**Electric Vehicle Industry Report: India and Global Overview**

**Introduction**

The electric vehicle (EV) revolution represents a significant shift in the global transportation landscape, driven by environmental concerns, technological advancements, and supportive policies. Worldwide, countries are embracing EVs to reduce carbon emissions and dependence on fossil fuels. India, with its rapidly growing economy and urbanization, holds immense potential to emerge as a global EV leader. However, challenges remain that differentiate India's trajectory from the most EV-advanced nations.

**Global Scenario and India's Current Standing**

Globally as shown in Graph 1, China has been at the forefront of EV adoption, particularly in the two-wheeler segment. From 2015 to 2023, electric two-wheeler registrations globally have seen a consistent rise, largely dominated by China, which alone contributed the bulk of the new sales each year. Other regions such as Europe, Vietnam, and India have shown comparatively modest growth. While China's growth is exponential, India's two-wheeler EV registrations are visibly increasing only from 2021 onwards, indicating a delayed but promising entry into mass adoption.

In India, the momentum in EV registration has picked up sharply in recent years. From a meagre **1.3 million registrations in 2018**, the number remained relatively stagnant until 2020, before surging to **3.31 million in 2021**, **10.2 million in 2022**, and further skyrocketing to **15.29 million registrations in 2023**. This pattern highlights how governmental incentives, rising fuel prices, and improved technology catalysed India's late but significant EV adoption phase. (Graph 2)

Graph 1

Graph 2

**Future Outlook for India**

Looking ahead to 2035, projections suggest that two- and three-wheelers will continue to dominate India's EV market. In both the Announced Pledges Scenario (APS) and Stated Policies Scenario (STEPS), the sales share for these modes is expected to reach over **60%**. Light-duty vehicles (cars) will follow, but trucks will continue to show minimal EV penetration. The data in Graph 3 suggest that India’s electrification is highly skewed towards affordable and utilitarian segments like scooters, motorcycles, and three-wheelers, in contrast to Western markets where passenger cars dominate.

Moreover, public charging infrastructure remains a vital component for sustainable EV adoption. In 2025, India's Western region is projected to have the highest number of operational public charging stations at **4010**, followed closely by the Northern region at **3682** and the Southern region at **3371**. In contrast, the North-Eastern region lags severely with only **159 stations**. Such regional imbalance points to significant policy and investment gaps that need urgent attention. (Graph 4)

Graph 3 Graph 4

**India vs. the World's Most EV-Adopted Countries: A Comparison**

When compared to global EV leaders like **Norway** and **China**, the contrast becomes stark. Norway, for instance, had more than **80% of new car sales being electric** as of 2023. Several factors account for this gap:

* **Government Support**: Norway offers massive tax exemptions, free parking, and toll waivers for EV owners, making EVs not just eco-friendly but economically superior to conventional cars.
* **Early Investments**: Norway and China both invested early in public charging networks, ensuring convenience for EV users. China's government-backed charging infrastructure covers even semi-urban and rural areas.
* **Consumer Awareness**: Higher environmental consciousness and better consumer incentives have accelerated EV acceptance in Norway and China.
* **Affordability and Variety**: These countries offer a wide variety of EVs across different price points, suiting every consumer segment.

In contrast, India's EV push primarily focuses on two-wheelers and low-cost models, with limited availability of affordable electric cars, and a charging ecosystem still under development.

**Key Challenges for India**

Several bottlenecks inhibit India's EV growth compared to global leaders:

1. **Insufficient Charging Infrastructure**: Although upcoming plans suggest growth, current density is low and uneven, particularly in Eastern and North-Eastern regions.
2. **Higher Upfront Costs**: Despite subsidies under schemes like FAME-II, EVs remain costly compared to internal combustion engine (ICE) vehicles.
3. **Battery Dependence**: India still heavily relies on imports for lithium-ion batteries, raising costs and supply chain risks.
4. **Range Anxiety**: The limited range of EVs and lack of rapid-charging stations discourage long-distance travel.
5. **Limited Model Availability**: Unlike Western markets, Indian consumers have fewer choices when it comes to EV models, especially for four-wheelers.
6. **Awareness and Trust Issues**: Concerns over battery safety, resale value, and after-sales service continue to act as psychological barriers.

**Recommendations for India**

To bridge the gap with leading EV nations, India must:

* **Expand Charging Infrastructure Rapidly**: Public-private partnerships should be encouraged to build fast-charging stations across the country, focusing on underserved regions.
* **Boost Local Battery Production**: Incentivizing domestic manufacturing under schemes like the PLI (Production Linked Incentive) can reduce import dependence.
* **Enhance Subsidies and Financial Incentives**: Targeted subsidies should make EVs affordable not just for two-wheelers but also for mid-range cars.
* **Diversify EV Models**: Encourage automakers to bring a wider range of EVs tailored for Indian conditions and budgets.
* **Invest in Awareness Campaigns**: Consumer education on long-term cost savings, environmental impact, and available support infrastructure is crucial.
* **R&D in Next-Gen Technologies**: Innovations in battery technology (e.g., solid-state batteries) can address range and safety concerns.

**Conclusion**

India stands at a pivotal juncture in its EV journey. The strong uptick in two-wheeler and three-wheeler electrification, as shown in recent data trends, is an encouraging sign. However, to realize its ambitious goals and match the success seen in countries like Norway and China, India must address its systemic challenges with urgency and innovation.  
The road to a sustainable and electric future is visible — now, the focus must shift to building the right infrastructure, reducing costs, and nurturing consumer trust to drive the next wave of EV adoption.