



Morocco's Role in the Global Electro-Mobility Revolution

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Morocco is emerging as a significant player in the global transition towards electro-mobility, driven by its various strategic advantages. Leveraging its robust manufacturing sector and automotive expertise, renewable energy (RE) potential and abundant raw material sources, strategic location and free trade agreements, the country aims to spearhead fully decarbonized automotive supply chains and capitalize on the expanding global electric vehicle (EV) market. With a growing emphasis on green technologies and sustainability, Morocco is well-positioned to play a pivotal role in shaping the future of electro-mobility both within Africa and globally.

Introduction

In the rapidly evolving global industry landscape, the shift towards electro-mobility and the integration of transport, energy, and digital sectors, the 'triple transition', emerges as a pivotal transformation that is significantly reshaping economic and industry policy dynamics. This change, fueled by the drive for technological innovation and sustainability, has seen major players like China taking the lead – the country's EV production and sales make up about 60 percent of the global market share, with Chinese companies alone accounting for roughly 60 percent of the global market for EV battery production. Across the Atlantic, Tesla is propelling EV adoption with its cutting-edge technology and streamlined production processes. Meanwhile, in the European Union (EU), established brands like Volkswagen and BMW are striving to close the gap with their Chinese competitors, aiming to secure market share both in China and on their home turf.

In the global symphony of change, Africa's role in transport and automotive power dynamics is often overlooked. The continent, home to about 1.4 billion people or roughly 17 percent of the world's population, is set to experience substantial growth. [Over half of the world's population increase between now and 2050 is expected to occur in Africa](#), with the United Nations projecting the continent's population to nearly reach 2.5 billion by mid-century. The population of sub-Saharan Africa alone is anticipated to double by 2050. This surge raises the pressing question of whether current transportation systems can meet the burgeoning mobility demands, both in terms of capacity and quality. In this context, electro-mobility can play a crucial role. Currently, [Africa accounts for only one percent of cars sold worldwide](#), compared with China's 30 percent, Europe's 22 percent and North America's 17 percent. In addition, [vehicle density, i. e. the number of vehicles per 1,000 inhabitants, is still very low in African countries](#). In Nigeria, the most populous country in Africa, there are around 56 vehicles per 1,000 inhabitants and in Morocco around 112. In comparison, there are around

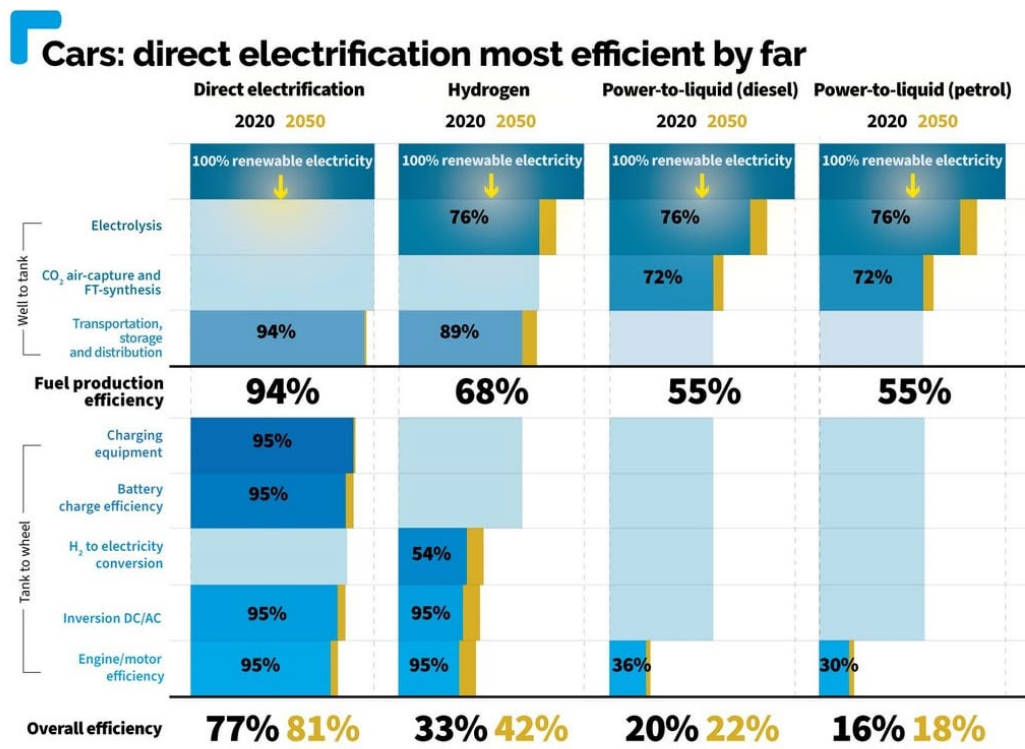
860 vehicles per 1,000 inhabitants in the USA and 627 in Germany.¹ Against the backdrop of rising purchasing power in many African countries and the expected increase in the number of cars and goods transportation vehicles, the continent now has the unique opportunity to emerge as a key player in the narrative of the global electro-mobility revolution. In 2021, [the African EV market was valued at USD 11.94 billion](#). This market is projected to reach USD 21.39 billion by 2027, registering a compound annual growth rate (CAGR) of 10.2 percent during the forecast period. Africa's primary automotive centers, Morocco and South Africa, have already suggested the establishment of EV battery gigafactories² as part of their endeavors to stay pertinent and leverage the rapidly expanding global EV market. Mineral-abundant nations such as the Democratic Republic of Congo (DRC), Zambia, and Mozambique are also actively considering the market, harboring ambitions to emerge as significant suppliers of EV batteries.

Embracing EVs holds the great potential to stimulate economic growth by fostering industries related to EV and battery manufacturing, charging infrastructure development and the platform and shared economy, and thus creating job opportunities. It is a leapfrogging opportunity, allowing African nations to skip traditional automotive industrial stages and embrace cutting-edge technologies. This is particularly relevant given that the transition to electro-mobility entails a reorganization of existing supply and value chains. Consequently, the stakeholder landscape is shifting, with the "cake of opportunities" being redistributed. Beyond economic benefits, the adoption of EVs offers a pathway to enhance energy security, reducing the reliance on imported fossil fuels through³ the integration of RE sources. But the EV transition is not merely about technological advancement. Moreover, the replacement of conventional internal combustion engine (ICE) vehicles to EVs can significantly improve air quality by eliminating tailpipe emissions, contributing to public health improvements, and reducing healthcare costs associated with pollution-related illnesses. Lastly, EVs play a crucial role in reducing carbon emissions generated by the combustion of fossil fuels, thanks to their significantly higher energy efficiency compared to ICE vehicles (see Figure 1). To achieve a successful transition and fully capitalize on socio-economic development potentials, it is essential to couple the growing demand with the strategic development of local value chains. This entails leveraging existing locational advantages, RE, raw materials, and innovation dynamics inherent to Made in Africa initiatives.

¹ The number includes both passenger cars and commercial vehicles.

² Facilities with an annual output of about three gigawatt-hours (GWh) of lithium-ion (Li-ion) battery cells, enough to produce batteries for 30,000-45,000 EVs per production line.

³ For instance, in 2023, Ethiopia spent nearly USD 6 billion on importing fossil fuels, with over half of that amount allocated to fueling vehicles. In response, the country has announced a ban on ICE cars.



Notes: To be understood as approximate mean values taking into account different production methods. Hydrogen includes onboard fuel compression. Excluding mechanical losses.

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Sources: Worldbank (2014), Apostolaki-Iosifidou et al. (2017), Peters et al. (2017), Larmanie et al. (2012), Umweltbundesamt (2019), National Research Council (2013), Ricardo Energy & Environment (2020), DOE (no date), ACEA (2016).

Figure 1 - Overall efficiency cars – direct electrification, hydrogen fuel cells, power-to-liquid;
Source: Transport & Environment

The role of Morocco in the global electro-mobility revolution

In the African context, Morocco is increasingly positioning itself as a significant hub for strategic influence and innovation in the evolving landscape of EV transition. The country aims to further integrate itself into global value chains and bolster its standing as a leader in sustainable industrial development. Despite being in the early stages of developing its domestic EV industry⁴, Morocco has established itself as the leading powerhouse in the African automotive sector - lately since the country overtook South Africa in 2018 as the continent's largest car manufacturer. Morocco's role in the EV transition is diverse, capitalizing on its status as a global leader in RE, proficiency in automotive manufacturing, proximity to the EU market, and access to crucial raw materials for battery production. Additionally, Morocco is actively forming new strategic partnerships in the EV and energy sectors, affirming its dedication to spearheading fully decarbonized automotive supply chains. This strategic alignment places the country at the forefront of 21st-century economic policy. In this context, Morocco distinguishes itself as a pivotal player, benefiting from a blend of strategic advantages:

⁴ By the end of 2023, Morocco's automotive landscape featured a total of 6,646,028 vehicles, including 2,936,528 passenger cars, 2,481,486 motorbikes, and 1,228,014 commercial vehicles. Battery electric vehicles (BEVs) totaled approximately 1,457, and hybrid electric vehicles 24,176, supported by about 290 charging stations.

1. Automotive Manufacturing: Morocco has introduced various policies such as the [Industrial Acceleration Plan 2014-2020](#)⁵ aiming to strategically boost the establishment of the country's automotive industry along with the establishment of automotive cities such as Kenitra and Tangier. With Renault factories in Casablanca and Tangier and a Stellantis plant in Kenitra⁶, coupled with a vast network of about 250 Tier 1 and 2 suppliers such as Afrique Cables, Denso, Lear, Saint-Gobain, Snop, Takata, Denso or Valeo, Morocco has ascended as Africa's foremost automobile manufacturing hub. Boasting an annual production capacity of approximately 700,000 vehicles - a significant surge from less than 60,000 cars in 2010 - the country anticipates further growth to about [1 million by 2025 and 1.5 million by 2026](#) while elevating the local integration rate from currently about 60 percent to 80 percent, as per the Moroccan Ministry of Industry and Trade. In 2023, the automotive sector achieved a significant milestone by surpassing phosphates to claim the title of the Morocco's leading export industry. [In 2023, the country experienced a remarkable surge in automotive exports, totaling about USD 14 billion](#) - an increase of 27.4 percent compared to 2022. This cements Morocco as the largest non-EU auto exporter to the European market, with the automotive sector standing as one of the nation's pivotal industries providing employment to over 220,000 workers. With its robust automotive infrastructure, skilled workforce, and favorable business environment, Morocco holds the potential to emerge as a significant future hub for EV manufacturing. In addition, companies like [NEO Motors](#) exemplify the country's ambition to promote Made in Morocco products. EV production in Morocco is still in its infancy. The country currently produces [40,000 to 50,000 EVs annually](#) including the Mini EVs Fiat Topolino, Opel E-Rocks and CitroënAmi (see Figure 2). However, this number is expected to undergo a substantial increase in the coming years, driven not least by the EU's goal to ban the sale of new CO₂-emitting cars in the EU by 2035. By 2025, the EV production capacity in Morocco shall increase to about 100,000. By 2030, EVs made in Morocco are planned to [represent up to 60 percent of its exported cars](#) according to the Ministry of Industry and Trade.

⁵ the new National Industrial Strategy 2030 is currently being drawn up.

⁶ Renault started to produce cars in Tangier in 2012 and Peugeot (now Stellantis) started to produce cars in Kenitra in 2019.



Figure 2 - CitroënAmi produced and assembled in Morocco; Picture Source: DimaBerlin/Shutterstock

- 2. Decarbonisation:** Morocco's foray into RE serves as a beacon of its commitment to the green transition. Although currently heavily reliant on foreign, non-RE sources (incl. refined oil, gas, and coal) to fulfill over 90 percent of its energy demands, Morocco is well on its way to establishing itself as a prominent leader in RE generation - a key element of the success of the green EV transition and respective supply chain decarbonization. The country has set ambitious targets to increase the RE capacity in its electricity mix to reach [52 percent of the total by 2030, and 80 percent by 2050](#) (RE accounted for 16.1 percent of Morocco's energy mix by 2022, excl. hydroelectricity). In 2022, Morocco's installed electrical capacity [reached 11,055 MW](#) (wind 14 percent, solar 7.5 percent, hydroelectric 16 percent and thermal energy covering 62.5 percent). Between 2021 and 2023, new RE projects with a total capacity of approximately 1,000 MW were authorized and it is envisaged to accelerate the implementation of RE projects with a programming of approximately 1,300 MW per year between 2023-2027. Currently, there are multiple RE projects on the way with a combined capacity of around 4,600 MW.⁷ Based on its vast RE potential, Morocco aims at leading the development of fully decarbonized automotive supply chains, which goes beyond mere compliance with international standards but positions the country as a global leader in advocating for and implementing green practices within the automotive industry. The decarbonization ambitions encompass the entire automotive value chain, from raw material extraction to vehicle manufacturing and end-of-life recycling.
- 3. Raw Materials:** Morocco's strategic significance in the global supply chain extends beyond automotive manufacturing to its abundance of essential raw materials crucial for EV battery production, specifically cobalt and phosphate⁸. This abundance provides Morocco

⁷ These projects include the Abdelmoumen pumped-storage power station (350 MW), El Menzel STEP (300-400 MW), Taza (2nd phase, 63 MW), Tangier II (70 MW), Jbel Landid (270 MW), and Tiskrad (100 MW), Noor Midelt (400 MW), Noor PVII (400 MW) and Noor Atlas (200 MW).

⁸ Phosphate is a key material in the cheaper, lower-range batteries produced primarily by Chinese companies.

with a distinct advantage in the growing demand for EVs, where securing a stable supply of these essential materials becomes increasingly imperative. Morocco boasts approximately 50 million metric tons of phosphate reserves, representing about [70 percent of the world's known phosphate rock reserves](#). Additionally, the nation stands as the [10th largest cobalt producer globally](#), with a mining production of 2,300 metric tons in 2022.⁹ This wealth of raw materials positions the Kingdom as a key player in the production of EV batteries, a critical component in the global shift towards electro-mobility - the costliest component of EVs is the batteries, constituting an average of 40 percent of the overall expenses.

- 4. Strategic Location:** According to Mr. Mohcine Jazouli, Morocco's Minister for Investment, "[Morocco is determined to consolidate its position as a continental and regional hub in the automotive industry](#)". Morocco's strategic location at the crossroads of Europe, Africa, and the United States (U.S.) positions it uniquely for leveraging opportunities in the EV industry. Situated at the gateway between the EU and Africa, Morocco can tap into both markets efficiently. Its proximity to the EU (at its narrowest point, the distance separating the Rock of Gibraltar from Morocco measures merely 14 kilometers) provides streamlined access to supply chain logistics, advanced technologies, research, and a developed consumer base, while its connection to Africa offers potential for future market expansion in a continent with growing (electric) vehicle demand. The port of Tanger Med, Africa's largest port, situated 45 km northeast of Tangier and opposite Tarifa, Spain, on the Strait of Gibraltar, significantly amplifies Morocco's strategic advantage. Serving as a vital gateway for trade and connectivity, the port ensures smooth movement of goods, thereby enhancing the country's position as an investment destination and a central hub for the production, innovation, and export of EVs and related technologies.
- 5. Free Trade Agreements:** Morocco's active participation in free trade agreements (FTAs) forms a crucial component of its global market strategy. FTAs, such as the [ones with the EU](#) or the [U.S.](#), create a conducive environment for the exchange of technology, expertise, and investments. For instance, EV companies building plants in Morocco benefit from the country's status as a free trade partner of the U.S. As a result, its raw materials such as lithium-phosphate-iron (LFP) cathodes count towards the procurement targets required for EV sold in the U.S. to receive subsidies of up to USD 7,500 under President Joe Biden's Inflation Reduction Act (IRA). This is particularly crucial amidst the escalating economic competition between China and the U.S. as well as the EU¹⁰, along with the associated trend of friend-shoring.¹¹ In this regard, Morocco provides an advantageous base for Chinese companies to reach Western markets and leverage tax incentives. Concerning the

⁹ The majority of this cobalt production is sourced from the Bou Azzer cobalt mine, operated by the Managem Group, which specializes in producing cobalt as a mono-product.

¹⁰ Both the U.S. and the EU have recently imposed additional tariffs on EV imports from China.

¹¹ The IRA, aimed at decarbonizing the U.S. economy, reshoring critical mineral supply chains, and reducing reliance on China, targets diminishing U.S. dependency on Chinese EV supply chains. To qualify for a USD 3,750 tax credit per vehicle, it requires that at least 40 percent of the value of crucial minerals in a car battery originates from the U.S. or a free trade partner.

African Continental Free Trade Area (AfCFTA)¹², Morocco stands poised to take the lead in establishing manufacturing hubs throughout the African continent, particularly in meeting the growing demand for EVs across Africa. This presents lucrative opportunities, including access to low-cost inputs and a platform for exporting finished goods.

6. Strategic partnerships and investments: Morocco's foray into the electro-mobility landscape is not a solitary endeavor but based on strategic partnerships with established and leading industry players such as China. These partnerships aim at establishing a robust electro-mobility automotive industry basis and supply chains, ushering in a sustainable and technologically advanced automotive future. Noteworthy in this context is the agreement for the establishment of the first Gigafactory in Morocco (and Africa) by Gotion High-Tech Co., Ltd. The investment agreement, signed on June 6, 2024 (see Figure 3), envisions a factory in Kenitra with a final production capacity of 100 GWh. According to Morocco's Prime Minister, Mr. Aziz Akhannouch, "This project is a monumental step for Morocco, positioning us at the forefront of the electro-mobility revolution in the region," and "it underscores the confidence international investors have in our nation's potential. " Aiming to showcase the recent dynamics in the establishment of EV value chains and production capacity in Morocco, below is an overview of selected recent announcements from Chinese companies involving key investments worth about USD 10 billion:

Company	Type of investment
Jiangsu BTR New Material Group Co., Ltd.	Plan for factory construction in the Mohammed VI Tanger Technopark City to produce materials for lithium battery cathode material with an annual production capacity of 50,000 tons (start of production 2026, 1st phase with production capacity of 25,000 tons, 2nd phase with production capacity of 50,000 tons); Planned investment of USD 500 million (transformed from a memorandum of understanding (MoU) into investment agreement).
CNGR Advanced Material Co.,Ltd.	Plan to produce battery materials for over 1 million EVs annually in the Jorf Lasfar Park, including 120,000 tons of cathode precursor materials, 60,000 tons of lithium, iron, phosphate, and 30,000 tons of black mass recycling; Planned investment of USD 2.3 billion (jointly with Al Mada Group).
Hunan Zhongke Shinzoom Technology Co., Ltd.	Plan for factory construction in the Mohammed VI Tanger Technopark City to produce materials for lithium battery anode material; Planned investment of up to USD 490 million (RMB 3.535 billion).
(Sino-German ¹³) Gotion High-Tech Co., Ltd.	Plan for gigafactory construction in Kenitra to produce EV batteries and energy storage systems with an initial production capacity of 20GWh with plans to 100 GWh (MoU signed in June 2023,

¹² The AfCFTA, one of the flagship projects of the African Union (AU) Agenda 2063: *The Africa We Want*, is the world's largest free trade area bringing together the 55 countries of the African Union (AU) and eight (8) Regional Economic Communities (RECs) to create a single market for the continent. The aim is to enable the free flow of goods and services across the continent and boost the trading position of Africa in the global market.

¹³ Volkswagen is a key shareholder in Gotion High-Tech Co., Ltd.

	investment agreement with the Moroccan government was signed on 06 June 2024.); Planned total investment of USD 6.5 billion.
Guangzhou Tinci Materials Technology Co., Ltd.	Plan for factory construction to produce materials for lithium-ion batteries with an annual production capacity of 200,000 tons (start of production 2026); Planned investment of about USD 280 million.
Huayou Cobalt with LG Chem Ltd.	Plan for lithium salt processing plant construction with an annual capacity of 52,000 tons (start of production 2025), MoU was signed in September 2023.
Huayou Group's subsidiary Youshan in partnership with LG Chem Ltd.	Plan for factory construction to produce 50,000 tons of lithium-phosphate-iron (LFP) cathode materials annually for 500,000 entry-class EVs (start of production 2026) for LFP battery production in LG Energy Solution Ltd.'s Arizona-based plant.
Zhejiang Hailiang Co., Ltd.	Plan for factory construction to produce lithium-battery copper foil with a capacity to produce 50,000 tons of alloy, 35,000 tons of pipe, 40,000 tons of rod, and 25,000 tons of foil annually for export to Europe, America, MENA, and Africa; Planned investment of about USD 288 million.

Table 1 – Overview on selected recent investment announcements of Chinese companies in the Moroccan EV battery industry



Figure 3 – Representatives of the Moroccan Government and Gotion High-Tech Co., Ltd.; Picture Source: Morocco World News

Challenges Facing Morocco in Fully Tapping the Potential of Electro-mobility

As described, Morocco is at a pivotal point in its journey toward sustainable development, with electro-mobility emerging as a promising avenue for reducing emissions and

transforming its transportation sector. However, despite the potential and benefits, numerous challenges hinder the widespread adoption and effective utilization of EVs in the country, thus also affecting the development of EV value chains:

- 1. Policy and Regulatory Framework:** The absence of a comprehensive and coherent policy framework poses a substantial impediment to the widespread adoption of electro-mobility in Morocco. While the government has introduced initiatives such as tax incentives and exemptions for EVs, the lack of long-term strategic planning and regulatory ambiguity stifles industry growth. Moreover, inconsistencies in licensing, registration, and taxation further complicate the EV procurement process, deterring potential buyers and manufacturers alike. Another key challenge in promoting electro-mobility in Morocco is the need to focus on comprehensive EV governance. Since the holistic promotion of electro-mobility involves multiple ministries and stakeholders, it is essential to establish effective coordination mechanisms to streamline and harmonize policy development and the coordination between government, the private sector and other relevant players.¹⁴ Addressing these regulatory hurdles and establishing clear guidelines for EV deployment is paramount to fostering a conducive environment for electro-mobility in Morocco.
- 2. Infrastructure:** One of the primary challenges confronting Morocco in the realm of electro-mobility is the inadequacy of charging infrastructure. While the country has made strides in establishing charging stations in urban centers like Casablanca, Rabat and Tanger, the network remains sparse, particularly in rural areas. This deficiency discourages potential EV buyers, fearing range anxiety and inconvenience during long journeys. Moreover, the disparity in infrastructure development exacerbates socio-economic disparities, as access to EV charging facilities becomes limited to certain parts of the (urban) population.
- 3. Cost and Affordability:** Electro-mobility is considered one of the sectors that can be part of an upgrading strategy and can benefit from the specific support mechanism applicable to investment projects of a strategic nature.¹⁵ But despite governmental incentives aimed at promoting EV adoption, the upfront cost of EVs remains prohibitively high. The price disparity between conventional ICEVs and EVs, coupled with limited financial incentives for consumers, undermines the affordability and accessibility of electric transportation options.
- 4. Technology:** While advancements in battery technology have enhanced energy density and reduced costs globally, Morocco lags in R&D in this critical area. Dependence on imported battery technology not only escalates costs but also leaves the country vulnerable to supply chain disruptions. Investing in indigenous battery manufacturing capabilities and fostering partnerships with global leaders in battery technology could alleviate these challenges and bolster Morocco's position in the electro-mobility landscape.
- 5. Platform economy/Shared Mobility:** Widely unregulated new shared mobility services exist in a grey zone, obstructing the seamless integration of innovative solutions like

¹⁴ The [New Development Model](#) has recommended the creation of a sectoral task force reporting directly to the head of government to address the development of sustainable mobility, including electro-mobility.

¹⁵ see Head of Government Order n°3-12-23 of 01 March 2023

electric ride-hailing services. This lack of regulation not only fosters uncertainty but also compromises safety and quality standards. Without clear guidelines, the potential of these services to drive the uptake of electro-mobility remains largely untapped. To harness the transformative power of shared mobility and advance electro-mobility and to stimulate innovation and competition, decisive regulatory measures are imperative, addressing licensing, safety, environmental impact, and incentives for EV adoption.

6. **Water Stress:** The country's arid climate and limited freshwater resources present obstacles to the large-scale production of EVs and their components, particularly in water-intensive manufacturing processes such as battery production.
7. **Public Awareness and Perception:** A critical challenge in Morocco's transition to electro-mobility is the lack of public awareness and acceptance of EVs. Misconceptions regarding EV performance, reliability, and environmental benefits persist, inhibiting demand and market penetration. Effective public outreach campaigns, education initiatives, and demonstrations highlighting the benefits of electro-mobility are essential in shifting perceptions and fostering a culture of sustainability and innovation.

Recommendations

Morocco is in the process of expanding its position as a leading automotive manufacturer in Africa and benefiting from the rapidly changing global industrial landscape with regard to the transition to electro-mobility. In order to realise the full potential of the ongoing industrial revolution towards electro-mobility and the associated 'triple transition', a holistic approach is recommended, which includes the following:

1. **Develop an Integrated Governance and Policy Framework for the 'Triple Transition':** Establish an integrated governance, stakeholder engagement, and policy framework that seamlessly integrates the energy, transport, and digital sectors, advancing the 'triple transition' towards EVs, RE, and digital technologies. Design policies that encourage widespread and innovative charging infrastructure, and promote the use of RE sources in EV charging infrastructure, fostering collaboration between energy and transport sectors. This framework should emphasize smart grids and vehicle-to-grid (V2G) technology, and include business models like battery-as-a-service (BaaS) and innovative EV battery charging services. Outline strategies to strengthen the overall EV ecosystem in Morocco and accelerate EV adoption, particularly by electrifying public transport, shared fleets, two- and three-wheelers, and low-speed electric vehicles (LSEVs). Offer a mix of fiscal and non-fiscal incentives, such as tax breaks, subsidies, and preferential EV parking and access schemes. Establish regulatory sandboxes to allow controlled testing of new technologies and integrated RE and EV business models.
2. **Prioritize Research and Development:** To strengthen Morocco's role in the electro-mobility sector and Made in Morocco innovation, focus on R&D by encouraging collaboration between academic institutions, research centers, and private enterprises. Develop R&D incentives and introduce education programs that aim to integrate EV and RE technology and business models. Implement policies that attract foreign investment while fostering local entrepreneurship and start-ups. Create electro-mobility incubator villages dedicated to EV innovation, where

researchers, engineers, and entrepreneurs live and work together to develop creative cutting-edge technologies and solutions. Cultivate a competitive edge in the global EV battery market through strategic partnerships with leading international battery manufacturers. Strengthen battery research institutions such as the Center of Excellence on Batteries (CEB@UPF).

- 3. Champion Industry Standards and Norms:** Develop a comprehensive framework to actively shape robust industry standards, particularly for battery manufacturing and recycling, and new technologies like battery swapping. Establish national standards aligned with global sustainability objectives, ensuring quality, safety, and environmental responsibility of EV components. Collaborate with international bodies to harmonize standards, cementing Morocco's role as an active contributor to the global electro-mobility framework.
- 4. Develop a holistic infrastructure system:** Make expanding the EV charging network a top priority within the broader framework of infrastructure development, including battery swapping facilities. Develop a priority strategy that defines the use of different charging technologies in different application scenarios. Identify strategic locations for the deployment of EV charging stations and battery swapping stations, encompassing urban and commercial centers, rural areas, industrial zones, and tourist destinations. Allocate resources and funding specifically for the establishment of charging and battery swapping stations along major transportation routes for both passenger and freight transport EVs. Prioritize areas with high traffic volumes and potential EV uptake to maximize utilization and accessibility of both charging facilities. Incorporate smart charging technologies into the infrastructure network to optimize energy usage, reduce costs, and enhance overall efficiency. Implement solutions such as dynamic pricing, load management, and grid integration to maximize the benefits of EV charging infrastructure and battery swapping systems. Furthermore, prioritize the development of integrated transport and logistics infrastructure, including road networks, ports, intermodal transport systems, and smart logistics technologies, to support the domestic EV industry growth and efficient export of EVs.
- 5. Digital Infrastructure and Business Models:** Aligned with smart city strategies, leverage digital technologies to establish a connected and intelligent transportation network, enhancing the efficiency and safety of EVs. Foster the development of smart mobility platforms in smart city control centers offering real-time data e. g. on charging station availability, traffic conditions, and EV performance. Encourage private sector investment in digital EV solutions and incentivize public-private partnerships to support platform economy and digital business models that facilitate EV-based multimodal and shared Mobility-on-Demand (MoD) and fully integrated Mobility-as-a-Service (MaaS) transport as well as food and parcel delivery systems. Encourage the development of digital platforms that enable seamless transactions and data sharing within the electro-mobility ecosystem to support an interconnected framework for EV and RE integration. Develop robust regulatory frameworks for digital and AI, such as those pertaining to the sharing economy.

- 6. Collaboration with Financial Institutions:** Work with financial institutions to develop specialized financing options for EV purchases, charging infrastructure installations, and investment in related businesses. This could involve partnerships with banks, credit unions, and venture capital firms to provide affordable loans, leasing options, and investment opportunities in the electro-mobility sector.
- 7. Skills Development and Training:** Develop targeted labor market development strategies tailored to the needs of the electro-mobility sector in Morocco, with a particular emphasis on promoting the participation of women and youth. Implement vocational training programs designed to equip individuals with the technical skills required for EV manufacturing, battery technology, maintenance, and repair. Additionally, offer specialized training in managerial and entrepreneurial skills to cultivate a pool of talent capable of driving innovation and growth within the industry. Facilitate partnerships between industry stakeholders, educational institutions, and workforce development agencies to ensure alignment between training programs and industry demand.
- 8. Encourage Sustainability Practices:** Integrate CO₂ accounting methods along the entire EV value chain to accurately assess and mitigate carbon emissions. Establish clear guidelines for measuring and reporting CO₂ emissions associated with EV production, operation, and end-of-life processes in order to ensure transparency and accountability in the EV transition and support efforts to achieve set climate goals. Prioritize circular economy principles in the electro-mobility sector, advocating for responsible recycling and environmentally friendly manufacturing. Develop efficient end-of-life processes for EV components, minimizing waste and maximizing resource recovery. Develop and implement a comprehensive strategy for the electro-mobility industry that prioritizes integrated water management and sustainable manufacturing practices. This strategy should include investing in R&D to optimize water usage in EV component manufacturing, and fostering cross-sector collaboration between government, industry, and civil society to address water stress challenges holistically to develop localized solutions for water conservation and reuse. Institute strict water usage regulations and incentives for EV manufacturers, requiring the adoption of closed-loop water systems, wastewater recycling, and water-efficient manufacturing processes.
- 9. Public Awareness, Education and EV-Tourism:** Initiate public awareness campaigns to educate citizens about the advantages of electro-mobility, emphasizing environmental sustainability, energy efficiency, and economic benefits. Provide information on incentives, charging infrastructure availability, and various EV options to encourage consumer adoption. In addition to traditional awareness efforts, promote eco-tourism with EVs as a key strategy to push EV development. Establish EV rental services and scenic EV routes in tourist destinations, appealing to environmentally conscious travelers seeking sustainable transportation options. Showcase Morocco's diverse landscapes through EV-friendly adventure tourism such as e-mountain biking program promotion. Organize (international) EV desert races, demonstrating the versatility and performance of EVs in challenging terrains.

10. Strengthen Strategic Partnerships and Leverage Soft Power: Enhance collaborative efforts with global leaders in electro-mobility to bolster the domestic, African, and global EV value chain. Prioritize diversification and fortification of partnerships through joint ventures, knowledge sharing, and technology transfers, fostering domestic capabilities in EV manufacturing. Effectively communicate Morocco's commitment to sustainable electro-mobility practices globally, showcasing proactive contributions to the green transition. Participate in international cooperation, global forums and initiatives on clean transportation and electro-mobility to reinforce Morocco's role as a future leader in the electro-mobility sector.



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