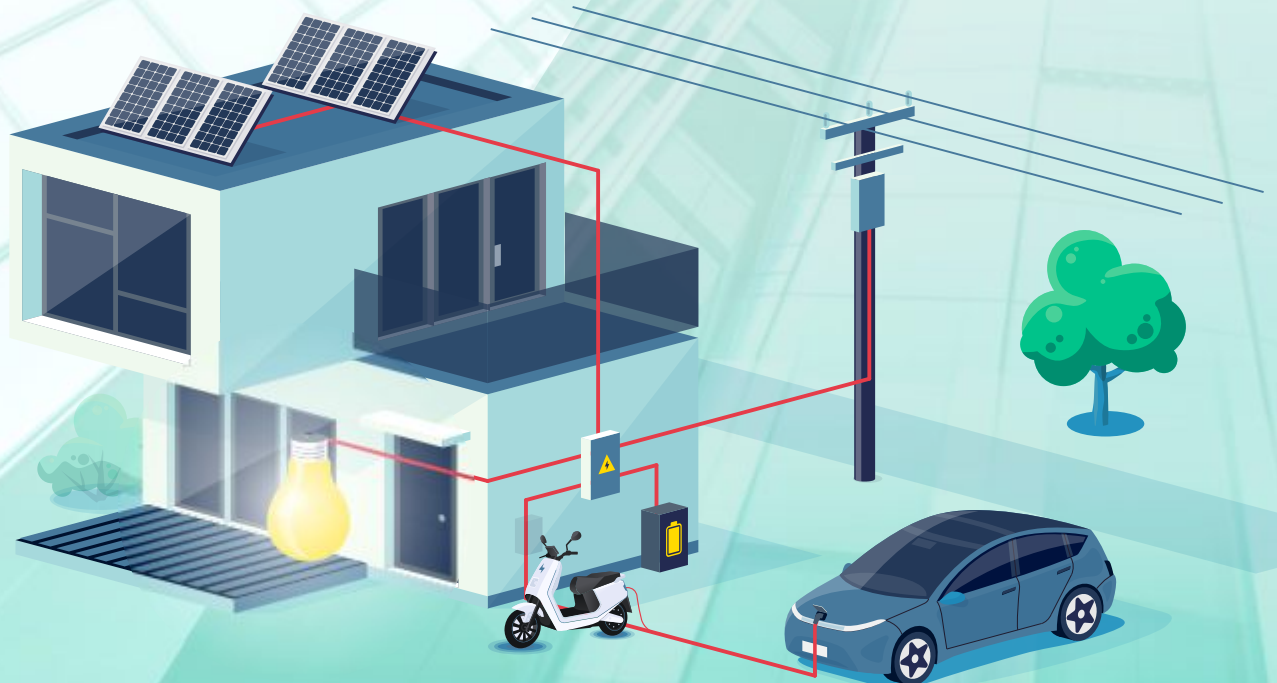


A Whitepaper on  
**'RIGHT TO CHARGE'**  
*Addressing the Need for  
EV Charging in Residential Areas*





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## 1. Background: Charging infrastructure is a pre-requisite for driving EV adoption



India is among the most rapidly expanding EV markets today, with a total EV adoption of 28 lakh vehicles, encompassing 2-wheelers, 3-wheelers, cars, and electric buses across the country. Over one lakh EV cars and SUVs were purchased in the last 18 months alone, with 75% of EV owners using their vehicles as a primary mode of transport, with the average EV being driven 26 days a month.<sup>1</sup>

There are EVs plying across all states in India but they still account for less than 3% of new car sales. The Government has set an audacious target to transition 30% of new car sales to EVs by 2030, which implies roughly a 20x growth in EV volumes from the current levels. Case studies from across the world show that ubiquitous and convenient charging infrastructure is a pre-requisite for driving EV adoption. Conversely, growth in charging infrastructure results in exponential growth in EV adoption.

Metros boast higher awareness and acceptance of EVs, thanks to greater exposure to green technologies and a larger population with higher disposable incomes. This, coupled with better infrastructure for charging, leads to a faster adoption of EVs in metros and tier 1 cities compared to tier 2/3 towns. However, this presents challenges, as discussed in the following sections.

## 2. House Ownership pattern in metros and impact on EV charging



In India, approximately **70-75% of urban households reside in multi-family housing units**<sup>2</sup>, such as **apartment complexes** or **gated communities**. This shift is primarily driven by rapid urbanization, space constraints, and a growing preference for community-style living in cities. Major metropolitan areas such as Mumbai, Delhi, Bangalore, and Hyderabad have experienced a significant increase in apartment living due to limited land availability and rising housing demand.

Independent houses tend to be more prevalent in smaller cities and suburban regions, where space is more accessible and affordable. The preference for apartments in metropolitan areas is often linked to affordability, availability of amenities, and proximity to work hubs. For instance, in Mumbai, a substantial portion of the population lives in apartments, **with over 80% of residential properties categorized as apartment-based**<sup>3</sup>. Similarly, Bangalore, while slightly less dense, also sees a majority of its residents living in multi-unit buildings, with approximately **60-70% of residents in areas such as Whitefield and Electronic City residing in apartments**<sup>4</sup>.

Regarding the **rental versus ownership** trend in Mumbai and Bangalore, around 42% of Bangalore's population prefers homeownership, while the remainder opts for renting due to high property prices and the city's transient working population. In Mumbai, the trend skews more toward renting, with over 50% of residents in key areas living in rented homes, largely because homeownership is often financially prohibitive due to soaring real estate prices.<sup>5</sup> Other metro cities such as Hyderabad, Delhi, Chennai, and Pune exhibit similar patterns, with 50-60% of their populations residing in rental accommodations.

<sup>1</sup> <https://www.tatamotors.com/blog/community-chargers-key-to-accelerating-ev-adoption-in-india/>

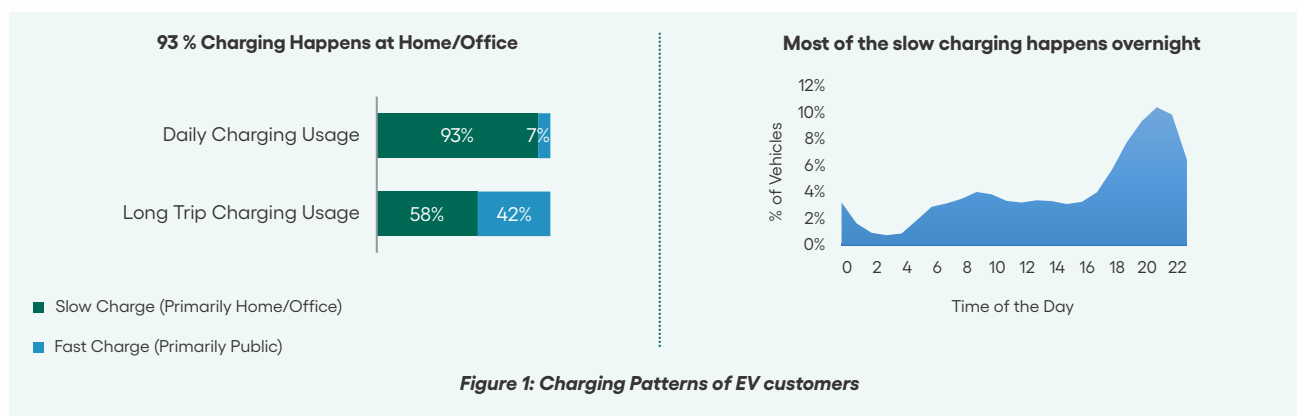
<sup>2</sup> <https://mospi.gov.in/statistical-year-book-india/2018/197> , <https://niua.in/intranet/sites/default/files/2802.pdf>

<sup>3</sup> <https://content.knightfrank.com/research/2810/documents/en/mumbai-residential-property-registration-review-2023-10970.pdf>

<sup>4</sup> <https://housing.com/news/bangalore-vs-mumbai-cost-of-living/> , [https://www.savills.in/research\\_articles/165611/214201-0](https://www.savills.in/research_articles/165611/214201-0)

<sup>5</sup> <https://www.hindustantimes.com/real-estate/should-you-buy-or-rent-a-house-here-s-why-42-people-in-bengaluru-prefer-buying-property-over-renting-101702278456558.html>

**Housing plays a critical role in EV ownership**, as globally, 80% to 90% of electric vehicle charging takes place at home or work, a pattern observed in major countries such as the U.S., European countries, and China. Residential and workplace charging are the primary options for EV owners, while public charging infrastructure is expanding to assist those without access to private charging. In FY 2024, home charging accounts for **85%** of total charging for private 4-wheelers, making it the dominant mode by far—highlighting the critical role of residential infrastructure in EV adoption. (Source: Industry presentation, “Share of Charging Modes – FY 2024”)



### Benefits of Charging at Home:

- Overnight charging provides unparalleled convenience.
- Charging at home is typically more cost-effective than using public charging stations.
- Time-of-Use (TOU) rates, which incentivize overnight charging, can further lower re-fueling costs.
- Overnight charging aligns well with grid capacity.
- Individuals are more likely to invest in electric vehicles when they have the option to charge at home.
- Consequently, access to home charging is essential for the successful adoption of electric vehicles.

## 3. Challenges for home charging in RWAs (Residential Welfare Associations) in India and other countries



### 3.1 Scenario in India



The current landscape of home charging raises significant concerns. According to internal reference of leading automaker in India, over 60% of existing EV owners reside in independent houses or standalone buildings with access to dedicated parking. This indicates that only those with dedicated parking consider EVs as a viable option, while others largely dismiss them as a future mobility choice. However, the adoption of EVs in high-rise buildings and large apartment complexes remains limited. Many apartment communities impose complex procedures for setting up charging points, which include obtaining No Objection Certificates (NOCs) and load enhancements from Distribution Companies (DISCOMs). Although there has been a noticeable increase in community chargers within residential complexes and public spaces, this growth may not keep pace with the rising demand.

Based on interactions with potential and existing customers, several challenges have been identified:

- **Non-Dedicated Parking:** Older residential complexes often lack dedicated parking spaces, with residents parking on a first-come, first-served basis. This creates difficulties in installing EV chargers since individuals lack control over specific parking spots. This problem is particularly prevalent in cities such as Mumbai, where more than 50-60% of residents park on public roads or in shared areas, rendering home charging nearly impossible without dedicated infrastructure<sup>6</sup>.
- 
- Figure 2: example of a Non-Dedicated Parking in high density areas of Metro Cities**
- **RWA Permissions:** Residential Welfare Associations (RWAs) often hesitate to approve home charging stations due to concerns about electricity load management, safety risks (such as fire hazards), and potential damage to shared infrastructure. Tenants face additional challenges when seeking to install chargers, including:
    - A two-wheeler owner having to transport their bike to their residence to charge it. Many EV owners have reported being denied permission to install chargers in their homes.<sup>7</sup>
    - Restrictions imposed by RWAs preventing residents from installing electric charging stations.<sup>8</sup>
    - Queries like "How will you charge your EV in your parking spot?" are common.<sup>9</sup>
    - Legal cases, such as those highlighted by Plugin India regarding electric vehicles and apartments.
  - **Electrical Infrastructure and Load Capacity:** Many older residential buildings in metro areas were not designed with EV infrastructure in mind. These buildings often lack the electrical capacity to support the additional load from multiple EV chargers. For example, a 2021 survey in Bengaluru revealed that 30-35% of residents in older apartments would require significant electrical upgrades to accommodate EV charging. Addressing this issue involves engaging with DISCOMs to increase the sanctioned load, which can be both costly and time-consuming<sup>10</sup>.
  - **Cost and Commercial Expectations:** RWAs in India are generally cautious about investing in infrastructure that benefits only a small number of residents. A significant portion of residents

<sup>6</sup> <https://portal.mcgm.gov.in/irj/go/km/docs/documents/MCGM%20Department%20List/Roads%20and%20Traffic/Docs/CMP%20for%20Greater%20Mumbai/Executive%20Summary/Executive%20Summary.pdf>,

<https://www.wricitiesindia.org/sites/default/files/Rethinking%20Off%20Street%20Parking%20Regulations%20Around%20Station%20Areas%20in%20Mumbai.pdf>

<sup>7</sup> <https://plugincaroo.com/2021/09/08/the-sad-plight-of-a-ther-owner-who-takes-scooter-to-5th-floor-to-charge-it/> , <https://www.deccanherald.com/india/karnataka/bengaluru/bengaluru-rwas-at-odds-with-ev-owners-on-charging-infra-report-1123466.html> , <https://timesofindia.indiatimes.com/city/mumbai/hsg-soc-plea-against-ev-charger-junked-hc-calls-to-finalise-norms-on-charging-stns/articleshow/117801864.cms>

<sup>8</sup> <https://www.team-bhp.com/forum/electric-cars/271725-rwa-not-letting-residents-install-electric-charging-stations-4.html>

<sup>9</sup> <https://www.youtube.com/watch?v=2li2Rn66LYE>, <https://www.youtube.com/watch?v=mVwdahoZzZE&t=1s>

<sup>10</sup> <https://shaktifoundation.in/wp-content/uploads/2022/01/BESCOM-EVCI-Planning-and-Rollout-for-Bengaluru-City-Karnataka-1.pdf>







still opposes common charging stations, citing high costs and the belief that EV users should shoulder the expenses.

- **Lack of Space for Chargers:** Many RWAs, especially in densely populated urban areas such as Mumbai, cite space constraints as a primary reason for not installing common EV chargers.
- **Lack of Standardized Guidelines:** While some Indian cities are beginning to develop guidelines for EV charging infrastructure, there remains a significant gap in clear and enforceable standards for RWAs to follow, leading to confusion and inconsistency.

### 3.2 References from developed countries

Across the globe, various regions are grappling with similar challenges regarding the integration of electric vehicle (EV) charging infrastructure within residential settings. These challenges range from securing necessary permissions to upgrading outdated electrical systems, highlighting the universal nature of these issues as the demand for EVs continues to grow.

- **USA:** In the United States, Homeowner Associations (HOAs) encounter comparable challenges, including the need to secure permissions and enhance electrical infrastructure. These issues are becoming increasingly prevalent in states with a high density of EVs.<sup>11</sup> 
- **EU:** In European cities such as Paris and Berlin, where a significant number of residents live in older apartment buildings, the main obstacle is retrofitting these structures to accommodate EV chargers. The French Association for the Development of Electric Mobility (AFIREV) estimates that around 30% of buildings in major French cities require substantial electrical upgrades to support the installation of EV charging stations.<sup>12</sup> 
- **Norway:** Norway has witnessed over 75% of new car sales being electric, making the development of public charging infrastructure a top priority. While many residents can charge their vehicles at home, residential welfare associations (RWAs) in older buildings still face hurdles due to limited electrical capacity. 
- **China:** Many older residential buildings, particularly in urban centers, were not designed to accommodate EV charging. Retrofitting these structures to include sufficient electrical capacity and dedicated charging points can be complex and costly. Reports indicate that around 60% of residents in older apartments may lack access to reliable charging infrastructure.<sup>13</sup> 

## 4. Current Status and Provisions by Central and Various State Governments



### 4.1 India

The Indian government is actively promoting electric vehicle (EV) adoption through various initiatives aimed at improving residential charging infrastructure.

<sup>11</sup> <https://hoa-usa.com/hoa-article/the-future-of-community-living-embracing-ev-charging-in-hoas/#:~:text=What%20are%20some%20of%20the,the%20Association%20or%20individual%20homeowners.>

<sup>12</sup> [https://theicct.org/wp-content/uploads/2021/12/france-evs-infrastructure-transition-nov21\\_0.pdf](https://theicct.org/wp-content/uploads/2021/12/france-evs-infrastructure-transition-nov21_0.pdf)

<sup>13</sup> <https://theicct.org/publication/charging-up-china-transition-to-ev-jan24/>



#### 4.1.1 Central Government Initiatives:

1. **Model Building Bye-laws and URDPFI Guidelines:** The Ministry of Housing and Urban Affairs (MoHUA) has updated the Model Building Bye-laws (MBBL) of 2016 and the Urban and Regional Development Plans Formulation and Implementation Guidelines (URDPFI) of 2014. These updated guidelines recommend that new residential and commercial buildings include provisions for EV charging infrastructure, suggesting that at least 20% of parking spots in residential complexes be EV-ready. It is important to note that **these guidelines serve as recommendations rather than mandates**, and implementation relies on Urban Local Bodies.
2. **Public Charging Guidelines (2024):** The Ministry of Power has issued revised guidelines to simplify the establishment of public charging stations. These guidelines ensure that charging stations are available every 25 kilometers on highways, thereby enhancing accessibility for residents, including those in smaller towns. Key points of these guidelines include:
  - **De-licensed Activity:** Setting up EV charging stations no longer requires a license, enabling any entity to establish infrastructure by following the guidelines.
  - **Individual Charging Options:**
    - **New Connection:** Owners can request for a separate metered connection from Distribution Licensee with a dedicated EV charging tariff. This shall be granted within the timelines specified in Electricity (Rights of Consumers) Rules, 2020 as amended from time to time.
    - **Existing Connection:** Owners can use their existing electricity connection to charge their EVs at home at domestic rates
    - **Increased Load:** If EV charging station requires more power than the current sanctioned load, the owner will apply to the distribution licensee for seeking increase in the sanction load.
  - **Community Charging Initiatives:** Residential Welfare Associations (RWAs) and group housing societies can request dedicated connections from distribution licensees to set up community charging stations. They can choose the types and number of chargers installed, ensuring that facilities are available for both residents and authorized visitors.
    - **New Connection:** Resident Welfare Association, Group Housing Society, an owner of a flat, house in an Association, any other consumer within a GHS, can request for a separate metered connection from Distribution Licensee with a dedicated EV charging tariff. This will be installed within the timelines specified in Electricity (Rights of Consumers) Rules, 2020 as amended from time to time.
    - **Private Charging Points:** Residents can install private Charging stations in their designated parking spaces. The Distribution Licensee will ensure electricity supply through the resident's existing meter or a separate sub-meter depending on consumer's choice.

- **Increased Load:** If community EV charging stations requires more power than the current sanctioned load, then GHS will apply to the distribution licensee for seeking increase in the sanctioned load.
- **Community Charging Rates:** GHS will determine the charging fees for community charging based on the applicable electricity tariff and service ceiling limits laid down under these guidelines.

Since the central government's guidelines are **advisory rather than enforceable**, the **responsibility** falls on **municipalities and urban development authorities to amend the required regulations**. For public charging stations, it is essential to establish regulations that integrate EV charging infrastructure into urban planning. Meanwhile, for private charging, building codes need to be updated to ensure new constructions include provisions for EV charging in parking areas.

#### 4.1.2 State Government Provisions:

Development Control Regulations (DCR) are a set of laws and regulations that govern land use and building specifications, and they need to be amended to include provisions for EV charging infrastructure. Typically, DCR frameworks are categorized into zonal regulations and building bylaws, which oversee public and private EV charging facilities, respectively.

Although most state EV policies mention the necessity for regulatory amendments, few have outlined specific actions.

- **Bihar, Punjab, Andhra Pradesh, Madhya Pradesh, and Karnataka** mandate that building bylaws in urban areas be amended to integrate EV charging infrastructure, but they do not provide detailed guidelines.<sup>14</sup>
- In states such as **Andhra Pradesh** and **Uttar Pradesh**, commercial complexes, housing societies, and residential townships with a built-up area of over 5,000 square meters are required to include EV charging infrastructure as part of the permit approval process<sup>15</sup>.
- **Delhi EV Policy:**
  - Delhi's *Switch Delhi* campaign has been a leading example of proactive EV policy. The state government offers a subsidy of ₹6,000 per charger for the first 30,000 installations in residential and commercial buildings. Since the policy's introduction, over 1,400 chargers have been installed by mid-2023.<sup>16</sup>
  - Delhi's building bylaws mandate that at least 20% of a residential complex or workplace's parking capacity in **new constructions** should be EV ready-equipped with the conduits and power supply infrastructure required for EV chargers..



<sup>14</sup> [https://www.wricitiesindia.org/sites/default/files/Full\\_report\\_EV\\_State\\_Policy.pdf](https://www.wricitiesindia.org/sites/default/files/Full_report_EV_State_Policy.pdf)

<sup>15</sup> [https://nredcap.in/PDFs/2024/Andhra\\_Pradesh\\_Sustainable\\_Electric\\_Mobility\\_Policy\\_4\\_0.pdf](https://nredcap.in/PDFs/2024/Andhra_Pradesh_Sustainable_Electric_Mobility_Policy_4_0.pdf) , [https://www.acma.in/uploads/otherdocmanager/Final\\_State%20policies\\_Compendium\\_Merged\\_31\\_12\\_2019.pdf](https://www.acma.in/uploads/otherdocmanager/Final_State%20policies_Compendium_Merged_31_12_2019.pdf)

<sup>16</sup> <https://www.hindustantimes.com/cities/delhi-news/delhis-private-charging-points-for-evs-rise-to-1-400-in-a-year-101680890457394.html>

Buildings are also required to have an additional power load to accommodate charging points, with a safety factor of 1.25.

- **Maharashtra EV Policy:**

- **NOC Mandates:** According to a circular released by Govt of Maharashtra, once an EV owner submits a request for an NOC, housing societies are required to respond within seven days if the standard operating procedures (SOPs) are met. This process aims to streamline the installation of charging points and encourage more residents to transition to electric vehicles<sup>17</sup>. In addition, Maharashtra's 2025 Standard Operating Procedures (SOPs) for EV charging safety and installation have emerged as a benchmark for other states. These SOPs provide clear technical and procedural guidance for RWAs, DISCOMs, and residents, ensuring safe, standardized, and timely implementation of EV charging infrastructure in residential complexes. Their structured approach is being considered for replication in other state EV policies.



<https://gr.maharashtra.gov.in/Site/Upload/Government%20Resolutions/Marathi/202505231834008229....pdf>

- The Urban Development Department and ULBs will develop a plan and implement it in a **time-bound manner**.
- Urban local bodies will be encouraged to provide **property tax rebates** to residential owners for installing private charging infrastructure within their premises.
- **New residential buildings** will be mandated to have at **least 20%** of the total parking spaces *EV ready*, with 30% of these spaces in common parking areas or un-allotted to any individual residence owner. The Urban Development Department and respective ULBs will develop and implement a plan in a time-bound manner.
- Developers of new residential projects will be required to offer the option of **buying EV-ready parking from 2022 onwards**.
- **All dedicated off-road public** parking spaces must convert at **least 25%** of their total capacity to be EV ready by 2023. The Urban Development Department and respective ULBs will oversee the plan's development and implementation.
- **All institutional and commercial complexes** must convert **at least 25%** of their total parking spaces to be *EV ready* by 2023, with the Urban Development Department and ULBs managing implementation.
- **All government office** complexes must **convert 100%** of their total parking spaces to be EV ready by 2025 at the latest.

<sup>17</sup> <https://indianexpress.com/article/cities/mumbai/maharashtra-electric-vehicle-charging-points-housing-society-8298124/>



- **Karnataka EV Policy:**

- Karnataka's 2017 EV policy was one of the earliest in India. Bengaluru, the state's capital, has been a leader in EV adoption. The city has seen a rise in home charger installations, with several RWAs setting up shared charging stations.
- The latest SOP, released by **KERC** in 2024, mandates **a minimum of two EV charging points** in residential buildings and commercial complexes **with a 250-kW load** (approximately 50-100 flats) and over **5,000 sq. m of built-up area**.<sup>18</sup>



- **Kerala EV Policy:**

- Kerala's policy emphasizes creating EV-ready residential areas. The government is offering incentives for installing charging infrastructure in multi-family residential buildings. All new buildings must **allocate 20% of parking spaces for EV charging**.



Despite significant progress in drafting and amending EV policies at the state level, there remain gaps in effective implementation, particularly at the urban local body (ULB) level. While leading states have taken proactive measures to incorporate EV-friendly regulations, challenges persist in enforcing these policies at the ground level. Following gaps need to be addressed on priority:

1. While most state EV policies require new constructions to include dedicated parking spaces for electric vehicles, the issues faced by potential EV owners **in older, existing residential complexes remain largely unresolved**.
2. **A clear governance framework is needed** to ensure that each ULB within the state mandates and enforces these policies effectively.

## 4.2 References from other countries

### 4.2.1 USA

The U.S. government is actively promoting the development of electric vehicle (EV) charging infrastructure through various initiatives aimed at building a reliable and accessible home charging network.<sup>19</sup>



- **New York City's EV Policy:** New York City has set a goal for 20% of parking spaces in new residential buildings to be EV-ready by 2030. The city also provides financial incentives for retrofitting older buildings with EV charging infrastructure, covering up to 80% of installation costs in low-income neighborhoods.
- **Retrofitting Multi-Unit Residences and Workplace Campuses:** The EV Charge Network Program, launched by California's Pacific Gas and Electric (PG&E), aimed to install 7,500 Level 2 chargers in multi-unit dwellings and workplaces by 2020. Property owners with at least 10 parking spots designated for charging infrastructure were eligible for grants and assistance with installation, with the option to either own the infrastructure or have it owned by PG&E.

<sup>18</sup> <https://www.newindianexpress.com/cities/bengaluru/2024/Aug/02/buildings-over-5k-sqm-to-set-up-two-ev-charging-points-karnataka-electricity-board-issues-order>.

<sup>19</sup> [https://www.wricitiesindia.org/sites/default/files/Full\\_report\\_EV\\_State\\_Policy.pdf](https://www.wricitiesindia.org/sites/default/files/Full_report_EV_State_Policy.pdf)

- **Denver (Colorado) EV Requirements:**

- New single-family homes must have at least one EV-ready space per dwelling unit.
- New multi-family residential buildings are required to have 5% of parking spaces with EV chargers installed, 15% EV-ready spaces, and 80% EV-capable spaces.
- New commercial buildings must allocate 5% of parking spaces for EV chargers, 10% for EV-ready, and 10% for EV-capable spaces.

- **Rebates and Mandates:** California offers up to \$1,500 in rebates for installing home EV chargers, and cities such as Los Angeles and San Francisco require that at least 10% of parking spaces in all new residential buildings include EV charging infrastructure.

#### 4.2.1.1 Right to Charge<sup>20</sup>:

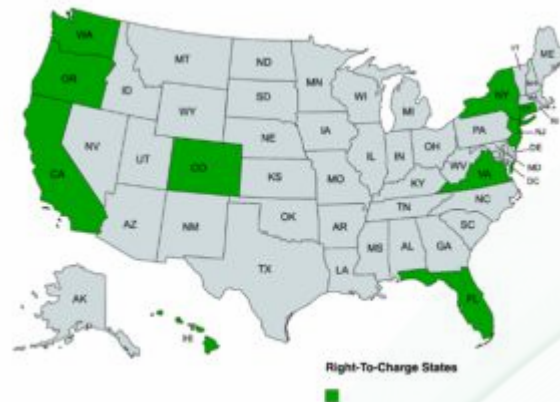


Figure 3: States that have implemented "Right to Charge" in USA

- **California's "Right to Charge" Law:** Passed in 2019, this law prevents Homeowner Associations (HOAs) from prohibiting residents in apartments or condominiums from installing EV charging stations in their designated parking spots, provided they cover installation costs and adhere to safety regulations.
- **State-Level Right to Charge Laws:** California, Colorado, Florida, Hawaii, Maryland, New Jersey, New York, Oregon, and Virginia have all enacted similar "right-to-charge" laws to ease the process of installing residential EV chargers. Illinois passed the Electric Vehicle Charging Act in 2023, which grants condo owners and renters the right to install EV chargers in their designated spaces.
- **Right to Charge in U.S. Cities:** Cities such as Seattle and Washington, D.C., have also implemented right-to-charge laws. While many of these laws apply primarily to owner-occupied buildings, some, such as those in California, Illinois, and Colorado, extend protections to renters as well.

<sup>20</sup> <https://www.nescaum.org/documents/ev-right-to-charge.pdf>

## 4.2.2 Europe:

European governments are leading the way in developing EV charging infrastructure through a combination of regulations, financial incentives, and strategic partnerships aimed at boosting electric vehicle adoption.



### 4.2.2.1 Mandates and “Right to electrical Socket”:

- **Energy Performance of Buildings Directive (EPBD):** This directive mandates that new and renovated buildings incorporate EV charging infrastructure, ensuring parking spaces are equipped for future installations. The EPBD also encourages the integration of smart charging capabilities to optimize energy consumption.<sup>21</sup>
- **Germany's Building Code Update (2020):** Germany revised its building codes, requiring all new residential buildings with more than 10 parking spaces to include at least one EV charging point.<sup>22</sup>
- **UK's EV Home Charging Mandate:** Starting in 2022, the UK government requires all new homes to be equipped with EV chargers. This policy has significantly impacted cities such as London, where EV adoption is rapidly growing.<sup>23</sup> Following requirements are mandated for older buildings:
  - Existing residential buildings with more than 10 parking spaces undergoing major renovations must have at least one charge point, along with cabling to support future installations.
  - New and older non-residential buildings with more than 10 parking spaces must install at least one EV charger, with cabling for one in every five spaces.
  - Large existing non-residential buildings with more than 20 parking spaces must install at least one EV charger by 2025.
- **France:** In France, the Mobility Law has guaranteed a "right to an electrical socket" since 2015. This allows apartment owners and renters to install EV chargers in shared parking spaces, provided they cover the costs and meet safety regulations. The process requires notifying co-owners, but they generally cannot refuse if the installation meets set standards.<sup>24</sup>

### 4.2.2.2 Financial Incentives:

European countries are offering a wide range of subsidies and tax benefits to encourage EV adoption and support charging infrastructure:

- **Netherlands:** Offers significant tax benefits for EV purchases and subsidies for charging stations, including energy tax reductions for public chargers.

<sup>21</sup> [https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive\\_en](https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en)

<sup>22</sup> <https://www.gleisslutz.com/en/news-events/know-how/geig-new-requirements-developers-and-owners-buildings-create-charging-infrastructure>

<sup>23</sup> <https://techcrunch.com/2021/11/22/uk-will-require-new-homes-to-have-ev-chargers-starting-in-2022/>

<sup>24</sup> [https://www.degaullefleurance.com/wp-content/uploads/2022/09/20220601-Observatoire-des-transitions-energetiques\\_De-Gaulle-Fleurance-Associates.pdf](https://www.degaullefleurance.com/wp-content/uploads/2022/09/20220601-Observatoire-des-transitions-energetiques_De-Gaulle-Fleurance-Associates.pdf)



- **Sweden:** Provides subsidies covering 50% of the cost for home EV charger installations, in addition to lower road taxes for electric vehicles.<sup>25</sup>
- **Germany:** Grants up to €900 to homeowners and housing associations for installing chargers in existing buildings.<sup>26</sup>
- **France:** Offers VAT reductions for home charger installations, and up to 60% of the cost of installing charging infrastructure in multi-family residential buildings is covered by a government grant program.<sup>27</sup>
- **United Kingdom:** Provides grants for home and workplace charger installations, as well as tax exemptions for zero-emission vehicles. A £350 grant is available for home charger installations in existing buildings.
- **Norway:** Known for its extensive EV policies, Norway offers significant purchase tax reductions and widespread subsidies for installing charging infrastructure, with up to 75% of installation costs covered for apartment complexes.<sup>28</sup>

#### 4.2.2.3 Strategic Investments and Partnerships:

- European governments are collaborating with private companies to expand the EV charging network. The EU's Green Deal, for instance, seeks to make Europe carbon-neutral by 2050, which includes heavy investments in EV infrastructure.<sup>29</sup>
- Public and private investments are focusing on integrating renewable energy sources with EV charging stations, promoting a more sustainable charging ecosystem across Europe.<sup>30</sup>

### 4.3 China

China's government has made significant efforts to develop home EV charging infrastructure, ensuring residential users have access to efficient and cost-effective charging solutions. The key support mechanisms include:



#### 4.3.1 Financial Incentives for Home Charging:

- The Chinese government provides substantial subsidies for individuals installing home EV chargers. These financial incentives help offset the cost of installation, making it more affordable for EV owners to set up home charging systems. In some regions, subsidies can cover up to 30% of the total installation cost.<sup>31</sup>
- Local governments, such as in Beijing and Shanghai, offer additional financial support through specific programs that provide rebates or subsidies for home

<sup>25</sup> <https://blog.evbox.com/ev-charging-infrastructure-incentives-eu>

<sup>26</sup> [https://www.kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details\\_618240.html](https://www.kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details_618240.html)

<sup>27</sup> <https://www.ampeco.com/fr/ev-charging-grants-incentives/unlocking-funding-opportunities-ev-charging-infrastructure-france/>

<sup>28</sup> <https://dodonaanalytics.com/blog/what-norways-journey-can-teach-other-markets>

<sup>29</sup> <https://www.gminsights.com/industry-analysis/europe-electric-vehicle-charging-station-market>

<sup>30</sup> <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/europes-ev-opportunity-and-the-charging-infrastructure-needed-to-meet-it>

<sup>31</sup> <https://www.energypolicy.columbia.edu/publications/electric-vehicle-charging-china-and-united-states/>

charger installations, encouraging more widespread adoption of private charging infrastructure.<sup>32</sup>

#### 4.3.2 Streamlined Installation Process:

- To ease the process of setting up home chargers, the government has simplified regulatory and permitting requirements. Policies have been implemented to ensure residential communities and property management companies collaborate with EV owners to facilitate installation of charging infrastructure.<sup>33</sup>
- Efforts are also underway to standardize the installation procedures across different regions, reducing bureaucratic delays and ensuring smoother access to home charging for residents.

#### 4.3.3 Support for Infrastructure Development in Residential Areas:

- The Chinese government is actively working with property developers to ensure that new residential buildings come equipped with EV charging infrastructure. This guarantees that new developments are ready to support home charging needs from the outset.
- For example, in Guangzhou, new residential parking spaces are required to either be fully equipped with charging facilities or reserved for the future installation of electric vehicle supply equipment (EVSE).<sup>34</sup>
- Retrofitting older residential buildings to support EV charging is also a priority, with property management companies receiving subsidies and incentives to install charging points in existing structures.

## 5. Ideal Provisions and Solutions for EV Charging in Residential Areas



While many state governments have introduced policies to promote EV adoption, the lack of specific provisions for installing chargers in existing residential complexes poses a significant challenge. To overcome these barriers, the government should implement comprehensive policies that grant EV owners the right to install home chargers, ensure adequate charging infrastructure in multi-unit dwellings, and promote public charging stations. Drawing from international models such as California's "Right to Charge" law, India's policy framework could be enhanced to make EV charging infrastructure more accessible, streamlined, and financially feasible for all citizens.

### 1. Right to Home Charging:

- a. The government should **mandate a 'Right to Charge'**, guaranteeing residents of apartments and gated communities the right to install EV chargers in their parking spaces, provided they cover installation costs and comply with safety regulations.



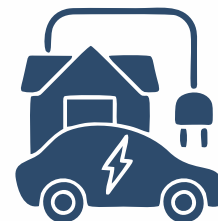
<sup>32</sup> <https://www.mordorintelligence.com/industry-reports/china-electric-vehicle-charging-infrastructure>

<sup>33</sup> <https://theicct.org/wp-content/uploads/2024/01/ID-93-%E2%80%93-China-charging-Report-A4-70131-v726.pdf#:~:text=URL%3A%20https%3A%2F%2Ftheicct.org%2Fwp>

<sup>34</sup> [https://www.wricitiesindia.org/sites/default/files/Full\\_report\\_EV\\_State\\_Policy.pdf](https://www.wricitiesindia.org/sites/default/files/Full_report_EV_State_Policy.pdf)

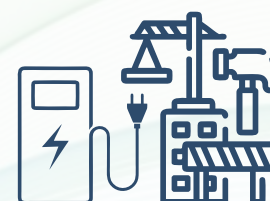
## 2. Home Chargers in Existing Buildings:

- a. **Housing associations** should be required to grant a **No Objection Certificate (NoC) within 7 days** to both residents and tenants. In case of no response, the matter should be escalated to the **District Registrar of Cooperative Societies** for resolution. The concept of deemed approval may be considered as a **policy recommendation**, subject to legal vetting and inclusion in state-level EV regulations.
- b. **Larger residential complexes** (with 50 or more units) **should be mandated to install at least one shared community charger** for residents, and **should be encouraged to electrify at least 20% of parking spots**. Costs can be shared among residents or managed by the RWA through commercial models offered by various operators.
- c. Distribution companies should be mandated to provide adequate load extensions for installation of home or community chargers **within 15 days of request for the same**.
- d. **Escalation of Disputes** to the **District Registrar of Cooperative Societies**: If a resident or tenant faces disputes regarding the installation of an EV charging point, they should have the right to escalate the issue to the District Registrar of Societies. The District Registrar would review the complaint, facilitate a timely resolution within 15 days, and impose penalties on non-compliant housing associations.



## 3. Charging pre-enablement in New Buildings:

- a. **Government should enact mandates** for Charging Connections in **New Residential Buildings for 30% of Parking Spaces** prior to handover of building to occupants.
- b. Compliance with this mandate should be **a pre-requisite for the issuance** of the **Occupancy Certificate (OC)**, making it a critical step in the building approval process. This **mandate should be included in RERA** rules to ensure real estate projects adhere to these regulations, promoting sustainable infrastructure development for electric vehicles.



## 4. Continue to invest in Public Charging for EV owners without dedicated parking facilities

To reduce dependency on home-based charging, the government should continue investing in public EV charging stations near residential and office areas. Expanding public infrastructure ensures that EV owners have access to charging facilities, regardless of their provisions for parking at home.



### Additional enablers:

#### 1. SOPs for Charging and Retrofitting:

The government should **issue specific guidelines** for setting up private EV chargers in **existing as well as new residential buildings**. State governments should streamline the process, and distribution companies should offer connections within 15 days of request.

#### 2. Governance framework to monitor implementation:

A governance framework should be implemented to oversee the processes for both public and private EV charging, ensuring effective execution and accountability.



**A state-level apex committee** comprising of officials of the **Departments of Municipal Administration, Department of Power, and the Registrar of Cooperative Societies** should be formed as the apex body to monitor implementation and ensure effectiveness.

**Urban Local Bodies**, as they are in regular touch with RWAs, **should be empowered to enforce these regulations, including levying appropriate fines for RWAs' failure to comply with mandates.**

### **3. Grievance Addressal**

The State level apex committee should set up a **grievance cell** where the public and related stakeholders can report any concerns with the implementation of the above rules, so that concerns are addressed with the support of all relevant departments.



## SIAM INITIATIVES TOWARDS SUSTAINABLE MOBILITY



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