL	100% for battery inventory cost			
TN	25%	₹2 L	200	
CG	100% for battery purchase used in swapping stations			
KA#	25%	e2W/e3W: ₹3 L; ePV - ₹5 L; eBus - ₹10 L	e2W/e3W: 100; ePV - 50; eBus - 50	
AP#	25% of capex (ex- battery) and 100% for battery inventory cost	₹10 L	50	SGST reimbursement

Note: Information is basis stated policies of 18 states. This may include discontinued incentives/policies as well as initiatives not implemented on ground

Source: State EV Policy Documents; State Government Orders; MoRTH (Vahan Portal)

Notes

Notes

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