

5 Disincentivize high-emission vehicles: While incentivizing zero-emission electric vehicles is important for enabling increased uptake, it is equally important to disincentivize ICE vehicles by levying appropriate costs on purchase and use. Bonus-malus systems, as they are called, are effective in supporting EV adoption by penalizing transport-induced pollution and emissions with commensurate rewards for clean vehicles. Examples of disincentives for polluting vehicles include fuel cesses, carbon taxes and emission charges.

In devising a bonus-malus system, it is important to link rewards and penalties to vehicle performance and not to technology. This requires a rationalization of tax structures and usage fees based on CO₂ emissions, with all low-emission vehicles (such as strong hybrids and hydrogen cell fuel vehicles) benefiting from the incentives as per their performance.

BONUS-MALUS INCENTIVE STRUCTURES IN EUROPE

The bonus-malus (or feebate) tax system is a policy initiative in which polluting vehicles incur a surcharge (malus) while clean vehicles receive a rebate (bonus). France, Sweden and Norway have deployed variations of this system. In Sweden, vehicles with low emissions (max 70g CO₂/km) receive a grant, while an increased amount of vehicle tax is imposed on petrol and diesel vehicles depending on their CO₂ emission levels. Further, several European countries have indicated horizon years for bans on ICE vehicles, a clear policy signal that nudges potential buyers to choose electric vehicle options.

6 Link EV targets and incentives to environmental objectives: Most state EV policies have time-bound EV adoption targets. However, these are neither tied to the demand incentives themselves nor to environmental objectives such as lowered air pollution or reduced transport share of greenhouse gas emissions. Ensuring that EV targets are based on environmental objectives enables states to allocate budgets and design incentives more effectively through an impact-driven approach.



CHARGING INFRASTRUCTURE INCENTIVES

3.

Easy access to charging infrastructure is a prerequisite for widespread EV adoption. Range anxiety and uncertainty of EV charging availability are key barriers to EV adoption. A robust network of charging points reassures consumers of charging availability, which reduces the range anxiety associated with electric vehicles.

EV charging infrastructure, or electric vehicle supply equipment (EVSE) as it is formally known, may be publicly or privately provisioned. Individual EV owners prefer to charge on their own premises, with studies showing that 50% to 80% of all EV charging by individuals occurs at home, while another 15% to 25% happens in the workplace¹⁵. Commercial vehicles and EV fleets, on the other hand, charge at captive charging hubs or through the public EV charging network.

¹⁵ Hardman, S. et al. 2018. A review of consumer preferences of and interactions with electric vehicle charging infrastructure. *Transportation Research Part D: Transport and Environment*, Vol 62, pp 508-523. Available at: <https://doi.org/10.1016/j.trd.2018.04.002>

Central and state governments play an active role in building an ecosystem of charging infrastructure. This is done through government investment in charging infrastructure and the creation of a governance framework for EV charging. The GoI has drawn up various standards and notifications regarding hardware specifications, licensing of EV charging services, cost of electricity supply for EV charging and operational guidelines. Through the FAME scheme, it has also allocated funding to cover the capital cost of more than 2,600 public charging stations across 62 cities¹⁶.

At the state level, charging infrastructure mandates come under the purview of energy department agencies, including electricity regulatory commissions, electricity transmission and distribution companies, and renewable energy development corporations. Urban development authorities are responsible for planning regulations that govern where and how to locate charging stations. Finally, state government agencies own much of the land available for setting up public charging infrastructure, which is critical to the rollout of an accessible charging network.

Table 5 highlights the measures proposed by state EV policies to facilitate EV charging provision. They include a mix of financial incentives, and planning and regulatory frameworks that support the deployment and integration of EV charging within the existing electrical systems.

Table 4: Matrix of EV charging infrastructure incentives

States	Capital subsidies on EVSE	Concessional land provision	Concessional EV tariffs	Use of renewable energy sources	Amendments to DCRs	EVSE network integration and management	Promotion of alternative clean fuel technologies
Andhra Pradesh	●	●	●	●	●	●	●
Bihar	●	●	●	●	●	●	●
Delhi	●	●	●	●	●	●	●
Karnataka	●	●	●	●	●	●	●
Kerala	●	●	●	●	●	●	●
Madhya Pradesh	●	●	●	●	●	●	●
Maharashtra	●	●	●	●	●	●	●
Punjab	●	●	●	●	●	●	●
Tamil Nadu	●	●	●	●	●	●	●
Telangana	●	●	●	●	●	●	●
Uttar Pradesh	●	●	●	●	●	●	●
Uttarakhand	●	●	●	●	●	●	●

● Not addressed in the policy ● Addressed in the policy

Capital subsidies on EVSE

Capital subsidies and tax concessions aim to subsidize the cost of the EVSE meant primarily for public use. State incentives favor plug-in charging facilities, with few incentives on offer for battery-swapping equipment. While not explicitly mentioned, it is expected that the incentives may be availed of by both public sector undertakings (PSUs) and private players interested in setting up charging infrastructure.

Which states are using it?

- Andhra Pradesh, Maharashtra, Bihar, Punjab and Madhya Pradesh provide varying levels of capital subsidies for fixed numbers of public charging stations, as shown in Table 5.
- Delhi offers an unspecified capital subsidy for installing public charging infrastructure. It is the only state to offer financial incentives for private charging

¹⁶ <https://www.livemint.com/politics/policy/government-approves-2-636-new-charging-stations-in-62-cities-prakash-javadekar-11578076280181.html>

equipment, with a 100% grant up to INR 6,000 available per charging point for the first 30,000 private charging points.

- Delhi and Andhra Pradesh will also reimburse SGST levied on the purchase of advanced batteries for swapping stations.
- Karnataka’s and Tamil Nadu’s policies offer unspecified capital subsidies on the cost of setting up public charging stations.

Given the low expected utilization of EV charging facilities in the near future, subsidies are critical to eliciting participation by charging service operators (CSOs). However, state policies have focused on subsidies for capital-intensive public charging stations, which are characterized by multiple charge points and DC charging. There is no focus on grants for public AC charge points, low-powered charging types that are optimal for use by electric two-wheelers and three-wheelers.

Table 5: Capital subsidies for EVSE equipment

State	Charger type	Subsidy amount	No. of eligible stations
Andhra Pradesh	High-voltage DC charging	25% (up to INR 1 million)	100
	Low-voltage DC charging	25% (up to INR 30,000)	300
	Battery swapping	25% (up to INR 1 million)	50
Maharashtra	Commercial charging stations	25% (up to INR 1 million)	250
Bihar	Commercial charging stations	25% (up to INR 500,000)	500
Punjab	Charging stations (not locally manufactured)	25% (up to INR 50,000)	1000
	Locally-manufactured charging equipment	50% (up to INR 100,000)	
Madhya Pradesh	Small charging stations	25% (up to INR 150,000)	300
	Medium charging stations	25% (up to INR 200,000)	100
	Large charging stations	25% (up to INR 1 million)	100

ELECTRIC VEHICLE HOMECHARGE SCHEME, UNITED KINGDOM

The Electric Vehicle Homecharge Scheme (EVHS) is a grant that provides a 75% contribution to the cost of one chargepoint and its installation. A grant cap is set at £350 (including VAT) per installation. The main requirement is that a person owns, leases, or has ordered a qualifying vehicle and has dedicated off-street parking at their property. A person may apply for two charge points at the same property if they have two qualifying vehicles.

Concessional land provision

The cost of land in cities creates a barrier for accessible siting of public charging stations. Land provision incentives aim to reduce the high cost of land acquisition for EV charging through instruments such as concessional rental charges and long-term leases.

Which states are using it?

- Delhi, Uttar Pradesh and Punjab will provide land to charging service operators (CSOs) at concessional rental rates, while Madhya Pradesh offers a “rental holiday” for three years to CSOs selected to operate EV charging in a public-private