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*Takeaways to Strengthen the Indian EV Supply Chain*

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# Acronyms and Abbreviations

<b>CBU</b>	Completely built up
<b>CEPA</b>	Comprehensive economic partnership agreements
<b>CETA</b>	Comprehensive economic and trade agreement
<b>CKD</b>	Completely knocked down
<b>DVA</b>	Domestic value addition
<b>ECTA</b>	Economic Cooperation and Trade Agreement
<b>EFTA</b>	European Free Trade Association
<b>EIF</b>	Entry into force
<b>EV</b>	Electric vehicle
<b>FAME</b>	Faster Adoption and Manufacturing of Hybrid and Electric Vehicles
<b>FDI</b>	Foreign direct investment
<b>FTA</b>	Free trade agreement
<b>GATS</b>	General Agreement on Trade in Services
<b>GPA</b>	Agreement on Government Procurement
<b>HS</b>	Harmonized System
<b>ICE</b>	Internal combustion engine
<b>IP</b>	Intellectual property
<b>LDC</b>	Least developed country
<b>mb/d</b>	Million barrels per day
<b>MFN</b>	Most favored nation
<b>MSME</b>	Medium, small, and micro enterprise
<b>NEMMP</b>	National Electric Mobility Mission Plan
<b>OECD</b>	Organisation for Economic Co-operation and Development

<b>PLI</b>	Production Linked Incentives
<b>PM-E DRIVE</b>	PM Electric Drive Revolution in Innovative Vehicle Enhancement
<b>PTA</b>	Preferential trade agreement
<b>R&amp;D</b>	Research and development
<b>SPMEPCI</b>	Scheme to Promote Manufacturing of Electric Passenger Cars in India
<b>SKD</b>	Semi-knocked down
<b>TBT</b>	Technical Barriers to Trade
<b>TDM</b>	Trade Data Monitor
<b>TEPA</b>	Trade and Economic Partnership Agreement
<b>TRIPS</b>	Trade-Related Aspects of Intellectual Property Rights
<b>TTIP</b>	Transatlantic Trade and Investment Partnership
<b>UAE</b>	United Arab Emirates
<b>USMCA</b>	United States-Mexico-Canada Agreement
<b>WTO</b>	World Trade Organization

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# Executive Summary

India's electric vehicle (EV) push depends on its trade strategy. The government has set ambitious 2030 targets—including a stated goal of 30 percent of all new car sales and 80 percent of two- and three-wheelers to be electric—backed by national level schemes and financial outlays.<sup>1</sup> Yet EVs accounted for only around 8 percent of new vehicle sales in 2025, and India remains heavily reliant on imported battery cells, critical minerals, and advanced components—many of them sourced from China.<sup>2</sup>

To assess how India is structuring its approach to the EV transition, this report examines four recently signed trade agreements, negotiated after India set ambitious EV adoption goals, with Australia, the European Free Trade Association (EFTA), the United Arab Emirates (UAE), and the United Kingdom. The agreements mark a shift toward “structured openness”: high protection on finished vehicles, selective liberalization for upstream EV inputs versus internal combustion engine (ICE) inputs, and a stronger focus on investment, standards, and technology cooperation. Rules of origin, procurement, intellectual property (IP), and standards provisions are calibrated to both safeguard sensitive sectors and send positive signals to investors. However, trade data from Trade Data Monitor shows that these partners still account for a small share of India's EV-related imports.<sup>3</sup> The authors would like to note that while the trade agreements between India and the European Union and United States were announced prior to the publishing of the report, the full agreements have not been finalized at time of publication; accordingly, they have not been included in the analytical purview of this report.

**A comparison of India's import profile with leading global exporters reveals that its current trade deal network only partially overlaps with core EV supply hubs.** The four recent trade agreements help mobilize investment and improve access to advanced manufacturing, but they alone cannot deliver robust access to critical minerals, midstream processing, and advanced battery technologies at the required scale. **India has begun to close this gap through (1) upgrading older agreements made prior to India's current EV targets, such as those with Chile, Japan, and South Korea, (2) signing the more recent agreements mentioned above, and (3) pursuing negotiations with Peru, the United States, and the European Union.** However, these efforts are incomplete and uneven.

Completing and upgrading agreements with major extraction, refining, and manufacturing players will be essential to reducing overdependence on a limited number of foreign countries, including China, South Korea, and Japan, and diversifying EV supply chains. At the same time, Delhi should adopt a clear two-track strategy:

- **With “economic security-forward” partners,** use flexible but robust rules of origin, EV-focused technology and research and development (R&D) platforms, deeper standards of cooperation, targeted investment protections, and green-minded public procurement to build trusted and high-standard supply chains.
- **With countries tightly bound to Chinese-centric supply chains,** focus on commercial opportunities in downstream products and final assembly, while using stricter rules of origin, value-added, and disclosure rules to avoid simply reimporting Chinese dependency via third countries.

This report concludes with recommendations for policymakers to approach negotiations effectively and accordingly structure India's trade strategy. If India can better align its trade architecture with its industrial and climate goals, it can become a resilient and competitive hub in the global EV supply chain.

# Introduction

India's automotive sector is entering a structural transition as electrification reshapes how people and goods move across the country. While rising incomes and economic activity continue to drive growth in vehicle ownership, the accelerated shift from ICE vehicles to EVs has the potential to alter long-term energy demand, trade balances, fiscal revenues, and employment patterns. The transition will not only influence oil and gas imports, but also increase demand for critical minerals such as lithium, nickel, and cobalt, thereby introducing new strategic and trade considerations. In response, India has alternated between tariff adjustments, domestic manufacturing mandates, price controls, non-harmonized standards, and selective trade agreements to manage vulnerabilities. India has one of the lowest vehicles ownership rates, with about 185 two-wheelers and 34 passenger cars per 1,000 people, but ownership is steadily increasing.<sup>4</sup> In turn, the automotive sector has been registering a steady growth of 4 to 6 percent annually.<sup>5</sup> Key import trends in India's automotive sector include the following:

- Oil demand is expected to increase to 6.7 million barrels per day (mb/d) by 2030, registering largest growth in global oil demand by the end of this decade.<sup>6</sup>
- The value of critical minerals imports jumped by 34 percent between fiscal year 2022 and 2023, led by lithium, graphite, nickel, and platinum group elements for both ICE and EV manufacturing.<sup>7</sup>
- India's trade ratio for automotive components is nearly identical, at about \$20 billion for both imports and exports.<sup>8</sup>

Against this backdrop, India's electric mobility transition is unfolding at a moment when trade strategy, industrial policy, and global supply chain realignments are increasingly interdependent. As India accelerates its shift toward EVs, driven by ambitious decarbonization targets and a national mandate to strengthen domestic manufacturing, the country's trade strategy has become a critical lever in shaping the trajectory of its EV industry. India, like most economies, remains deeply dependent on imported critical minerals, battery cells, and advanced EV components.<sup>9</sup> These import dependencies highlight the extent to which India's EV transition is shaped not only by domestic industrial capabilities but also by the strategic design of its tariff regime and trade agreements.

India has positioned EVs at the center of its clean mobility strategy. As such, its trade policies abide by multiple objectives: (1) protecting domestic manufacturing through high tariffs on finished EVs, (2) selectively liberalizing critical inputs for industrial development of the EV sector, and (3) leveraging trade negotiations to attract investment and secure technology transfers relevant to EVs. With domestic production still dependent on foreign inputs, India's trade outlook determines whether the country can meet its dual goals of expanding EV adoption and building globally competitive supply chains.<sup>10</sup> In addition, India's supply chains are predominantly dependent on a limited number of foreign countries, including China, South Korea, and Japan. This results in potential vulnerabilities for India's EV sector due to geopolitical tensions, trade restrictions, and disruptions in global logistics. While policy support and domestic manufacturing initiatives are strengthening local capacity, securing predictable access to foreign inputs is essential for sustaining production. This demands an approach tailored to India's EV ambitions, balancing the goal of self-reliance with the realities of an interconnected global supply chain.

This paper aims to assess the impact of India's trade ecosystem on the country's EV transition to assess how India's trade strategy has complemented Delhi's twin goals of propping up its domestic EV manufacturing landscape while accelerating EV adoption. It then provides recommendations for India to structure its trade agreements going forward.

## **The State of India's EV Transition**

The electrification of the transportation sector has gained significant momentum in India as a part of its broader climate and industrial development strategy. India's EV market is poised to grow exponentially, at a forecasted CAGR of 49 percent from 2022 to 2030, driven by the Indian government's goal to put 80 million EVs on Indian roads by 2030.<sup>11</sup> This shift would directly alter long-term fossil fuel import trends, which would then have direct implications for India's trade balance and fiscal health.

India has laid out ambitious goals for its shift toward electric mobility, supported by numerous schemes and programs to support EV adoption and manufacturing, including the Production Linked Incentives (PLI) Scheme, the Scheme to Promote Manufacturing of Electric Passenger Cars in India (SPMEPCI), the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) subsidy program, and its successor, the PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM-E DRIVE) Scheme.<sup>12</sup> As part of these objectives, the country is targeting that by

2030, 30 percent of new passenger car purchases and 80 percent of new two- and three-wheeler acquisitions will be electric.<sup>13</sup>

However, India still falls short of the required progress needed to achieve the ambitious 2030 target of 30 percent of total vehicles sold being electric: EVs represented just 8 percent of new vehicle sales in 2025.<sup>14</sup> The country must now boost EV penetration by more than 22 percent within the next five years to stay on track.

**Domestic policies have accelerated the EV transition.** India's efforts to accelerate EV adoption and local manufacturing are driven by its many domestic industrial policy schemes and were initiated by the launch of the National Electric Mobility Mission Plan 2020 (NEMMP).<sup>15</sup> The FAME Scheme was India's first plan to promote the adoption and manufacturing of EVs, starting in 2015 and renewed under FAME II in 2019 with a financial outlay of over \$1 billion from fiscal years 2019-20 to FY 2023-24. The scheme focused on supply-side incentives providing subsidies to manufacturers that were ultimately beneficial to the final consumers. The FAME Schemes succeeded in sparking momentum for the EV transition, but earmarked funds remained underutilized, with FAME II disbursing 69 percent of funds for the duration of the program.<sup>16</sup>

The FAME Schemes have been revamped as the PM-E DRIVE Scheme since October 2024, aiming to support 2.8 million EVs, 72,000 EV charging systems, and the upgrading of testing agencies with a financial outlay of over \$1.2 billion for the 18-month duration.<sup>17</sup> The scheme has since been extended until March 2028.<sup>18</sup>

India's new EV policy, SPMEPCI, was launched on March 14, 2025, and operationalized three months later on June 2.<sup>19</sup> The policy reduces import duties from 100 percent to 15 percent on the import of up to 8,000 EVs over five years for automakers that commit at least \$500 million to local manufacturing over those five years and meet certain conditions on domestic sourcing of components.<sup>20</sup>

The PLI Scheme was approved for the automobile industry in September 2021 and outlays \$3.5 billion for five years for local manufacturing of automotive and auto-component technologies, focused on zero-emission vehicles, which are predominantly battery EVs.<sup>21</sup> To further the goals of the "Make in India" campaign, scheme applicants must achieve a domestic value addition (DVA) of 50 percent of components to be eligible for incentives.<sup>22</sup> Under the scheme, companies such as Tata Motors and Mahindra & Mahindra have committed almost \$3 billion dollars toward EV production in India.<sup>23</sup> Up to \$27 million in incentives have been disbursed as of operationalizing the scheme in FY 2023-24.<sup>24</sup>

**The supply chain is disproportionately dependent on imports.** The EV parts supply chain is highly complex, shaped by the specialized requirements of EV production, including batteries, electric motors, and power electronics. India relies on foreign sources for over 90 percent of its lithium, cobalt, and nickel.<sup>25</sup> The localization of battery packs manufacturing has reached only about 10 to 20 percent.<sup>26</sup> Large-scale domestic cell manufacturing also remains limited. In short, India is reliant on global supply chains for the most essential parts of EV manufacturing.<sup>27</sup>

**Domestic policies are closely tied to trade barriers.** India is considering EV-related concessions and potential adjustments to SPMEPCI as part of ongoing bilateral and free trade agreement (FTA) negotiations, delaying the opening of the second window for bids on the SPMEPCI portal, including with the European Union and the United States.<sup>28</sup>

The effectiveness of these domestic initiatives in part hinges on India's access to imported components and materials. Despite strong policy support for localization, these schemes still depend on predictable import flows to bridge current capability gaps and sustain EV production.

# Examining India's Current Trade Strategy

## Recently Signed Agreements

India's most recent wave of trade agreements, especially after the launch of the NEMMP in 2013, reflects a calibrated attempt to reconcile its long-standing protectionist instincts with the practical need to secure inputs and investment technology for its emerging EV ecosystem. The 2022 India-Australia Economic Cooperation and Trade Agreement (ECTA) and the 2022 UAE-India Comprehensive Economic Partnership Agreement (CEPA) illustrate this dual strategy.<sup>29</sup> With Australia—a major global supplier of lithium and other upstream minerals—ECTA expands preferential access while maintaining flexible but enforceable rules of origin, enabling India to import essential raw materials at competitive rates without opening the floodgates to third-country transshipment. In the case of this agreement, and others outlined below, a major question mark remains with the refining and processing stage of the critical minerals supply chain. India's capabilities in that area are in early stages, and partner country suppliers send many raw materials to third nations (see Table 1). As such, secure agreements with raw minerals and materials producers are a crucial step, but they do not alone encompass a fully mature diversification strategy.

The UAE agreement plays a different structural role. Although the UAE is not a large producer of EV-relevant minerals, it is one of the world's most important logistics and reexport hubs.<sup>30</sup> India's decision to impose stricter tariff-shift and value-addition requirements in UAE-India CEPA aims to prevent circumvention while leveraging the UAE's role as a financial and distribution center to attract investment in EV components, battery materials, and advanced manufacturing.

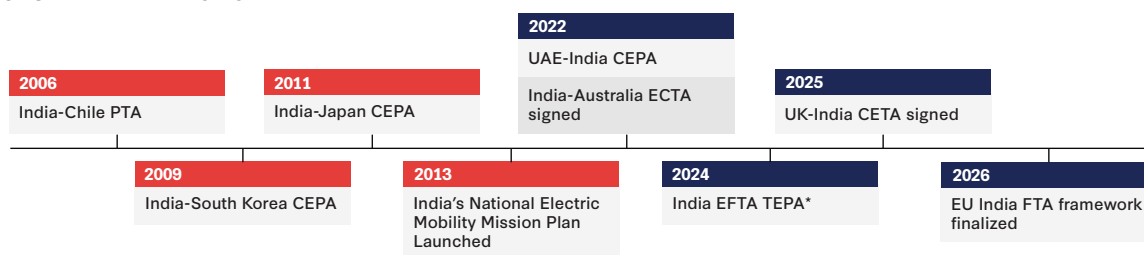
Both agreements were signed amid India’s reconfiguration of battery import duties—including higher tariffs on import of finished cells and packs and selective exemptions for key intermediate goods—signaling that India intends to use tariff and trade tools complementarily, using high protection on finished products to encourage domestic assembly and targeted liberalization upstream to support input acquisition and export competitiveness.

The 2024 Trade and Economic Partnership Agreement with select EFTA countries (Switzerland, Norway, and Iceland, but not Liechtenstein) and the 2025 FTA with the United Kingdom further consolidate this strategic shift toward structured openness.<sup>31</sup> EFTA partners are not major mineral exporters, but the bloc’s commitment to mobilizing \$100 billion in investment over 15 years—much of it expected to flow into advanced manufacturing, clean energy, and technology-intensive sectors—aligns squarely with India’s ambition to build domestic capacity for battery production and EV component manufacturing.<sup>32</sup>

The UK agreement deepens this trajectory by combining tariff reductions on Indian auto-component exports with flexible, multi-pathway rules of origin that facilitate intermediate goods trade while preserving India’s steep tariffs on fully built EVs. In exchange, India secures improved access to one of the world’s most technologically sophisticated automotive markets, along with cooperation on standards, R&D, and innovation.

These four agreements do not yet guarantee stable access to many inputs—in part because most key suppliers lie outside of this group of partners—but they demonstrate a shift toward leveraging trade agreements to attract investment, diversify technology sources, and strengthen domestic manufacturing foundations for the EV transition.

**Figure 1: Timeline of India’s Key Trade Agreements, Before and After the Launch of the NEMMP 2020**



\*The EFTA TEPA only includes Switzerland, Norway, and Iceland, not Lichtenstein.  
Source: Authors’ analysis.

## Deepening Ties

In addition to these recently signed agreements, India has begun to recalibrate its trade strategy through recent diplomatic and commercial initiatives. India’s efforts to strengthen ties with existing trade agreement partners demonstrate a shift toward deeper engagement with the countries that matter most for critical minerals, midstream processing, and advanced battery technologies.

The most consequential development in India's recent trade architecture is the conclusion of negotiations for an FTA with the European Union on January 27, 2026.<sup>33</sup> Covering the world's second- and fourth-largest economies and a combined market of over \$24 trillion, the FTA supports India's EV supply chain ambitions. Zero-duty access on mines and minerals supports India's ability to source and process value-added mineral inputs, while the elimination of tariffs on engineering goods—covering a broad range of components relevant to automotive and advanced manufacturing—lowers the cost of acquiring the capital equipment and intermediate goods that India's growing EV ecosystem requires. The services and IP chapters further strengthen this foundation, with technology transfer provisions and business partnership frameworks expected to facilitate inflows of European expertise and investment into India's battery and manufacturing sectors.<sup>34</sup> The deal is currently undergoing legal scrubbing ahead of formal signature, ratification by the European Parliament and India's Union Cabinet, and implementation projected for early 2027.<sup>35</sup>

A part of India's quest for deeper trade ties is the planned expansion of the country's trade relationship with Chile—one of the world's largest exporters of copper and lithium and a pivotal supplier for global EV manufacturing.<sup>36</sup> India and Chile have operated under a preferential trade agreement (PTA) since 2007, which was expanded in 2016 to cover nearly 3,000 tariff lines, but the two countries launched CEPA negotiations in May 2025.<sup>37</sup> This upgrade specifically aims to widen cooperation into areas such as digital services; investment; medium, small, and micro enterprise (MSME) collaboration; and, crucially, critical minerals. The new CEPA process marks the first time India has sought a deeper minerals-focused agreement with a top global extraction power, signaling an overdue realignment of its trade policy with its supply chain needs.

India is also strengthening its long-standing CEPA with Japan, one of the world's leading players in refined materials, battery technology, and EV components.<sup>38</sup> The two countries are pursuing an expanded economic partnership anchored in a \$70 billion Japanese private sector investment target and a new economic security cooperation initiative focusing on semiconductors, critical minerals, and clean energy.<sup>39</sup> Japan's dominance in midstream processing makes it a strategically important trade partner for India's EV ecosystem.

Parallel efforts with South Korea, an established leader in battery manufacturing and EV production, complement this strategy.<sup>40</sup> Although the India-South Korea CEPA has been in place since 2010, both sides have intensified negotiations in recent years around upgrading market access, improving rules of origin, and expanding cooperation in advanced manufacturing and clean energy technologies.<sup>41</sup> With South Korean firms playing an increasingly central role in global battery cell and pack supply, closer trade relations position India to diversify away from its strong dependence on China for battery technologies.

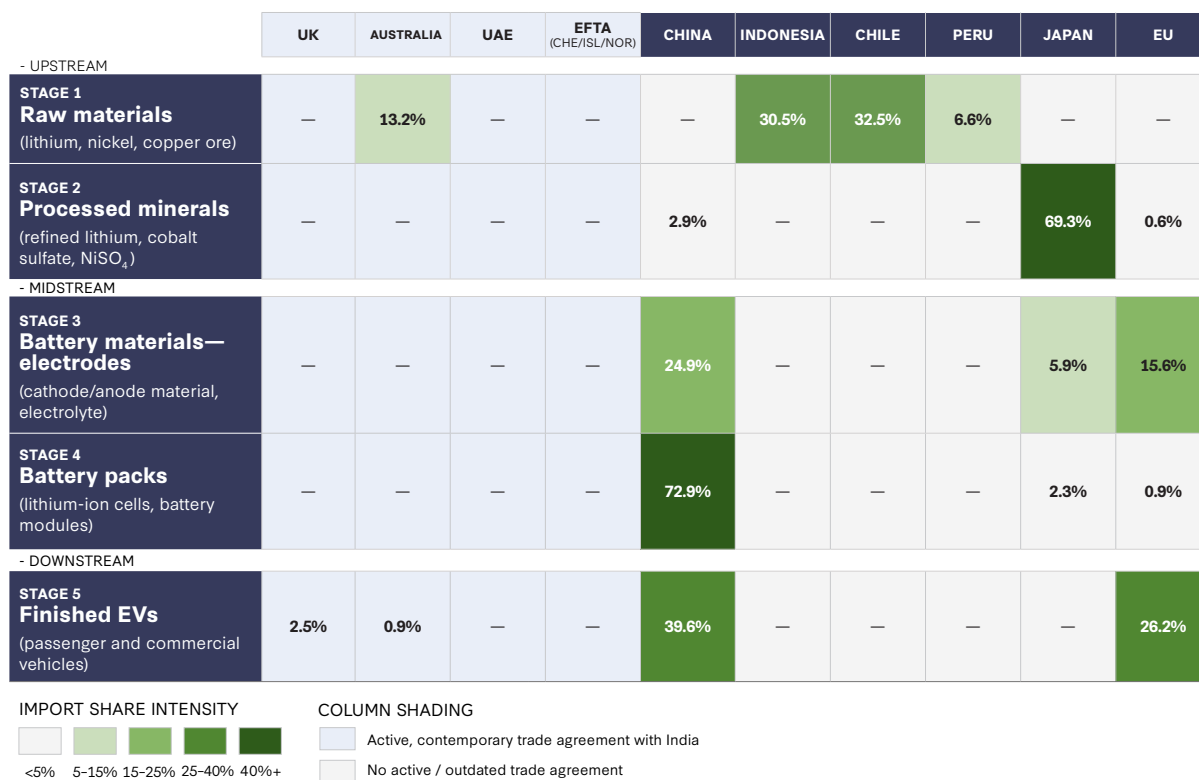
## **Prioritizing New Agreements with Critical Partners**

India is also moving toward building new binding trade partnerships. Delhi is targeting both key commodities-rich economies and downstream powerhouses. Negotiations with Peru—one of the world's top copper and lithium producers—are in an advanced stage, with the ninth round concluding in late 2025 and both countries targeting finalization of an FTA by mid-2026.<sup>42</sup> The Peru

FTA is explicitly designed to secure access to critical minerals and expand investment in mining and clean energy to stabilize long-term supply arrangements.

India’s ongoing negotiations with the European Union represent another step toward deepening trade ties with economies that aim to play a central role in global EV supply chains.<sup>43</sup> The European Union is home to leading producers of advanced battery technologies and high-quality auto components—all segments where India currently lacks reliable access and where its existing trade agreement network is thin. The negotiations remain complex, spanning market access for automobiles, textiles, and pharmaceuticals; regulatory issues such as the EU Carbon Border Adjustment Mechanism; and extensive provisions on standards, geographical indications, and investment protection. However, the intensification of high-level engagement signals a shared willingness to identify “landing zones” for compromise.

Figure 2: Share of Imports of EVs and Components Across Select Countries



Source: “Trade Data Monitor,” Trade Data Monitor, <https://tradedatamonitor.com/>.

# Pursuing an Evidence-Based Trade Strategy

India's push to negotiate with major EV supply chains players is laudable, but it needs to be accompanied by sound guiding principles for policymakers in devising concrete objectives. The following section delineates key components for India to consider when developing future trade strategies, derived from literature review and best practices of other trade agreements.

## Tariff Approach

Tariffs fundamentally increase the cost of imported goods, which forces businesses to either absorb these higher costs, pass them on to consumers in the form of higher prices, or seek alternative suppliers. This dynamic reshapes sourcing strategies, as firms may face higher costs from domestic substitutes, may be forced to navigate new supplier relationships, or may encounter production delays. Tariffs can also make offshore outsourcing less financially attractive, reducing firms' reliance on foreign service providers.

For India's EV sector, these effects are amplified given how many critical components are heavily dependent on imports. Tariffs on these inputs significantly increase production costs: A 10 percent duty on key components can add thousands of dollars to the final price of an EV.<sup>44</sup> Different rates across trading partners force manufacturers to reconfigure supply chains by sourcing from less-exposed countries and investing in domestic production—sacrificing profitability for security.

Higher EV prices ultimately reduce affordability and slow consumer adoption, with spillover effects on related markets such as used EVs and commercial charging infrastructure. Tariffs can

also directly influence the pace of technological diffusion and the success of policy efforts aimed at supporting EV uptake.

India's lithium-ion battery import policies have shifted over the past decade, reflecting its evolving energy and mobility strategy. Until recently, a 10 percent duty on battery cells and packs balanced domestic manufacturing interests with import needs.<sup>45</sup> In 2021, tariffs were broadly revised: The government increased the basic customs duty on battery packs to 15 percent.<sup>46</sup> In addition, a new 2.5 percent duty on raw materials signaled a push for local value addition.<sup>47</sup>

This shift marks a move from open access to strategic protectionism, driven by energy security, trade balance concerns, and the goal of building a domestic battery industry. In recent years under the present government, India has continued to hike tariffs on finished products (see Figure 3), with vehicles bearing no exception. This is all to aid the government's "Make in India" initiative, which encourages domestic manufacturing of finished goods. From 2019 to 2025, India pursued initiatives to establish 50 gigawatt hours of local manufacturing, supported by incentives and the PLI Scheme for automobiles and auto components (with a focus on EVs) and advanced chemistry cell batteries.<sup>48</sup> These efforts have laid the foundation for the latest tariff hike, India's strongest step yet toward self-reliance in battery production.

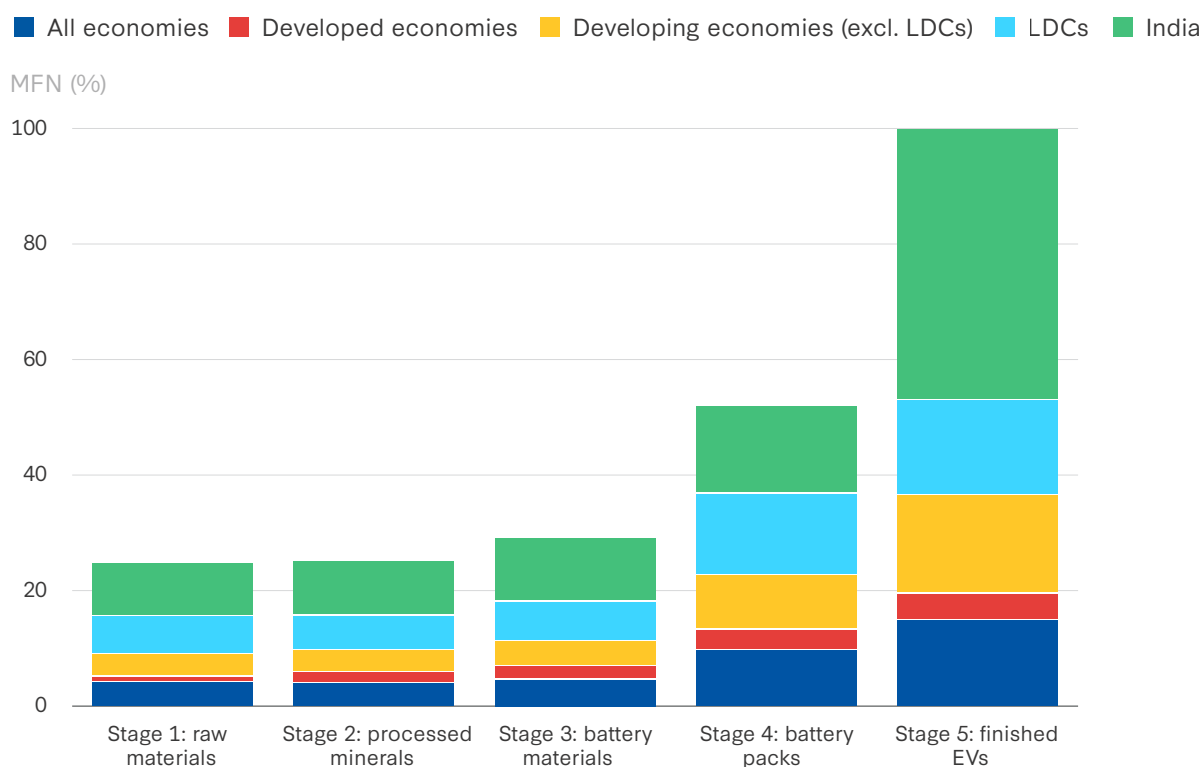
India's decision to raise import duties on lithium-ion batteries should also be considered in the context of its trade relations with the United States and China. While maintaining a steep 110 percent tariff on finished EVs, the government exempted duties in March 2025 on 35 key EV battery components including raw materials such as lithium.<sup>49</sup> This move, aimed at offsetting the impact of U.S. reciprocal tariffs, is expected to lower costs for critical battery materials and spur EV industry growth, reflecting India's strategy of easing access to essential inputs while promoting DVA. However, India has begun reconsidering aspects of its tariff and trade policy as part of broader efforts to pursue new trade agreements, demonstrating a gradual shift toward deeper engagement.<sup>50</sup>

Nevertheless, India has signed numerous trade agreements with other countries, such as Japan, South Korea, the UAE, and others. Under the India-South Korea CEPA, there are six "staging" categories for how duties are reduced or eliminated.<sup>51</sup> Some lines go to 0 percent duty immediately (Category E-0). Others are phased out more slowly (e.g., on five- or eight-year schedules). There is also an "exclusion" category for sensitive items that do not get reductions. Notably, vehicles and auto components are part of this exclusion list. In the India-UAE CEPA (which entered into force in 2022), 80 percent of India's tariff lines are to be eliminated over time.<sup>52</sup> Within 10 years, the agreement foresees all tariffs being eliminated for a large share of goods.<sup>53</sup> In many cases, upstream products such as engines and gearboxes have partial reductions or delayed phase-out, potentially to protect domestic suppliers. For downstream items, there is a faster reduction or full elimination.

## **INDIVIDUAL TRADE AGREEMENTS**

The structure of concessions offered to partners in trade agreements after the launch of the NEMMP, namely agreements with the United Kingdom, the EFTA states, Australia, and the UAE,

**Figure 3: Most Favored Nation Rates for EV Supply Chains Across Country Groups and India**



Source: Theresa Carpenter, Samuel Munyaneza, and Ralf Peters, "Tariffs on critical minerals and their role in the electric vehicle value chain," WTO, *Data Blog*, August 1, 2024, [https://www.wto.org/english/blogs\\_e/data\\_blog\\_e/blog\\_dta\\_01aug24\\_e.htm](https://www.wto.org/english/blogs_e/data_blog_e/blog_dta_01aug24_e.htm).

confirms the pattern of liberalization along the EV value chain, particularly for upstream battery inputs and components, while keeping finished vehicles under a regime of robust protection. The way staging categories, immediate eliminations, and tariff-rate quotas are deployed effectively shapes who can sell what into the Indian market, at which stage of the value chain, and at what price point.

There is some space for prioritization toward enabling EVs over ICE vehicle components, especially when it comes to securing raw materials and core battery components (such as electrodes and accumulators). However, these efforts are not significant enough to suggest India is prioritizing the EV transition across its trade strategy.

## INPUTS

Under the agreement with the United Kingdom, core battery minerals and chemicals are placed on schedules that eliminate tariffs as soon as the agreement enters into force. Duties on cobalt ores, natural graphite, lithium carbonates, and copper ores fall to zero, and the same logic extends to refined inputs such as cobalt oxides, lithium oxide, fluorine salts, and other fluorides and chlorides, as well as artificial graphite and unwrought refined copper.<sup>54</sup> The concessions do not stop at raw

and refined materials: Key electrode and assembly inputs—carbon and graphite electrodes, copper foil, manganites, and various inorganic salts—also move to zero.<sup>55</sup> Even high-value products like lithium-ion accumulators and parts of electric accumulators, which initially attract tariffs in the mid-teens, are eliminated entirely for UK-origin goods on entry into force.<sup>56</sup> In other words, for the United Kingdom, India is aiming to create a corridor of access from the mine through the chemical plant to the cell factory and pack assembly line.

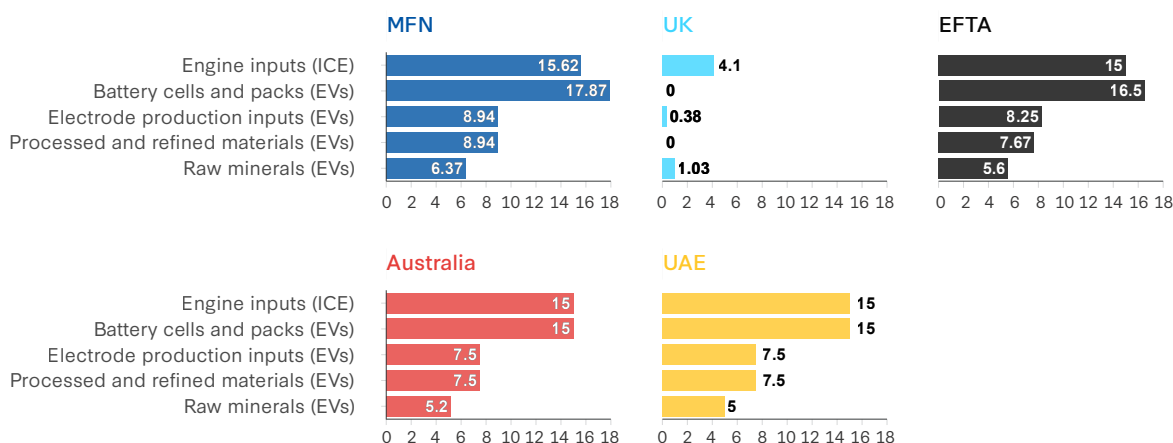
EFTA partners (specifically Switzerland, Norway, and Iceland, but not Liechtenstein) benefit from a broadly similar, though somewhat less ambitious, pattern.<sup>57</sup> These partners all see sizable reductions on the same family of EV inputs, but effective tariff rates often settle in the low-to-mid single digits rather than dropping all the way to zero.<sup>58</sup> In many cases, these concessions are still coded as “EIF” (entry into force), indicating immediate reductions from higher standard rates, but the residual duties remain larger than the duties outlined in the agreement with United Kingdom.<sup>59</sup> There is also greater use of phased reductions (over 5, 7, or 10 years) and a slightly higher reliance on exclusion categories for certain processed products.

By contrast, the Australia and UAE deals provide fewer tariff benefits.<sup>60</sup> They generally maintain MFN levels on many of the same minerals and chemicals, and in several cases no specific preferential staging is recorded. In other words, the United Kingdom is turned into a preferred conduit for EV supply chain inputs; the EFTA countries are given meaningful but more modest access; and Australia and the UAE are left largely at the baseline.<sup>61</sup>

Liberalization of ICE vehicle inputs is more moderate. Some engine and drivetrain components sourced from the United Kingdom—pistons, transmission gear, and exhaust systems—are scheduled to fall from 16.5 percent to zero, but typically over a 10-year horizon rather than immediately.<sup>62</sup> Crankshafts are likewise placed on a phased schedule under a broader Harmonized System (HS) heading, with duties eventually eliminated but only after a period of transition. The engines themselves, whether spark-ignition units or engines for motor cars, do not receive the same treatment as EV batteries: Their tariffs are halved over time rather than wiped out. Under the EFTA, Australia, and UAE deals, several exclusion categories remain in play.<sup>63</sup>

While Figure 4 indicates that the tariff rates for the EFTA countries are greater than those for Australia or the UAE, it is important to consider that many goods are serviced under the EIF staging category, which drastically reduces the overall residual duties.

**Figure 4: Comparison of Tariff Rates Across the Four Trade Agreements and Most Favored Nation Rates for Key EV Versus ICE Inputs**



Source: Carpenter, Munyaneza, and Peters, “Tariffs on critical minerals”; and authors’ analysis of India’s trade agreements with Australia, EFTA states, the UAE, and the United Kingdom.

## FINISHED VEHICLES

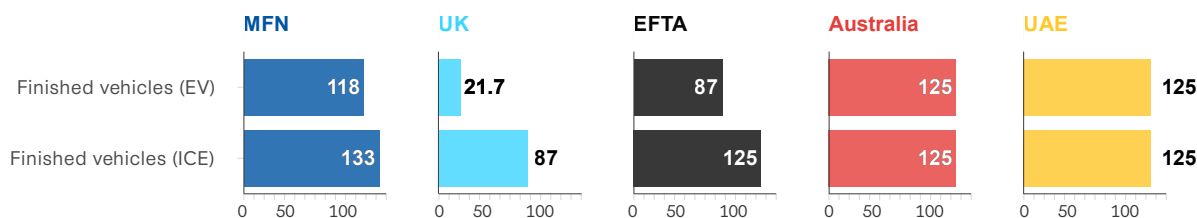
Finished EVs imported as completely built units are subject to extremely high standard duties—around 110 percent in the case of passenger EVs.<sup>64</sup> India employs tariff-rate quotas to carve out a more favorable regime for a limited number of EV imports from the United Kingdom. Within the tariff-rate quote band, effective tariffs can fall to levels around 10 percent, while the full protective wall remains outside the quota.<sup>65</sup> For EVs designed for the transport of 10 or more passengers, duties remain higher and more varied, with base rates that can range from the mid-teens to the mid-forties depending on whether imports are in completely knocked down (CKD), semi-knocked down (SKD), or completely built up (CBU) form.

ICE vehicles throughout the four examined agreements have similarly high barriers. Motor cars with engines below 1,000 cc and diesel cars below 1,500 cc continue to attract some of the highest tariffs in the entire schedule.<sup>66</sup> Standard rates of 125 to 137.5 percent remain in place on most finished ICE vehicles, and while there is more internal nuance—lower rates for CKD kits with disassembled engines and gearboxes, higher rates for kits that resemble near-CBUs, and very high duties on fully built, high-value, or large-engine models—the effect is a high protective barrier around the domestic ICE market.<sup>67</sup> Tariff-rate quotas for ICE vehicles exist in a much more constrained form than for EVs and are often tied to narrow value or displacement thresholds.

## Rules of Origin

Rules of origin determine where a product was made, which is crucial for applying tariffs, enforcing trade policies, and qualifying for FTAs. They are significant, as duties and restrictions are often determined by the origin of the imports. Government practices regarding rules of origin vary considerably.

**Figure 5: Comparison of Tariff Rates Across the Four Trade Agreements and Most Favored Nation Rates for Finished EV Versus ICE Vehicles**



Source: Carpenter, Munyaneza, and Peters, “Tariffs on critical minerals”; and authors’ analysis of India’s trade agreements with Australia, EFTA states, the UAE, and the United Kingdom.

Impacts of the rules of origin on import flows depend in part on the stringency of the regulations. Research shows that in themselves rules of origin do not cause prices to rise due to compliance-associated costs.<sup>68</sup> However, beyond compliance, economist Kala Krishna’s work shows the structure of rules of origin influence prices, trade patterns, and market dynamics within FTAs.<sup>69</sup> Krishna identifies two key types of price changes to consider—changes in world prices and intermediate goods prices—and highlights that incorporating both requires moving beyond simple models.

Rules of origin are essential to prevent countries not party to the trade agreement from benefiting indirectly, but they can be complex and costly to implement—particularly for manufactured goods. North America’s recent trade developments exemplify policymakers’ evolving thinking on how to balance insulating markets from nonmember countries against the diminishing attractiveness of stringent rules of origin. The United States–Mexico–Canada Agreement (USMCA) introduced stricter rules of origin than its predecessor, the North America Free Trade Agreement (NAFTA): Vehicles now require 75 percent North American content (up from 62.5 percent), and 40 to 45 percent of the production value must come from workers earning at least \$16 per hour.<sup>70</sup> These changes have increased compliance costs and, in some cases, reduced eligibility for duty-free treatment, with roughly 8 percent of North American vehicle imports now paying standard tariffs.<sup>71</sup> In practice, many firms choose not to claim USMCA benefits because of the administrative burden and complexity of proving compliance. Only about 38 percent of U.S. imports from Canada and 49 percent from Mexico entered under USMCA preferences in 2024, even though a much larger share technically qualifies.<sup>72</sup>

Research by Falvey and Reed (2000) and Ju and Krishna (1998, 2002) shows that rules of origin can function like tariffs by affecting input demand and terms of trade.<sup>73</sup> As rules of origin become more restrictive, firms are pushed to use more domestic intermediates to qualify for tariff-free access. Initially, this raises domestic intermediate prices and reduces imports, but once prices rise enough, some firms stop complying, leading to a reversal effect—prices and import levels change direction. Ultimately, their analyses reveals that more restrictive rules of origin first increase and then decrease the price of intermediates and imports of final goods, while imports of intermediates show

the opposite pattern. This creates two regimes—homogeneous (all firms comply) and heterogeneous (only some comply). Rules of origin affect both final and intermediate goods markets differently, shaping who benefits. Intermediate goods producers prefer stricter rules of origin, while final goods producers favor more flexible ones, leading to conflicting policy interests within trade agreements.

The research on the structures of rules of origin highlights that relaxing requirements can have uneven effects across firms and industries.<sup>74</sup> Looser rules tend to increase imports from lower-cost producers, especially in developing countries, by improving their market access. However, domestic firms—particularly those producing lower-priced or less-differentiated goods—may face stronger import competition, leading to declines in output, sales, or profitability. While reforms to rules of origin can enhance trade inclusivity and efficiency, policymakers must balance these gains against potential adverse effects on domestic industries that operate in more price-sensitive segments of the market.

India's approach to rules of origin has been interesting in its recent trade agreements:

- **ECTA**, between India and Australia, sets out clear but flexible rules of origin to determine which goods qualify for preferential tariffs. A product is considered “originating” if it is wholly obtained in either country or if it undergoes sufficient processing, usually demonstrated by a change-in-tariff sub-heading and by meeting a qualifying value content threshold of 35 percent (build-up) or 45 percent (build-down).<sup>75</sup> The agreement allows bilateral accumulation, meaning inputs from one country count toward the origin of the other and vice versa, or treats indirect materials automatically from one country as originating from the other country to reduce compliance burdens. Preferential treatment requires a certificate of origin, supported by detailed records and subject to verification by customs authorities.
- The **India-UK FTA** deal introduces a “co-equal” rule where exporters can meet *any one* of several origin criteria (e.g., wholly obtained goods, a value-added threshold, or a change-in-tariff classification), which gives flexibility.<sup>76</sup> There are, however, stricter checks to prevent routing via third countries, including the digital exchange of origin certificates.
- The **India-UAE CEPA** states that non-originating materials must satisfy a change-in-tariff classification at the four- or six-digit level of the HS to count.<sup>77</sup> A 40 percent value-addition requirement applies (on a free-on-board basis) for most goods, and there are product-specific origin rules to ensure “substantial processing.”<sup>78</sup> India's rules with the UAE seem stricter to prevent routing of third-party goods via the UAE.
- In the **India-Japan CEPA**, a non-originating good must have at least 35 percent value content or a change-in-tariff classification at the six-digit level.<sup>79</sup> Exporters and producers must keep detailed documentation of origin.

India's approach has been different in each agreement, creating case-by-case rules to protect sensitive sectors of its economy and protect domestic manufacturing while still trying to strike a balance of liberalization as it negotiates favorable terms. India's recent negotiating practice demonstrates a deliberate strategy: adopting flexible, multi-pathway rules of origin where it seeks

deeper integration (as with Australia or the United Kingdom), and imposing stricter value-addition thresholds or tariff-shift requirements where risks of circumvention or import surges are high (as with the UAE). This calibration reflects an attempt to manage competitive pressures while still securing preferential access abroad. Given the wide array of trading partners with which India is dealing, that may be the right approach. However, the heterogeneity of India's rules of origin provisions also creates complexity for exporters and foreign partners, potentially reducing utilization of preferences and undermining the very market access benefits these agreements aim to deliver.

## Government Procurement

Government procurement represents a substantial share of the global economy, accounting for approximately 12 percent of global GDP in 2018.<sup>80</sup> Analysis indicates that home bias in government procurement remains significantly higher than in firm-to-firm trade—although this gap has narrowed over time.<sup>81</sup> Studies show that trade agreements containing government procurement provisions enhance cross-border trade in services, while their impact on goods trade is limited and comparable to that of private markets.<sup>82</sup> Among these provisions, measures promoting transparency and clear procedural requirements are shown to be particularly effective in facilitating cross-border government procurement.<sup>83</sup>

Evidence from the Organisation for Economic Co-operation and Development (OECD) suggests liberalization of investment barriers undertaken in parallel with trade agreements increases the ability of those agreements to reduce discrimination.<sup>84</sup> Countries negotiating procurement agreements could also benefit from negotiating investment agreements in parallel. Many PTAs contain relatively shallow commitments on government procurement.<sup>85</sup> In many cases, these agreements either formalize existing national practices or rely on nonbinding, best-endeavor provisions, limiting their potential to drive meaningful reform. The effectiveness of such agreements depends heavily on their depth and enforceability. More ambitious frameworks—such as the Comprehensive economic and trade agreement (CETA) between Canada and the European Union—illustrate how stronger, binding commitments can substantially increase market access and promote genuine openness in public procurement.<sup>86</sup>

Government procurement features of trade agreements can impact a country's ability to attract investments. That impact is especially relevant for a sector such as EVs in which the government's tools to localize production find their way into trade and industrial policymaking. Implementing a “buy national” approach in government procurement can serve as a strategic tool to attract foreign direct investment (FDI) and stimulate domestic industrial growth.<sup>87</sup> By encouraging the formation of industrial clusters and agglomeration economies, such policies can enhance competitiveness, productivity, and innovation within local industries.

Agglomeration effects play a significant role in shaping multinational enterprises' investment decisions, underscoring the potential of targeted industrial policies to accelerate economic development. Although these findings are derived from four major European economies,

similar policy frameworks could be applied in developing countries to promote sustainable industrialization and generate a self-reinforcing cycle of growth.

However, there must be a strong regulatory framework in place with transparent rules surrounding government procurement. World Bank analysis finds a positive correlation between strong procurement laws and practices and FDI flows.<sup>88</sup> A National Bureau of Economic Research paper provides a framework for effective government procurement systems, which relies on four key pillars: transparency, competition, limits to exclusion, and integrity of contract management.<sup>89</sup> Strong legal and practical frameworks ensure that procurement information—such as plans, tender notices, award results, and contracts—is publicly accessible, fostering accountability and reducing opportunities for corruption.

India's **FTAs with Japan, the UAE, and the United Kingdom** have explicit chapters outlining stipulations for government procurement. All chapters broadly align with World Trade Organization (WTO) Government Procurement Agreement principles—they use the same core disciplines of nondiscrimination, transparency, open tendering, and objective qualification rules—but they stop short of the full level of openness seen in the Agreement on Government Procurement (GPA) because India limits coverage to select central government entities and maintains wide carve-outs for sensitive sectors. The Japan CEPA draws on GPA standards but has narrow coverage for only central government entities and other extensive restrictions but is open for revision.<sup>90</sup> For the UAE FTA, there is still significant ring-fencing for politically sensitive sectors like energy and public-private partnerships. The UK FTA marks the most open scope of the three, signaling more openness for global procurement norms to attract high-quality FDI but still providing carve-outs for sensitive sectors.<sup>91</sup> Overall, the provisions in these three agreements highlight India's strategy to balance its goals of attracting reliable FDI and signaling predictability while preserving India's industrial policy and MSME preferences.

## Technology Transfers and IP Protections

Technology transfer provisions in trade agreements can play a critical role in enabling countries to build and strengthen their EV manufacturing capacity. By facilitating the cross-border exchange of technology, skills, and advanced production methods, these provisions help domestic industries access cutting-edge innovations and manufacturing know-how. Such clauses can promote investment in high-tech sectors through mechanisms such as licensing, joint ventures, and FDI, while also supporting the import of essential equipment and components.

A global analysis of 176 countries from 1995 to 2015 found that trade agreements containing technology-related provisions—such as commitments on technology transfer, technical cooperation, R&D, and IP rights—significantly boost trade flows compared to agreements without such provisions.<sup>92</sup> Using a structural gravity model, the study shows that these effects are particularly strong for exports of technology-intensive goods, indicating that technology clauses can enhance the diffusion of innovation and production capabilities across borders.

The impact, however, varies by countries' income levels and the overall depth of the trade agreement. High-income and technologically advanced economies tend to benefit more from provisions on IP and R&D collaboration, while developing countries gain more from clauses promoting technology transfer and technical assistance. Incorporating technology-related provisions into regional and bilateral trade agreements can amplify their economic benefits by fostering innovation, upgrading industrial capabilities, and increasing exports of high-value goods. However, trade agreement design should consider tailoring technology clauses to the development level of partner countries and ensuring that complementary policies—such as capacity-building and knowledge-sharing mechanisms—are in place to maximize these gains.

**ECTA**, between India and Australia, encourages cooperation in innovation and R&D but does not mandate technology disclosure, and its IP protections follow the WTO's Trade-Related Aspects of Intellectual Property Rights (TRIPS) accord, with bilateral safeguards for proprietary technology, which is similar to the India-UK FTA. ECTA includes provisions on copyright, trademarks, and patents enforcement, and cooperation clauses encourage knowledge sharing but avoid forcing technology transfer.<sup>93</sup> The IP chapter of the India-UAE CEPA strengthens enforcement of patents, trademarks, and copyrights, and technology collaboration clauses encourage R&D partnerships. The agreement also encourages “clean energy partnerships.”<sup>94</sup>

The **India-Japan CEPA** allows technology sharing for industrial collaboration while protecting proprietary rights. IP enforcement is strengthened, but India retains TRIPS flexibilities, particularly for pharmaceuticals.<sup>95</sup>

India does not systematically require mandatory technology transfers in trade agreements or investment deals but often encourages them in high-priority sectors (e.g., defense, clean energy, semiconductors, and advanced manufacturing) through joint ventures, licensing agreements, or collaborative R&D. In terms of EV-specific transfers of knowledge, India has often chosen to encourage these transfers through other mediums.

For example, the **Indo-Japanese Clean Energy Partnership** has both countries agreeing to cooperate on EVs, battery storage, and EV charging infrastructure. Within India's domestic policy, the most critical and relevant to technology transfer is the SPMEPCI provision for foreign original equipment manufacturers to invest \$500 million to establish manufacturing bases in India, enabling joint ventures with Indian companies, facilitating investment in R&D, and increasing training and skilled employment opportunities.<sup>96</sup> Other policies, such as the PLI-Auto Scheme, ensure provisions for 50 percent DVA to unlock incentives, but that is not explicitly targeting foreign manufacturers or facilitating technology transfer.<sup>97</sup>

## Standards Harmonization

Standard harmonization clauses in trade agreements are designed to reduce trade barriers by aligning or mutually recognizing countries' technical regulations, standards, and conformity assessment procedures. By streamlining requirements across markets, these provisions lower compliance costs for businesses, eliminate the need for product redesigns, and enable smoother

cross-border trade. At the same time, they strengthen consumer protection by establishing common benchmarks for product quality and reliability.

Divergent regulatory policies across countries significantly increase the cost of international trade. Much of this burden arises from inconsistent regulations and overlapping compliance requirements, and reducing these barriers can generate substantial gains.<sup>98</sup> OECD estimates show that greater regulatory convergence in services could raise GDP per capita by around 3 percent in both the European Union and the United States, while the World Economic Forum projects global welfare gains of up to 5 percent from aligning trade-related non-tariff measures with best-practice standards.<sup>99</sup>

However, empirical assessments of recent trade agreements, such as the Canada-EU CETA and the proposed Transatlantic Trade and Investment Partnership (TTIP), suggest only modest GDP impacts—well below 1 percent.<sup>100</sup> The limited projected benefits reflect the challenges of achieving deep regulatory alignment, as many non-tariff and regulatory barriers remain difficult to harmonize.

Nevertheless, recent twenty-first-century trade initiatives—such as the Trans-Pacific Partnership, the Canada-EU CETA, and the TTIP—reflect a shift toward addressing modern regulatory convergence challenges.<sup>101</sup> These agreements incorporate both broad, horizontal provisions that apply across multiple sectors and types of property, and vertical provisions that target specific industries or regulatory areas. Horizontal measures cover issues such as cross-sectoral transparency, investment, and IP, while vertical chapters focus on domains like product standards and services regulation. Together, these approaches mark an evolution from traditional tariff-focused agreements toward more comprehensive frameworks aimed at aligning regulatory practices and facilitating deeper economic integration among relevant economies.

Hoekman and Sabel highlight how best practices for regulatory convergence between trading partners depend on structured, transparent, and iterative cooperation between regulatory authorities.<sup>102</sup> Their case studies from the U.S.-Canada Food Safety Systems Recognition Arrangement and the U.S.-EU Bilateral Aviation Safety Agreement demonstrate that regulatory convergence is achievable through “experimentalist governance”—a model based on mutual trust, technical transparency, and adaptive learning rather than one-off harmonization. According to their research, successful regulatory cooperation requires

- establishing mutual recognition frameworks grounded in evidence and reciprocal assessments;
- embedding ongoing review and dispute resolution mechanisms to sustain confidence; and
- engaging in sector-specific partnerships (e.g., in batteries, aviation, and pharmaceuticals) supported by international standard-setting bodies.

Such cooperative frameworks not only lower trade costs but also strengthen consumer protection and foster innovation by creating predictable, high-standard regulatory environments across trading partners.

In all four of these trade agreements, India leans heavily on the WTO Technical Barriers to Trade (TBT) Agreement as a foundation. India tends to be open to mutual recognition and equivalence, but not unconditionally. It retains the right to refuse equivalence where it deems its own standards necessary (for health, safety, environment, or industrial policy). Through these agreements, there is an apparent space for technical assistance and capacity strengthening (e.g., accreditation bodies and labs). The standards align with India's broader domestic push to build its quality infrastructure, such as through its Bureau of Indian Standards and the National Accreditation Board for Testing and Calibration Laboratories. Critics of India's strategy point out that India wants to harmonize where possible, but not at the cost of losing regulatory control over key sectors.

India's current practice—anchoring its provisions in the WTO TBT Agreement while preserving wide discretion to reject equivalence—reflects a desire to safeguard domestic regulatory autonomy. Yet the fragmented nature of India's supply chains, the volatility of its import flows, and the limited global relevance of many of its current trading partners demonstrate the need for deeper, more structured regulatory cooperation with countries that shape global norms for battery materials, EV components, and clean-technology manufacturing. Standard harmonization should therefore not be viewed as a concession, but as a tool for securing predictable access to high-quality inputs, lowering compliance costs for domestic manufacturers, and positioning Indian firms to participate in global production networks.

## Investment Protections

Investment protection provisions in trade and investment agreements establish safeguards for foreign investors against unfair or discriminatory government actions, such as expropriation without compensation or unequal treatment. These clauses—commonly found in bilateral investment treaties, FTAs, and broader international investment agreements—often include mechanisms for resolving disputes through international arbitration. By enhancing legal certainty and ensuring fair treatment, investment protections help create a more stable and predictable environment for cross-border investment, thereby encouraging capital flows and supporting economic growth.

Following the implementation of NAFTA and the General Agreement on Trade in Services (GATS), trade negotiators broadly increasingly began to include comprehensive investment provisions within PTAs.<sup>103</sup> These provisions aim to liberalize, protect, and regulate cross-border investment. Many PTAs that address trade in services now feature dedicated investment chapters that go beyond the GATS Mode 3 (commercial presence) framework, extending coverage to investments in goods, IP, and, in some cases, portfolio investments, depending on how investment is defined.

Investment provisions in trade agreements serve multiple purposes, including promoting and facilitating investment, enhancing market access through liberalization, and protecting investors' rights. Evidence indicates that incorporating such provisions into trade and investment agreements contributes to higher levels of foreign investment by providing greater predictability, transparency, and confidence for investors.<sup>104</sup>

The India-Japan CEPA offers the most robust investment protection through dedicated provisions for fair and equitable treatment, access to courts, and dispute mechanisms. These mechanisms are more overt than in India's other agreements with the UAE, Australia, and the United Kingdom, which lean toward strengthening investment promotion. For example, the UAE-India CEPA relies on the investment promotion and protection details outlined in the India-UAE Bilateral Investment Treaty in 2014 but also outlines the UAE-India Technical Council, a technical body with the explicit aim to enhance investment and trade cooperation.<sup>105</sup> Within ECTA and the UK FTA, trade promotion is predominantly pursued through regulatory transparency and standards alignment to remove barriers for trade, highlighting a trend toward increasing regulatory cooperation versus investor-state protection frameworks, with moderate settlement dispute clauses.

# The Impact of India's Trade Agreements on Import Flows of Critical EV Inputs

To understand how India's trade agreements have reshaped the country's vehicle supply chains, researchers for this report aimed to evaluate how the signature of the Australia, EFTA, UAE, and UK agreements have impacted Indian import flows from these nations. The trade agreements were chosen because they are India's major concluded trade negotiations since it set concrete EV adoption goals.

The analysis groups individual tariff lines into supply chain stages. For EVs, these stages are (1) raw minerals, (2) processed and refined materials, (3) electrode components, (4) battery cells and packs, and (5) finished vehicles. For ICE vehicles, they consist of (1) engine inputs, (2) engines, and (3) finished vehicles. These stages were constructed by aggregating several hundred monthly import observations (from January 2015 to August 2025) per HS code into broader functional categories reflecting the technological progression from upstream inputs to downstream assembly.

In total, the dataset covers tens of thousands of monthly bilateral-product observations across over 40 partner countries, with average pre-agreement import flows ranging from \$5-\$11 million per month in upstream EV inputs (e.g., \$5.6 million for EV raw minerals and \$11.2 million for battery cells and packs) to under \$500,000 per month for finished EVs and between \$2-\$5 million for ICE components.<sup>106</sup>

Across EV and ICE supply chains, the data reveal an asymmetric pattern following the signature of India's trade agreements, but the results are volatile because (1) partner countries account for only a small and uneven share of India's overall imports and because (2) the signature of many agreements was recent and hence the data does not represent entry into force.

Upstream and midstream EV inputs—especially raw minerals and processed battery materials—showed declines after agreement signature. The share of EV raw mineral imports from relevant trading partners—Australia, EFTA countries, the UAE and United Kingdom—compared to India’s global imports of the same fell by roughly 65 percent, and some midstream components dropped by more than 90 percent.<sup>107</sup> While these effects are directionally consistent across robustness checks, the underlying volumes are extremely small and fluctuate widely, making percentage changes especially noisy and sensitive to month-to-month variation.

When it comes to battery cell and packs, partner countries’ share of India’s imports rose fivefold on average.<sup>108</sup> Downstream trade moved in a similar direction: Imports of finished EVs rose by a factor of six, albeit from low baselines, and this pattern remained stable across specifications.<sup>109</sup> ICE supply chain results exhibit similar volatility: Inputs fell, while finished vehicles rose.<sup>110</sup>

In short, the data suggests that India’s trade agreements trigger a reduction in imports share from partner countries in upstream supply chain stages (chiefly raw and processed minerals). Shares of more downstream inputs, meanwhile, undergo a more significant rise. Most notably, imports of finished ICE vehicles rose by an average of 35 percent post-agreement. In other words, India’s trade agreements favor EV supply chains—but that is not true across the entire supply chain.

Much of the data around recently signed trade agreements is unstable: Many of these more recent partner countries provide a minor share of the global supply of battery inputs and only a marginal share of India’s sourcing; as such, even modest changes in trade flows create exaggerated swings in these estimates. These mixed results exemplify the vulnerabilities of India’s trade landscape and therefore beg an important question: How can India’s trade engagements better reflect its EV supply chain needs?

## **Indian Trade Strategy Progress**

Examining India’s import patterns across EV and ICE supply chain stages—set against the geography of global production—shows how India’s current trade agreement network only partially overlaps with the countries that matter most for critical minerals, midstream processing, and advanced components. Where misalignment between India’s trade agreement network, top import sources, and top global producers does appear, it points less to an error in strategy than to an incomplete transition toward the deeper partnerships India is now seeking to cement—with partners such as Chile, Japan, Peru, and South Korea, (the India-EU FTA framework was finalized in January 2026). The data also shows that China remains India’s dominant supplier of electrodes, battery cells, and finished EVs, far exceeding the role of any current trade agreement partner and highlighting the urgency of building deeper ties with partners to offset China’s centrality.

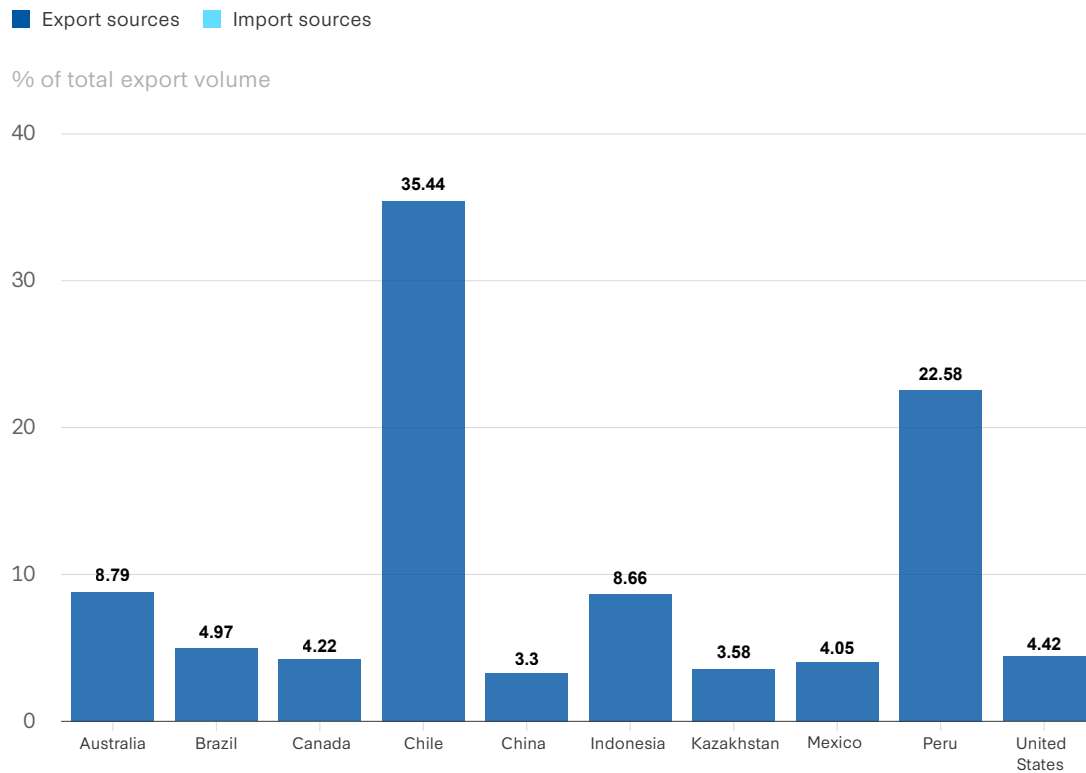
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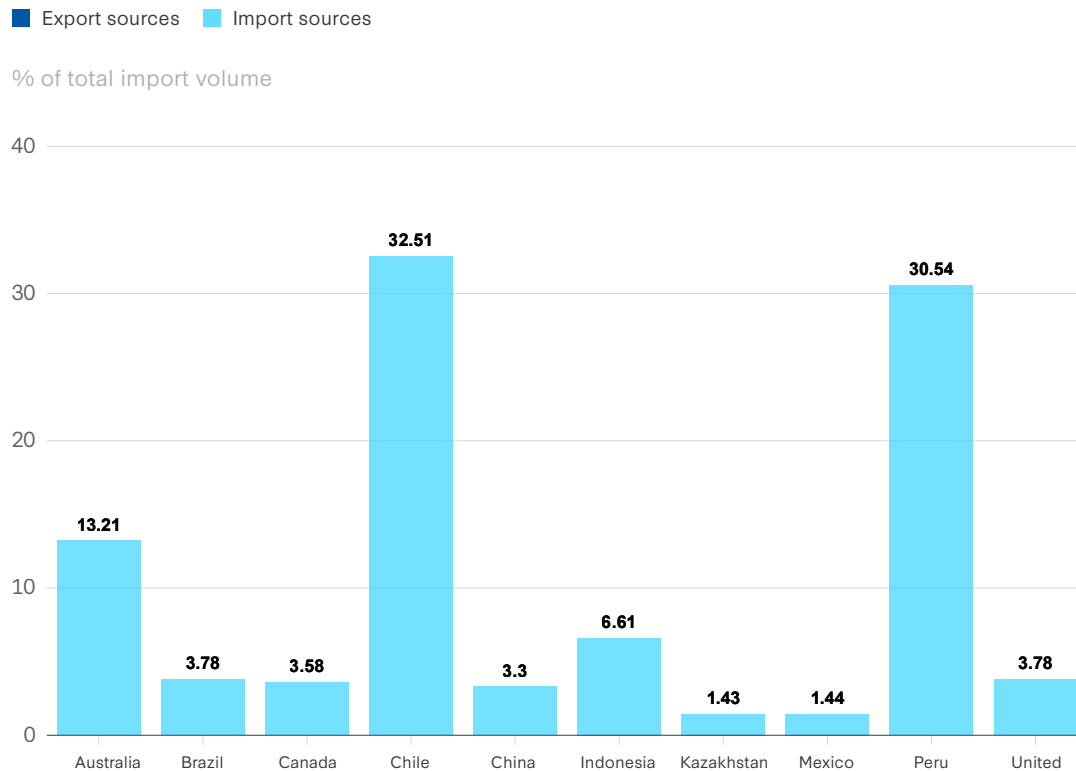
***India’s current trade agreement network only partially overlaps with the countries that matter most for critical minerals, midstream processing, and advanced components.***

## EXTRACTION OF RAW MINERALS

The **extraction stage** illustrates both the progress made and the gaps that remain in matching India’s trade agreement network with (1) its current chief EV import sources and (2) the opportunities it should explore with top global players. In 2024, India relied predominantly on Chile (32.5 percent) and Indonesia (30.5 percent) for raw critical minerals: These two suppliers alone account for more than two-thirds of India’s extraction-stage imports.<sup>111</sup> Globally, extraction is similarly concentrated, with Chile, Indonesia, Australia, and Peru together making up more than 75 percent of world exports.<sup>112</sup> India’s import profile thus aligns reasonably well with global exports, and ECTA and the upgrade process with Chile move policy in the right direction. However, Peru and Indonesia—both major global exporters—are still outside India’s active comprehensive agreement network, and China remains a central but non-preferential supplier for several minerals and intermediates.

**Figure 6: Minerals Extraction—Top 10 Indian Import Sources Versus Top 10 Global Exporters**



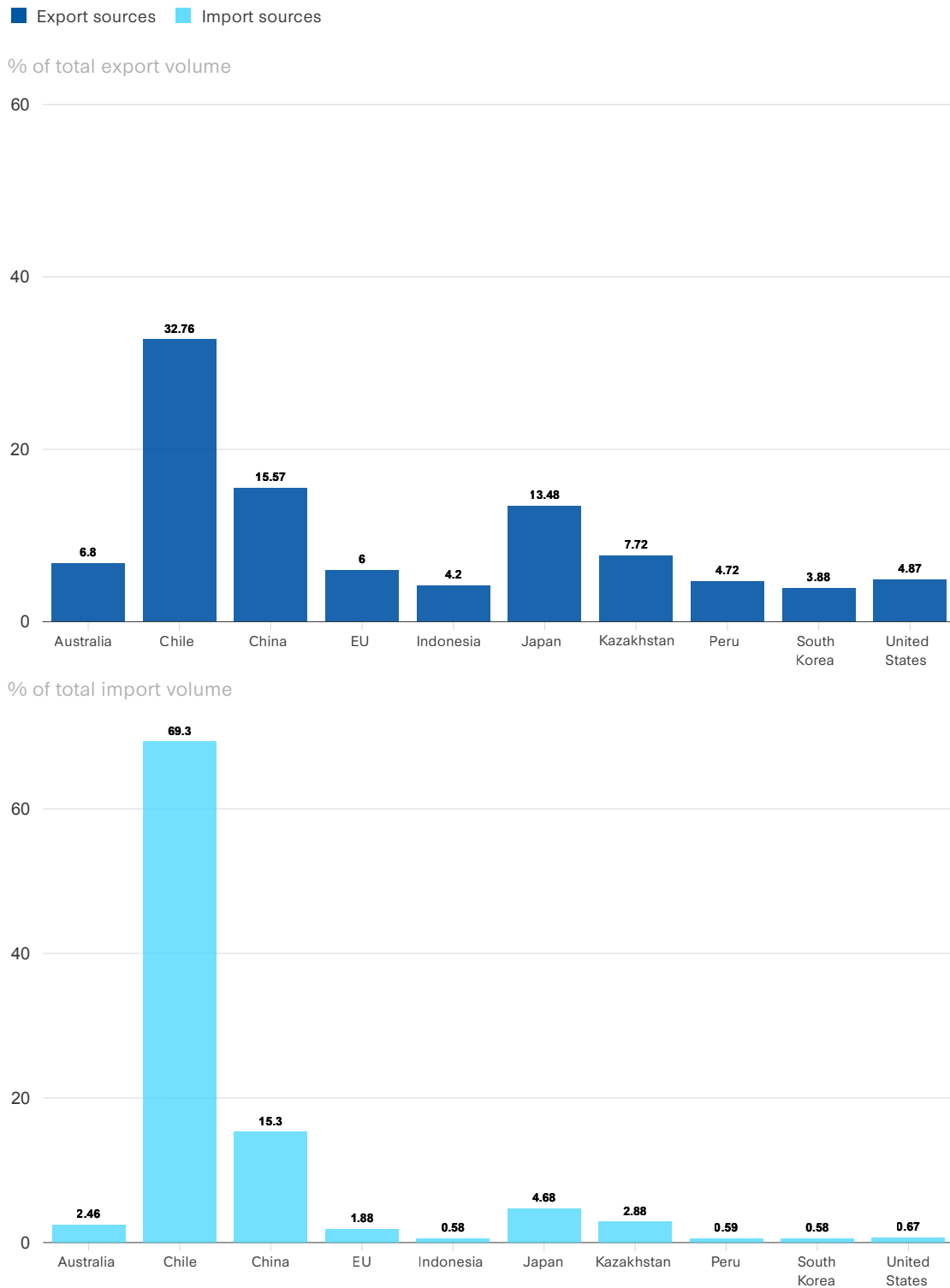


Source: Trade Data Monitor.

## PROCESSING AND REFINING OF MINERALS

In the **processing and refining stage**, India's top supplier in 2024 was Japan (69.3 percent), followed by Tanzania (15.3 percent) and Mozambique (4.7 percent).<sup>113</sup> Globally, refining is dominated by Chile, China, Japan, and Kazakhstan. India's ongoing CEPA upgrades with Japan and Chile are therefore strategically important and require prioritization. The UAE, EFTA states, and the United Kingdom are not major refining hubs, and India's African suppliers hold negligible positions in global supply. The observed impacts of the four trade agreements on processed materials operate on a slice of India's trade that is itself thin, while the bulk of risk and opportunity lies with partners such as Chile, China, Japan, and (prospectively) Peru.

**Figure 7: Processed Minerals and Materials—Top 10 Indian Import Sources Versus Top 10 Global Exporters**

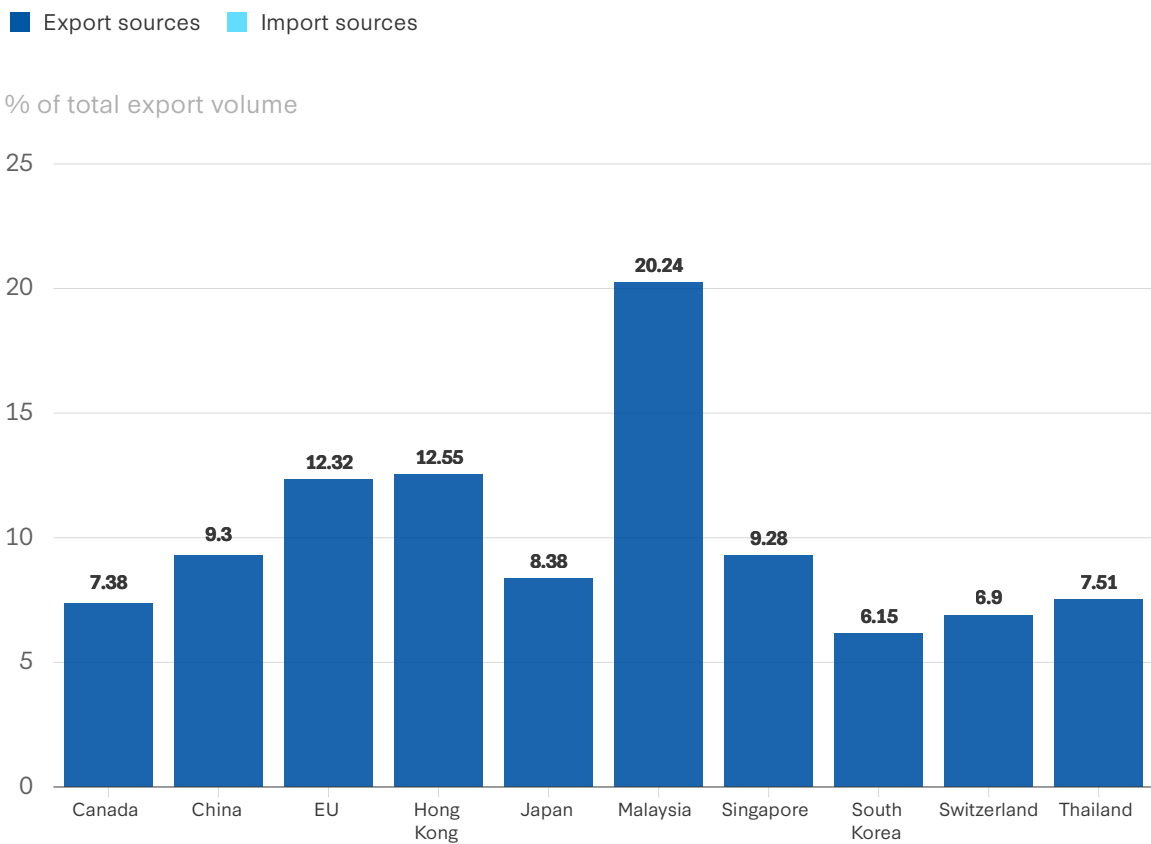


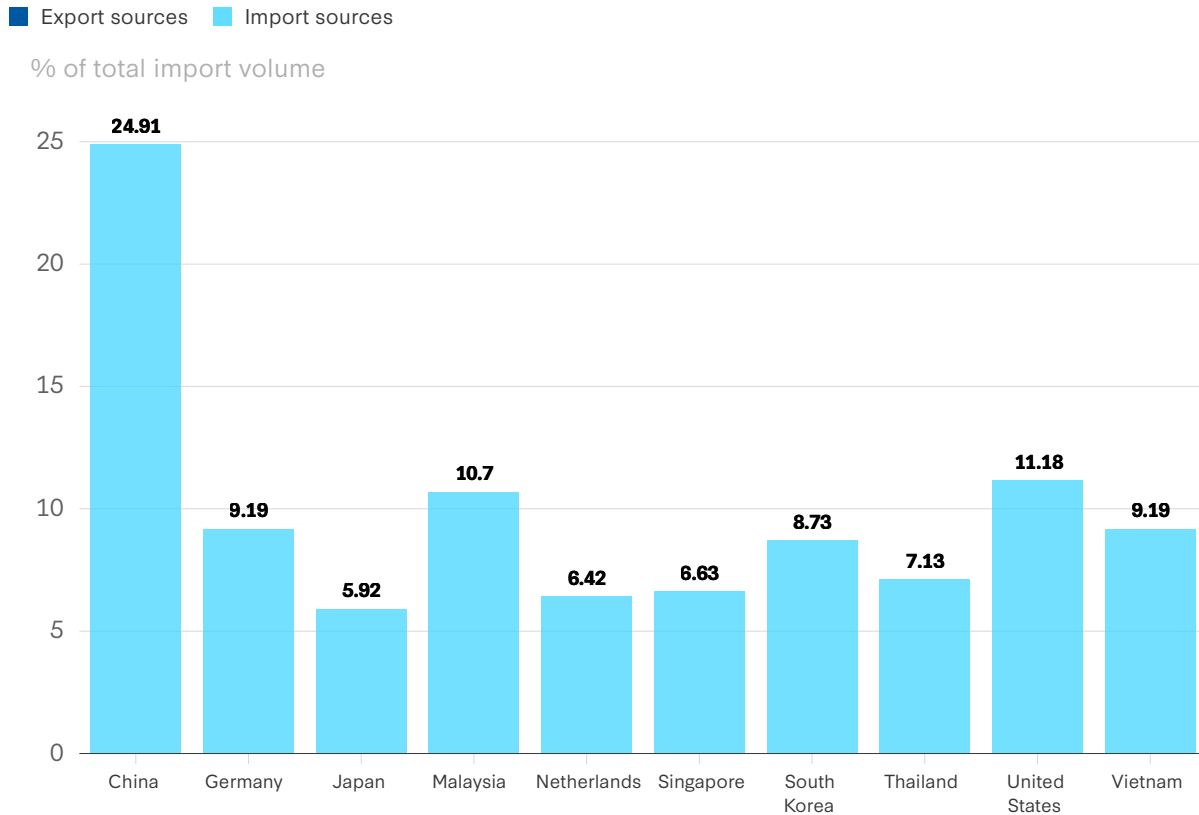
Source: Trade Data Monitor.

### KEY COMPONENTS: ELECTRODES

Meanwhile, India’s sourcing is somewhat more diversified **in electrode production**. Its top import partners—China (24.9 percent), the United States (11.2 percent), Malaysia (10.7 percent), Vietnam (9.2 percent), Germany (9.2 percent), and South Korea (8.7 percent)—overlap partially with global production, where Malaysia, Hong Kong, the European Union, China, and Singapore dominate.<sup>114</sup> India has no comprehensive trade agreement with the European Union—and, at the time of writing, still has not resolved trade tensions the United States with regard to the International Emergency Economic Powers Act.

Figure 8: Electrodes—Top 10 Indian Import Sources Versus Top 10 Global Exporters



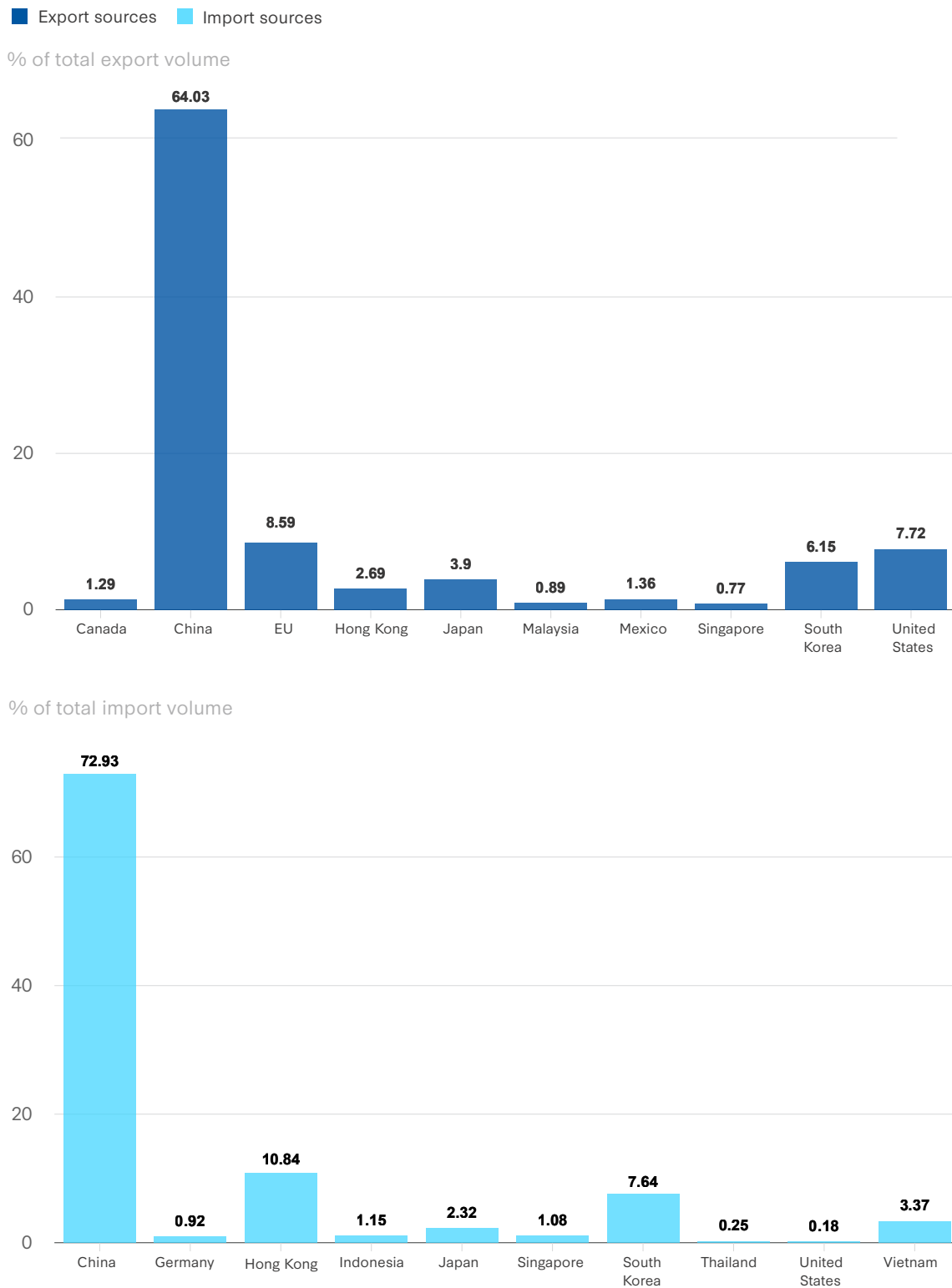


Source: Trade Data Monitor.

### KEY COMPONENTS: BATTERY CELLS

**Battery-cell manufacturing** displays a much starker concentration and highlights India’s continued dependence on China. Nearly 73 percent of India’s battery-cell imports originate from China, with Hong Kong (10.8 percent) and South Korea (7.6 percent) making up most of the remainder. Globally, China accounts for 66 percent of all battery-cell exports, followed by the European Union, the United States, and South Korea.<sup>115</sup> India’s CEPA with South Korea predates the rapid global expansion of cell manufacturing and is only now being upgraded.

**Figure 9: Battery Cells and Packs—Top 10 Indian Import Sources Versus Top 10 Global Exporters**

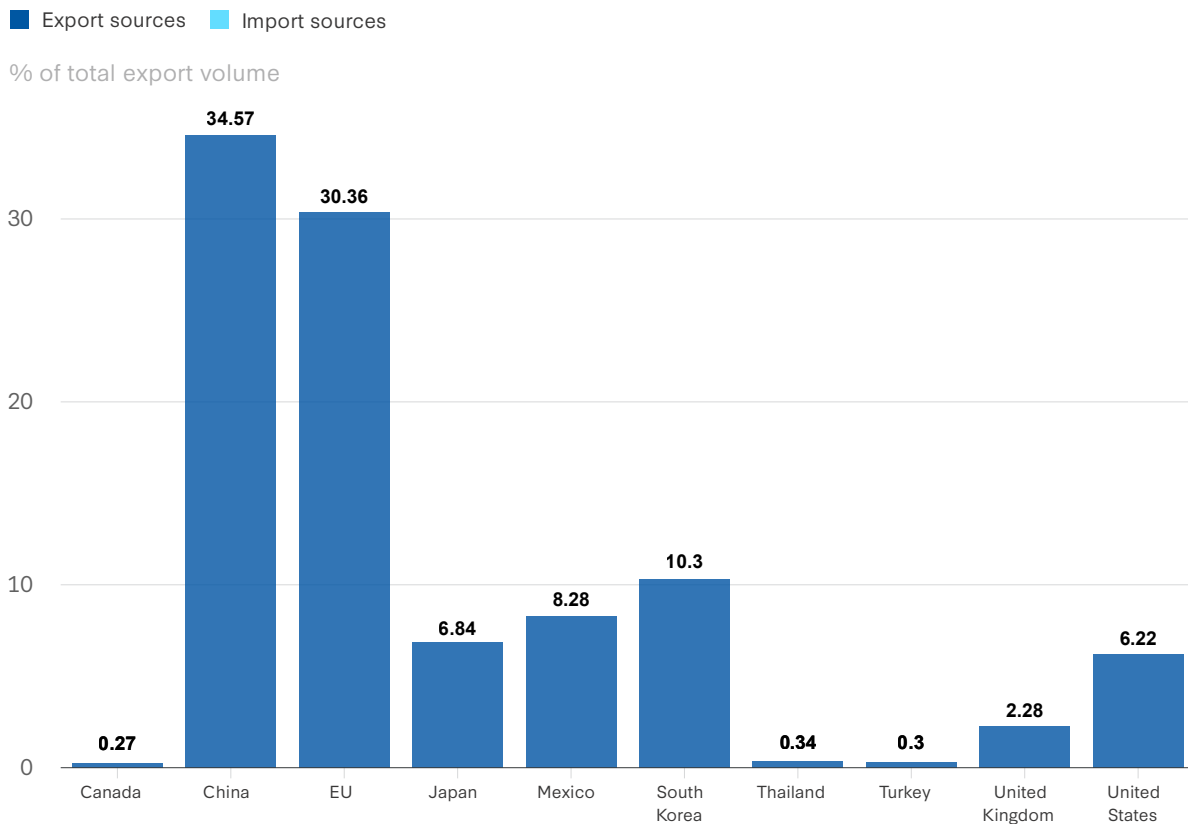


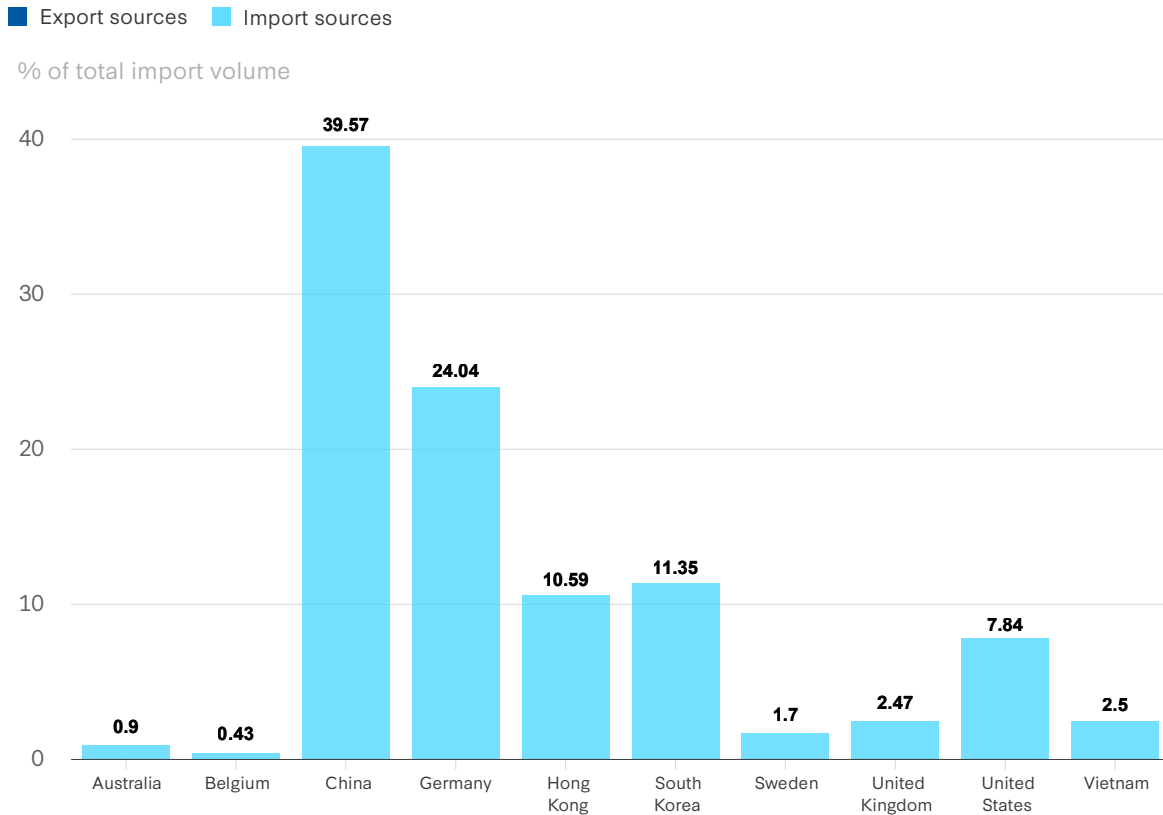
Source: Trade Data Monitor.

## FINISHED EVs

To a lesser extent, a similar pattern holds for EV assembly. India imports finished EVs primarily from China (39.6 percent), Germany (24.0 percent), South Korea (11.4 percent), and Hong Kong (10.6 percent), whereas global EV production is led by China, the European Union, South Korea, Mexico, and Japan.<sup>116</sup> Of the four agreements examined, only the UK FTA touches a major downstream hub (via the EU-linked UK market), and even there the effect on EV sourcing is still emerging. India's broader trade agreement network does not yet encompass the United States or Mexico, and negotiations with the European Union—if concluded—would be the first to connect India's trade policy more directly to a large downstream EV producer outside of East Asia.

Figure 10: Finished EVs—Top 10 Indian Import Sources Versus Top 10 Global Exporters





Source: Trade Data Monitor.

These patterns point to a trade architecture still in transition. The four agreements analyzed—Australia, EFTA, UAE, and the United Kingdom—support useful objectives such as investment mobilization, logistics integration, and improved access to advanced manufacturing and standards, but they do not, on their own, connect India to the core nodes of global EV supply chains. At the same time, India’s import data makes clear how central China remains across electrodes, battery cells, and finished EVs, underscoring the strategic importance of further diversifying toward other negotiation partners.

# The Way Forward

## *Structuring India's Trade Strategy*

**F**or India, completing and deepening the negotiations already underway—with Chile, Japan, Peru, South Korea, and especially the European Union—is at least as important as signing new trade agreements with additional smaller partners. Only by anchoring its trade strategy in agreements with countries that are major players in extraction, midstream processing, and advanced manufacturing can India hope to diversify supply chains, stabilize access to critical EV inputs, and align its trade architecture with its ambition to become a competitive EV manufacturing hub. However, undertaking a trade strategy to promote secure EV supply chains goes beyond a more ambitious agenda. In crafting specific features of its trade agreements, India's trade strategy should strive to strike a balance to navigate skewed global EV supply chains.

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*Only by anchoring its trade strategy in agreements with countries that are major players in extraction, midstream processing, and advanced manufacturing can India . . . become a competitive EV manufacturing hub.*

### **A Two-Track Approach**

As India expands and restructures its network of trade agreements to secure critical EV inputs, it must differentiate clearly between two categories of countries: those actively pursuing

diversifications away from China, and those hedging by deepening commercial ties with China even as they build their own EV capacities. India's own vulnerability—stemming from heavy dependence on Chinese battery cells, cathode materials, and midstream components—cannot be mitigated simply by uniformly signing trade agreements with “economic security-forward” nations and countries (see Table 1) that remain embedded in Chinese-centric supply chains.

On one side are the economies that are deliberately reducing their reliance on China and investing heavily in alternative supply arrangements. The United States, European Union, and Japan (among others) are restructuring their industrial and trade policies to promote domestic battery manufacturing, secure critical minerals from trusted partners, and develop robust friend-shored supply chains.<sup>117</sup> The European Union's strategy is more nuanced, blending domestic competitiveness goals with some reliance on Chinese value chains, but still emphasizes economic security imperatives.<sup>118</sup> These strategies present India with partners whose incentives align more directly with its own diversification agenda. In addition to these countries' production capabilities in midstream and downstream EV technologies, they are politically committed to reducing China's dominance in the global EV ecosystem.

On the other hand, there are “economic hedging countries” that, while expanding their own EV footprints, are doing so in large part through Chinese capital. Several Southeast Asian and Middle Eastern economies have actively welcomed Chinese EV investment and rely on China-sourced goods—whether to build local assembly lines, scale domestic battery industries, or position themselves as reexport hubs into major markets.<sup>119</sup> These partnerships give China indirect influence over their supply chains and often embed Chinese components into the production pipelines from which India would ultimately be sourcing. Cooperation with these countries may still offer India opportunities in downstream EV products or final-assembly partnerships, but they do not meaningfully advance India's objective of insulating itself from supply disruptions and geopolitical risk inherent to concentrated dependence on Chinese intermediates.

The recent FTAs with Australia, ETFA countries, the UAE, and the United Kingdom mark a meaningful shift toward structured openness and investment-driven integration, yet they only partially intersect with the core nodes of global EV supply chains. The next phase of India's strategy must therefore focus on closing this gap: accelerating and deepening agreements while tailoring rules of origin, technology and standards cooperation, investment provisions, and procurement tools to favor diversified, high-standard supply relationships over China-centric networks. If India can align its trade architecture with its industrial and climate objectives in this way, it will not only reduce its strategic vulnerabilities but also strengthen its claim to be a resilient, competitive hub at the heart of the global EV transition.

**Table 1: Recommendations for India’s Trade Strategy for Economic Security-Forward Countries Versus Economic Hedging Countries**

	<b>Economic security-forward countries</b>	<b>Economic hedging countries</b>
<b>Rules of origin</b>	<p>Prioritize flexible, multi-path rules of origin (e.g., coequal tests, generous cumulation, and clear product-specific origin rules) that support integrated EV value chains, especially in critical minerals, midstream materials, and cells.</p> <p>Use rules of origin to make it easier—not harder—for Indian and partner firms to collocate production.</p>	<p>Apply stricter value-addition thresholds and tighter tariff-shift rules in EV-relevant HS codes to prevent transshipment of Chinese inputs and ensure real domestic processing in India or the partner country.</p>
<b>Tech transfers</b>	<p>Embed EV-specific cooperation platforms (e.g., joint R&amp;D, pilot lines, testing labs, and skills partnerships) alongside strong IP protections to bring advanced cell, cathode, and power electronics know-how into India.</p>	<p>Focus on diffusion of production and maintenance capabilities (e.g., assembly, module integration, and charging infrastructure), without relying on them for frontier technologies or core IP.</p>
<b>Standards harmonization</b>	<p>Pursue deeper mutual recognition and joint standard setting in battery safety, recycling, critical minerals processing, and automotive software, using these agreements to anchor Indian firms in high-standard value chains.</p>	<p>Align trade agreements with Indian or international (e.g., EU) standards, using cooperation for capacity building but preserving wide discretion to refuse equivalence where regulatory or security risks are high.</p>
<b>Investment protections</b>	<p>Offer predictable, transparent investment protections for long-horizon projects in mining, refining, cell manufacturing, and advanced components, backed by clear dispute settlement options to unlock large-scale capital expenditure.</p>	<p>Prioritize investment-promotion tools (e.g., facilitation, transparency, and limited guarantees) over expansive investor-state protections and target them to projects that genuinely diversify supply away from China.</p>
<b>Government procurement</b>	<p>Use green public procurement (e.g., buses, charging, and grid services) to create “trusted supplier” pipelines for firms from these partners, with clear transparency and competition rules that crowd in high-quality investment.</p>	<p>Maintain tighter eligibility filters—linking market access to DVA, supply chain disclosure, and security screening—so procurement does not reinforce India’s dependence on Chinese-dominated production networks.</p>

Source: Authors’ analysis.

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