Energy Transition, Great Power Competition, and Spheres of Influence: Mexico's Electricity, Electromobility, and the U.S.-China Rivalry

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Transición energética, competencia entre grandes potencias y áreas de influencia: La electricidad, la electromovilidad y la rivalidad entre Estados Unidos y China en México

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Abstract:

This article analyses Mexico's energy matrix transformation through the frameworks of Great Power Competition, spheres of influence, and hegemony. It argues that Mexico's energy and transport transition is shaped by its strategic position within North America, its integration under the United States-Mexico-Canada Agreement, and the broader rivalry between the United States and China. On the supply side, Mexico remains highly dependent on fossil fuels, particularly oil and natural gas, while renewable electricity generation has expanded only partially and unevenly. On the demand side, the article studies electromobility, focusing on electric vehicles, electric buses and charging infrastructure. It shows that Mexico produces electric vehicles mainly for export, while Chinese increasingly dominate the domestic market and public transport electrification. The article concludes that Mexico's energy transition is constrained by its location within the U.S. sphere of influence, even as Chinese technologies become central to low-carbon mobility.

Keywords: Energy matrix shift, Great Power Competition, Electromobility Policies, Fossil Fuels (vs. Renewables), Spheres of Interest.

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1 Nota de los editores: Tres semanas antes de la publicación de este número de Encrucijada Americana, nos enteramos del lamentable fallecimiento del Dr. Oscar Ugarteche. Algunos meses antes, en octubre de 2025, visitó la Universidad Alberto Hurtado y pudimos compartir con él en el marco del IX Simposio Internacional sobre Relaciones entre América Latina y Asia Pacífico. Lamentamos profundamente su partida física. Sin embargo, el Dr. Ugarteche nos deja su enorme legado, su extensa experiencia, sus artículos, sus libros, su valiente activismo y militancia, su pensamiento crítico y sus valiosos aportes al desarrollo intelectual latinoamericano. Su trayectoria es un ejemplo de compromiso con nuestros pueblos. Para todo el equipo de Encrucijada Americana ha sido un honor y una responsabilidad editar y publicar el artículo del Dr. Ugarteche y el Dr. Díaz en el presente número. Desde estas líneas hacemos llegar nuestras más sentidas condolencias a su familia, a sus amigos, a sus estudiantes, colegas y a la comunidad de la Universidad Autónoma de México (UNAM).

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Resumen:
Este artículo analiza la transformación de la matriz energética de México a través de los marcos de la competencia entre grandes potencias, las esferas de influencia y la hegemonía. Sostiene que la transición energética y del transporte de México viene determinada por su posición estratégica dentro de América del Norte, su integración en el T-MEC y la rivalidad más amplia entre Estados Unidos y China. Por el lado de la oferta, México sigue dependiendo en gran medida de los combustibles fósiles, en particular del petróleo y el gas natural, mientras que la generación de electricidad a partir de energías renovables se ha expandido solo de forma parcial y desigual. Por el lado de la demanda, el artículo estudia la electromovilidad, centrándose en los vehículos eléctricos, los autobuses eléctricos y la infraestructura de recarga. Muestra que México produce vehículos eléctricos principalmente para la exportación, mientras que los chinos dominan cada vez más el mercado interno y la electrificación del transporte público. El artículo concluye que la transición energética de México se ve limitada por su ubicación dentro de la esfera de influencia de Estados Unidos, incluso cuando las tecnologías chinas se están convirtiendo en un elemento central de la movilidad con bajas emisiones de carbono.

Clave: Cambio de la matriz energética, Competencia entre Grandes Potencias, políticas de electromovilidad, combustibles fósiles vs. renovables, Esferas de Interés

1. Introduction

The rise of China as an economic power is recalibrating the global order, and the decline in the US hegemony shifts the international relations and the sphere of influence of each major power. This makes a transition for a multipolar world order, where the US is no longer the unique major power: the globe is facing a Great Power Competition, which goes beyond its military or commercial aspects, encompassing a struggle for technological leadership. In this context, the transition to renewable energies —necessary for a long-standing environmental strategy— becomes a cornerstone of international economic competition and the search for hegemony. The geopolitics of the countries is making choices between two spheres of influence: the one of the actual (yet declining) hegemon, or the rising power of China. The alignment with either one is a matter of political economy.

This paper studies the Great Power Competition dynamics in the contemporary world, through the combination of the theory of Power Transition, and the Gramscian hegemony concept. This framework is applied to the case of Mexico's energy policy transition. This country is integrated geographically to North America (U.S. and Canada) and economically under the USMCA (which stands for United States-Mexico-Canada Agreement) free trade agreement. Mexico is a strategic space, traditionally aligned with the U.S. sphere of influence. The

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analysis focuses on the 2021 reform of the Mexican Electricity Industrial Law of the Federal Electricity Commission (CFE, by its Spanish acronym), which sought to restore the state control over the energy sector as a strategic one, and by this affected the transition for both, the use of renewable energy and electromobility, after the 2013-2014 liberalization of the electricity sector. It is argued that the reform is not only focused on internal affairs, but also linked with the rivalry between the U.S. and China, leading to the decantation for an alignment with the former.

The main thesis is that Mexico's energy policy —electrification; the exploitation of critical minerals, like lithium; and electromobility— is constrained by its deep integration with the U.S.: the USMCA, that puts it into the North America's sphere of influence and the context of the Great Power Competition. The evolution of the energy matrix follows one of its northern neighbors, limiting the adoption of electric vehicles. Mexico's energy and transportation are in the arena of the U.S.-China disputes for the global hegemony. By examining the interaction between energy policy, automotive transition to electromobility, and Chinese foreign investment patterns, this article study how theoretical frameworks of competition between major powers (as described above) and spheres of influence manifest themselves in the concrete reality of Mexico, and its implications for the future of the North American energy landscape and the global balance of power.

The paper is organized in six sections. The first section shows the introduction. Section two examines the theoretical framework —Great Power Competition, Spheres of Influence, and Hegemony. In part three, the previous theory is applied to the case of Mexico, and the link with the energy interests of North America and the role of U.S. hegemony in the view of Mexican territory as strategic are discussed: the triangular nexus U.S.-China competition, energy technology, and security. Then, the CFE reform and its internal and international implications for energy and electromobility transition are analyzed. Part five studies the geopolitics of being in the midst of the Great Power Competition, and the Chinese energy investment patterns facing the policy of Mexico and its alignment with the U.S. interests. Finally, section six is devoted to the conclusion.

2. The Theory of Great Power Competition, Spheres of Influence and the Concept of Hegemony

The perception of China as a strategic threat to the United States and Western leadership is deeply rooted in long-standing ideological constructs. As Kennan (1948) observed, U.S. foreign policy has historically been shaped by a worldview that frames the external environment as inherently hostile, thereby legitimizing interventionist strategies. Economic competition frames the ideological differences between China and the U.S. Using Gramsci's components of hegemony, China has shown a rapid emergence as a technological, economic, military, and

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diplomatic power which is interpreted as both a direct challenge to U.S. commercial interests and Western values.

Power Transition Theory (PTT) (Organski, 1968; Organski & Kugler,1980; Tammen, Kugler & Lemke, 2017) conceptualizes it as a structural transformation in which a rising power approaches or overtakes an incumbent hegemon, generating systemic rivalry. **Offensive realism** (Lynn-Jones, 1998) views China's actions as pursuing power and security in an unruly international system, without any aggressive or revisionist intent. China is attempting to reshape global norms and institutions in a context where the United States is weakening them, as with the cases of the World Health Organization and UNESCO, or undermining them, such as the WTO.

Gramsci's theory of hegemonism (Bates, 1975) constructs the Great Power Competition (GPC) framework adding the analysis of ideological and cultural leadership rivalry. Whereas GPC emphasizes the military, economic, and technological power in shaping state behavior, Gramsci argues the capacity of an emerging power to secure consent through norms, values, and institutional arrangements that legitimize its leadership. In this sense, the current GPC is not confined to capturing resources and obtaining strategic influence but entails a struggle over the essence of the international order. Interestingly, since at least 2016, the United States has taken measures to undermine the international liberal order it created in 1941 under the Atlantic Charter because it can no longer lead it.

This geopolitical reconfiguration unfolds against the backdrop of divergent growth trajectories between the Global North and leading Asian economies. Since the 1980s, states such as China, South Korea, Vietnam, and Singapore have undergone accelerated economic growth and structural transformations. The formerly called Asian Tigers had an important role after the 2008 global financial crisis, progressively narrowing the GDP per capita gap between Asian countries and the United States. This resulted in a redistribution of economic power which has reinforced China's status as a systemic competitor, given its leading role in Asia's recovery. It signals a shift from a unipolar to a bipolar or multipolar order, intensifying the strategic rivalry between Washington and Beijing.

Thus, the perception of China as a threat to the U.S. and Western leadership arises from its rise in different areas, mainly its technological advances. The result is a changing distribution of global power. The present analysis examines this dynamic through the combined lenses of **GPC** and **Gramsci's theory of hegemonism**. The paperrevisesMexican energy policies amidst GPC, inside the U.S. sphere of interest, and the Chinese presence, to elucidate how they all interact.

Fusaro (2022) distinguishes between Cox's and Gills' neo-Gramscian interpretation and Gramsci's original perspective. According to the author, neo-Gramscians problematically apply Gramscian concepts to the global sphere by establishing a separation between the national and the international contexts. Cox analyses how economic and industrial leadership is fundamental to creating new global orders. His study compares the *Pax Britannica* and the *Pax*

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Americana, highlighting that they shaped the internal structures of their countries and transformed them internationally through new forms of production. Gills in turn, focuses on hegemonic transitions (changes in global power), arguing that they create a 'mode of hegemony' with profound economic, social and political consequences at a global level. These reflect competition between states and are linked to cycles of capital accumulation in the global system (Ugarteche, 2023, and 2025). In short, for Fusaro, while Gramsci conceives hegemony within a state-national framework, the neo-Gramscians transfer it to the international level, where competition between states for capital accumulation defines the global order.

Setting the stage for this analysis, it is delved into the theoretical framework: Geopolitics and Spheres of Influence. Geopolitics can be broadly understood through two principal definitions. The first defines it as the analysis of how the geographical conditions of a state influence its national and international policies. This discipline examines power relations within international relations, assessing how geographical factors shape them. Even Marxist geographers, such as David Harvey (1985), frame geopolitics as a conflict between different state groupings —one seeking to establish a Eurasian bloc, and the other attempting to disrupt this alliance by cultivating allies in the so-called "shatterbelt" of Eastern Europe, between Europe and Russia, with the ultimate aim of preventing the first group from securing dominant control over Middle Eastern oil resources (Steinmetz, 2012).

According to Kjellén (1921), a Great Power, in geopolitics, can be defined as an expansionist state with the will and the capacity to expand. A historical repetition is that they have arisen from the Northern Hemisphere. There are continental powers, which expand mainly by military force and maritime powers, that project their influence through naval strength and economic reach. The state is understood as a living organism shaped by its growth, geography, demography, and history. Thus, the concept of geopolitics is described as a state doctrine, integrating cultural and spatial dimensions, as a geographical organism.

In the era of fractured globalization, geopolitical analysis increasingly overlaps with corporate and ideological interests, as well as political spheres of influence. Spheres of influence are zones where Great Powers exert significant political, economic, or military control, often grounded in historical, cultural, or strategic considerations. The spheres serve to put a limit on the geographical space where one or other power secures its strategic interests, projecting power, enhancing security through buffer zones, and advancing economic goals (Ferguson & Hast, 2018; Hast, 2016).

The geopolitics of energy transition has developed its own studies, as the Global Energy System Transformation (GEST). This perspective complements the Great Power Competition framework because the current transition is not simply a technological substitution of fossil fuels by renewables, but a contested reorganization of infrastructures, industrial chains, technological capabilities, and geopolitical alignments. Blondeel, Bradshaw, Bridge and Kuzemko (2021) and Guerrero (2021) argue that the geopolitics of energy system transformation

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requires analyzing both the persistence of high-carbon systems and the emergence of low-carbon technologies. The former dominated by the U.S., and the latter, by China. Kuzemko et al. (2025) further develop this perspective as a geopolitical economy of global energy transformation, in which energy infrastructures, spatial configurations and political-economic conflicts are central to understanding decarbonization. Mexico illustrates this tension clearly: natural gas, oil refining and fossil-fuel transportation remain central to the national energy matrix, while electric vehicles, batteries, renewable generation, electric buses and charging infrastructure emerge unevenly and under external pressure. Thus, GPC explains the rivalry between the United States and China, while GEST explains why energy, electromobility, batteries, and infrastructure have become strategic terrains of that rivalry.

For example, Scholten (2021) systematically explores how a global shift toward renewable energy sources is fundamentally reshaping established concepts of state power, energy security, and international relations. Similarly, Hafner and Tagliapietra (2020) offer a comprehensive look at the global implications of the transition. Their book covers the technological, economic, and political dimensions of the shift across different world regions, providing a broad and accessible overview of the key challenges and opportunities.

More recently, Favennec (2024) provides a distinctly regional perspective in geopolitics and energy transition. This publication is particularly valuable for its continent-by-continent analysis, offering specific geopolitical insights for North America, Europe, Africa, Asia, and the Middle East. By highlighting how each region's unique historical, economic, and political context shapes its specific energy transition path, Favennec's work underscores that there is no single global transition, but rather a mosaic of contrasting national and regional strategies.

In a forthcoming volume, Ugarteche and Díaz (2026) argues that Latin America is at the same time in the Chinese sphere of economic and technological influence and, simultaneously, in the U.S. security sphere derived from the Rio Treaty of 1947 (TIAR) and the Monroe Doctrine (1823) before that. Their main thesis deals with how GPC evolves in Latin America's energy sector and the conflicts presented. The return of geopolitics in the 21st century reflects aspects of the previous Monroe Doctrine, with minor powers challenging major powers through technological advances.

3. Theoretical and Contextual Framework: U.S.-China-Mexico Energy-Technology Security Nexus

3.1. The Great Competitor is Identified.

The **United States' National Security Strategy** (NSS) identifies the People's Republic of China (PRC) as *"the only competitor with the intent to reshape the international order and, increasingly, with the economic, diplomatic, military, and technological power to do so"* (The White House, 2022, p. 23). Washington frames

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Beijing's strategy as an attempt to expand its sphere of influence in the Indo-Pacific and secure global primacy through technological capabilities and influence over international institutions, shaping global norms to privilege its interests and values.

Within this framing, Mexico, though geographically part of North America, is strategically situated in the broader U.S. Indo-Pacific calculus due to the cross-border security implications of Chinese technological and infrastructural investments. Although China's direct economic footprint in Mexico remains limited, and its diplomatic or military presence is minimal: its engagement in energy-related technologies forms the main channel through which Chinese activity intersects with U.S. strategic concerns. This is most evident in the renewable and fossil energy sectors, where Chinese firms' participation is met with U.S. narratives on energy security and technological rivalry.

3.2. Mexican Electricity Policy Reform and Strategic Implications

The 2021 reform of the *Ley de la Industria Eléctrica* should be treated as the first major legal attempt to restore the strategic role of CFE after the 2013-2014 liberalization, but not as a fully consolidated framework. Its central provisions were legally contested and later constrained by judicial review, particularly through the Supreme Court's decision, which limited key aspects of the reform related to competition and dispatch rules (Suprema Corte de Justicia de la Nación [SCJN], 2024).

However, the state-centered orientation of electricity policy was subsequently reasserted at the constitutional level through the October 2024 reform which strengthened the public sector's role in the planning and control of the national electricity system as well as in electricity transmission and distribution (Diario Oficial de la Federación [DOF], 2024). Mexico's energy policy should therefore be read as a sequence: the 2021 attempt at legal recentralization, the 2024 judicial constraint, and the 2024 constitutional redefinition of electricity as a strategic area under stronger public control. This sequence is crucial: Mexico's energy transition is shaped neither by market forces nor by state policy alone, but by the interaction between domestic institutional disputes, North American integration and the geopolitical economy of global energy transformation.

Graphs 1 and 2 show Mexico's lag on green energy technology adoption. Its main source of total energy supply is fossils, mainly oil and natural gas. The contributions of renewable powers have remained constant. All this is seen in the electric generation due to the combined cycle, 61% of Mexico's electricity is produced using natural gas, followed by coal (9%) and oil (7%). Together, 77% is generated using conventional energy sources. More importantly, data shows that both the U.S. and Mexico energy matrices are very similar. If the share of nuclear energy supply is ruled out (which faces restrictions in Mexico due to its intense seismic hazard), the matrices mirror each other. Energy security is not

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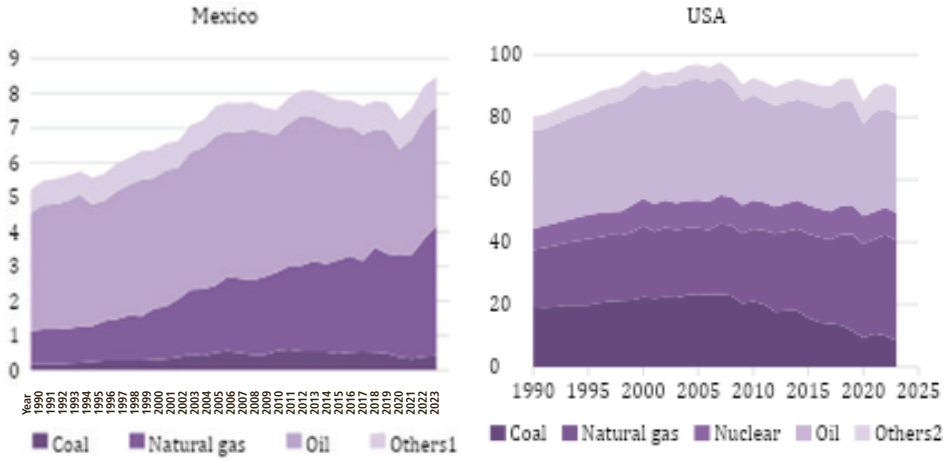
the one country in particular, but the USMCA, therefore the U.S. sees Mexico (and Canada) as an extension of is interests mainly on the industries that are related to fossil fuels, such as refining oil, natural gas for electricity generation, and —above all— its automotive industry:

> The pipelines connecting the three countries indicate a regional energy security policy for North America, centred around the US, rather than a national energy security policy for each country. The source is oil, and the main uses are private, public, and freight transport. Changing the energy matrix would require coordination between the three economies to move away from oil. In conclusion, the energy transition is slowed down by the centrality of fossil fuels, which are responsible for generating most of the energy in the region. (Young, 2024, https://www.obela.org/analisis/petroleo-en-america-del-norte)

Graph1

Total energy, supplied by source. Millions of tera joules (1990-2023)



Source: IEA (2025)

Notes:

1. Includes hydro, nuclear, wind, solar, biofuel and waste
2. Includes hydro, wind, solar, biofuel and waste

Thus, fossil fuel vehicles, especially for private passengers, represent the U.S. companies' interests in Mexico, consolidated through the USMCA. The U.S. transfers part of its manufacturing capacity to the latter, specifically the assembly lines. According to Díaz (2025) in 1990, the U.S. produced 22% of global production, and in 2024 just 11%, meanwhile, Mexico grew its participation from 2.9% to 4.5% and now is among the top 5 world producers. The U.S.

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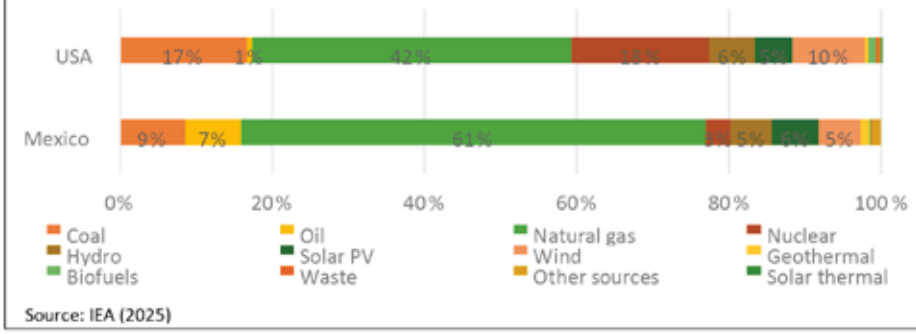
manufactures its cars in foreign territory, and now it is a net importer; in 2024 35.7% of them came from Mexico:

> Over the past two decades, US production capacity has shifted to countries like China and Mexico. Between 2003 and 2020, these two nations attracted the most foreign automotive investment. Companies from the US made this move because it was more profitable to leverage wage and technological advantages. Trump's tariff policies cannot reverse this historical shift (Díaz, 2025, https://www.obela.org/analysis/trade-war-automotive-industry)

Graph 2
Electricity generation by source. 2023



Source: IEA (2025)

These changes had strengthened the competition of Chinese car manufacturers, fossil or electric, and explained the strategic role of the Mexican territory, not just as a manufacturer, but as a strong market, and its near location that allows easy access to U.S. buyers (nearshoring). The Asian country is seen as a threat to the U.S.'s hegemony in its sphere of influence, in terms of technology and production capacity. As a movement of defense, the energy policy seeks to maintain fossil fuel transportation and block electromobility by banning renewable technologies.

3.3. Linking Policy Environment to the Triangular Strategic Relationship

This policy environment interacts directly with the U.S.-China-Mexico strategic triangle (see Graph 3). The U.S. views this reform as boosting resource nationalism and state control in a way that could limit Chinese companies' ability to operate in Mexico's energy sector, which fits with the U.S. concerns about foreign influence over critical infrastructure. For China, Mexico remains a site of selective engagement, where investment in renewable and fossil energy projects offers technological and strategic positioning, albeit under a regulatory regime

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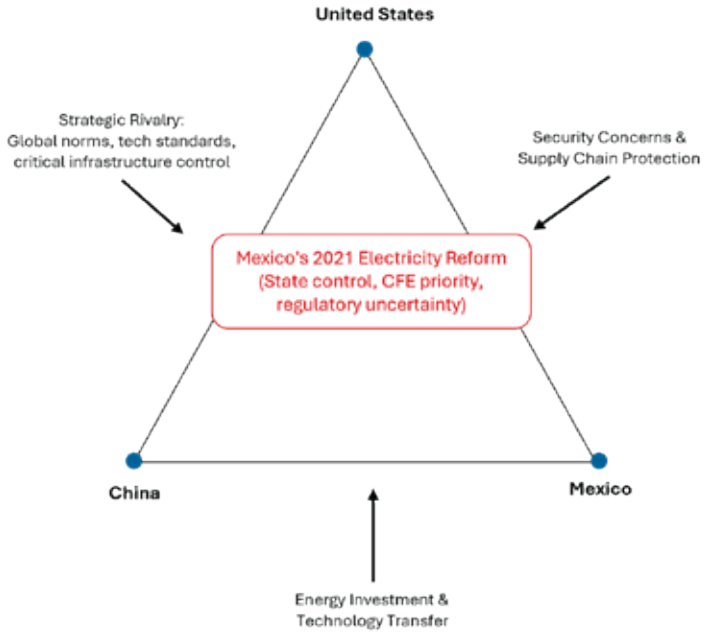
that can privilege domestic actors. For Mexico, the reform reflects a balancing act: asserting sovereignty over energy policy while navigating the geopolitical pressures of its largest trading partner and the opportunities of Chinese capital and technology.

Graph 3

U.S.-China-Mexico Energy-Technology-Security Nexus with Mexico's 2021 Electricity Reform



Note. Authors' own elaboration with assistance from ChatGPT (OpenAI, 2025)

4. Mexico's Energy Policy, the 2021 Electricity Industry Law Reform, and the U.S.-China Competition in the Energy–Transportation Nexus

4.1. The 2021 Reform of the Electricity Industry Law

In 2021, Mexico implemented a reform to the *Ley de la Industria Eléctrica* (Electricity Industry Law) with the explicit aim of strengthening the **Comisión Federal de Electricidad (CFE)**, the state-owned monopoly historically responsible for electricity generation and distribution. The CFE had lost its monopoly on generation in 2014, but the 2021 reform restored a preferential role for the utility, solidified in 2022.

The revised legislation offers an expansive definition of *clean energy*, encompassing: wind solar radiation, various forms of ocean energy, geothermal resources, bioenergetics as defined in the *Ley de Promoción y Desarrollo de los Bioenergéticos*, methane and biogas capture from waste and agricultural processes, hydrogen-based generation, hydroelectric and nuclear power, waste-to-energy processes, efficient cogeneration, energy from sugar mills, thermal plants with

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carbon capture, low-carbon technologies meeting international standards, and other technologies meeting efficiency and environmental criteria as determined by the relevant ministries.

The law classifies: the generation, transmission, distribution, commercialization, and operations as matters of public utility, under the administration of the Sistema Eléctrico Nacional (SEN). Electricity supply is set as a public service, generated within a competitive market framework, subject to universal service obligations. It also requires open and nondiscriminatory access to transmission and distribution networks, where all contributors adhere to environmental and social standards, contributing to the Fondo de Servicio Universal Eléctrico.

Article 6 of the reforms states that the State must implement measures and regulations to ensure the development of the electricity sector. The objectives are efficiency and reliability of the SEN, as well as the promotion of environmental sustainability, investment, and competition. In addition, the regulation must balance the infrastructure development with the protection of the environment by diversifying the energy mix to ensure energy security and fair tariffs to the population.

The 2021 State reform sought to annul private contracts in cases of discriminatory grid access, failure to meet interconnection obligations, breaches of cost-based market offer, lack of transparency, or unlawful transfers of resources. Although the 2024 judicial constraint limited its effects, the 2024 constitutional redefinition reaffirms the look for broadening the state participation in the electric sector. This has been contentious, as illustrated by the acquisition of combined-cycle thermal plants in 2023 by the Mexican firm *Mexico Infrastructure Partners* from Iberdrola, subsequently transferred to CFE (Secretaria de Hacienda y Crédito Público SHCP, 2023). The reform increases Mexican public ownership of generation assets but does nothing to prioritize renewable energy expansion.

4.2. Demand-Side Dynamics: The Automotive-Energy Transition Context

The evolution of Mexico's energy policy concerning the **global automotive transition** toward electrification is a key driver of electricity demand. Between 2000 and 2022, global automobile production increased, but with divergent regional trajectories. In Europe, private passenger vehicle production declined due to shifts toward alternative transport modes (electric scooters, bicycles, shared mobility) and environmental policy measures such as congestion charges and low-emission zones (Kuss & Nicholas, 2022). In contrast, the United States has maintained a strong preference for private vehicle ownership, reinforced during the COVID-19 pandemic (Moody et al., 2021), in a context where the "automobile-dependent transport system" (Mattioli et al., 2020, p. 13) remains structurally embedded through industrial, infrastructural, and political-economic interdependencies.

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Since 2016 the U.S. has taken protectionist measures to insulate its car market and slow down Chinese penetration. In 2021, President Biden set a non-binding target for half of all new U.S. vehicle sales to be electric (EV) by 2030 not considering that most EVs are made in China or with Chinese technology. This plan was reinforced by the Bipartisan Infrastructure Law, which included $7.5 billion USD in funds to build a nationwide network of 500,000 EV charging stations. The initiative aimed to expand equitable access to charging, to foster EV adoption, and to modernize the U.S. transport system. Additionally, the **Inflation Reduction Act of 2022** provided tax credits to secure domestic supply chains for EVs and batteries for zero-emission vehicles, which met North American (USMCA) content requirements. Given China's dominance in EV production and battery manufacturing, these measures aligned with the broader strategic competition between the two powers. That was then overturned on January 21, 2025, the day after President Trump took office. Trump's rollback of Biden's EV policies —cutting funds, revisiting emissions rules, and revoking California's waiver— places the future of U.S. decarbonization and auto industry strategy at the center of political contention. It is unclear how it will face Chinese EV competition around the world or help the transition in the US.

4.3. Mexico within the U.S. Strategic Sphere

Mexico's automotive industry is deeply integrated into North American production networks under USMCA, limiting policy autonomy in EV transition planning. Despite the rapid growth of Chinese brands in Mexico —from 10,126 vehicles sold in 2019 to over 83,000 in 2022— there are no national policies to channel this market shift toward domestic EV manufacturing or infrastructure expansion.

According to Instituto Nacional de Estadística y Geografía (2025) data, between 2016 and 2022, adoption was slow. Starting in 2023, demand accelerated significantly. That year, 74,000 units were sold, more than in 2022, when sales were 51,000. In 2024, 124,000 new EVs were registered, a 71% increase over the previous year. The higher demand was supported by the recovery of the automotive market, which had been sluggish since the world pandemic (Organisation Internationale des Constructeurs Automobiles [OICA], 2025). It indicates that demand for EVs has become more established in the country.

This context creates a paradox within the NAFTA-USMCA sphere. While Chinese firms expand their presence in Mexican urban transport markets, the U.S. simultaneously enforces protectionist measures against these same actors domestically, citing national security concerns. The case of BYD —forced to cease U.S. bus sales to federally funded transit agencies after 2026— illustrates the geopolitical tension between North American industrial policy and Chinese manufacturing capabilities.

In the 2020-2024 period, Mexico manufactured a total of 4.2 million cars. The nation was the fourth worldwide producer (Asociación Mexicana de la

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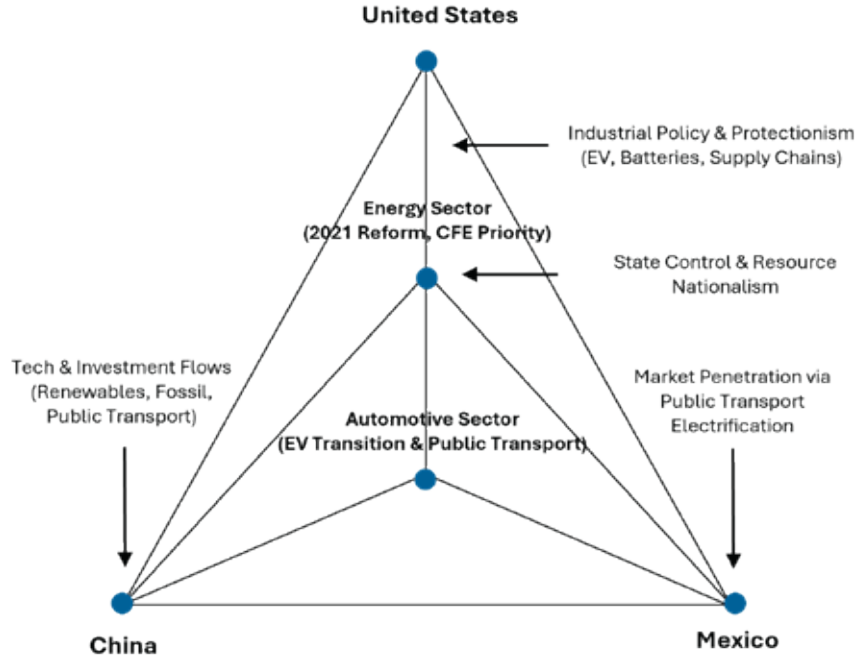
Industria Automotriz [AMIA], 2025). Besides, it produced 109,000 EVs in 2023. Most of them were manufactured for the U.S. market, just Ford accounting for 94,000 units (86.2%). The national EV market was covered by Chinese brands. For example, a single company, BYD, sold over 40,000 EVs in 2024, which represents a 32% market share. This is because Chinese companies sell cars at a lower cost. Models such as the Dolphin Mini are cheaper even when compared to their conventional equivalents (International Energy Agency [IEA], 2025). U.S. companies such as Tesla have focused on luxury models, which, in a low-income context such as Mexico, are unaffordable. Lower-priced Chinese EVs have facilitated the beginning of the adoption of electromobility.

According to Díaz and Ramírez (2025), the above scenario creates an asymmetry because while Mexico has EV production capacity, it is geared toward export, with companies manufacturing models that are not well-suited to the country. As a result, Chinese companies have dominated the market. However, the trade war launched by the U.S. government against Chinese companies has led Mexico to take sides with Washington. For example, since October 2024, the tariff exemption on EV imports has been eliminated. Given that domestic production goes to the U.S. and demand is met by Chinese imports, the measure is biased against Asian companies. Mexico's alignment and trade integration with the U.S. has slowed the transition to electromobility but not stopped it (see Graph 4).

Graph 4

U.S.-China-Mexico Geopolitical Matrix: Energy & Automotive Sectors



Note. Authors' own elaboration with assistance from ChatGPT (OpenAI, 2025)

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In this context, nearshoring should be understood within this same framework, not as an autonomous explanation of Mexico's energy transition. Rather, it is one mechanism through which GPC and GEST are territorialized in Mexico. Martínez and Terrazas-Santamaria (2024) argue that Mexico's emerging electric vehicle industry cannot be explained only by nearshoring, since investment decisions are shaped by a broader combination of USMCA rules of origin, U.S. industrial policy, climate-policy incentives, firms' strategies, and the attempt to reduce dependence on Chinese supply chains. In this sense, nearshoring increases Mexico's strategic value within North American production networks, but it also raises the energy requirements of industrial relocation. Its potential benefits depend on reliable electricity supply, transmission capacity, renewable generation, charging infrastructure and regulatory framework. González and Maravalle (2024) similarly stresses that nearshoring can create new growth opportunities for Mexico, but that these depend on productivity gains, stronger value-chain linkages, climate policy and cleaner energy conditions. Without these elements, nearshoring may reinforce Mexico's role as an assembly platform rather than support domestic technological upgrading.

A similar pattern is seen in the electric bus segment. According to E-BUS Radar (2025) data, Mexico had a stock of 849, mainly trolleys (55%). Almost 95% of them were bought from Chinese manufacturers (Yutong, 65%; BYD, 9.42%; King Long, 8.83%). In the U.S., the EB stock rose to 9,500 in the same year; in Canada it was 2,200 (IEA, 2025) meanwhile, the figure rose to 650,000. The IEA (2025) data show that the world stock was 730,000; 89% of the global electric bus fleet is in China.

The electrification of massive public passenger transportation is key to the energy change matrix and for reducing CO2 emissions. More EB buses require a specific infrastructure and higher electric generation. By taking control of the chain of supply, China would be able to expand its economic influence in Mexico and the Latin American region. This is the technological dimension of hegemony. In this case, the U.S.'s manufacturers do not exist. In 2023, Proterra, the main U.S. EB supplier, declared its bankruptcy, and later, in 2024, Phoenix Motor completed the acquisition of the manufacturer. This makes it dubious that the U.S. would be able to compete with China. The market gap on this segment leaves room for an increase in the sales of Asian suppliers, and for internal policies

In 2025, Mexican company Dina, presented its first 100% EB. It was produced with the support of the national center of technology, a public university, in partnership with Megaflux, also a Mexican manufacturer of EB and charging infrastructure, and electrical components for electric trucks. Besides, the same year, the federal government announced the project for producing a national EV, called Olinia. It would be a mini car, for two passengers, with a cost between 4,500 and 8,000 USD. Its main objective would be to serve as a moto taxi and may help the urban mobility of the less developed zones (Sheinbaum, 2025). Although there is no official information yet (August 19, 2025), it is possible

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that JAC, a Chinese company, ensembles de EV (El Universal, 2025). This brand has a factory in the state of Hidalgo, located in the Central Region of Mexico.

5. Geopolitical Implications

The interplay between Mexico's energy policy, automotive transition, and global industrial competition reflects a shift from a **spheres of influence** paradigm toward a **GPC** framework. The U.S. seeks to shield its domestic industry from Chinese competition while maintaining strategic control over energy and transport infrastructure in the Americas, consistent with the Monroe Doctrine's geopolitical logic. China, meanwhile, leverages its manufacturing strength to expand in Latin America, including in sectors (electric transport, renewable energy) central to long-term decarbonization strategies.

Mexico, situated at the intersection of these dynamics, faces structural constraints on policy autonomy, with its energy and transport transitions shaped as much by geopolitical pressures as by domestic priorities.

5.1. Mexico, China, and the Energy Transition in a Context of Fractured Globalization

Mexico and China are both actors in the ongoing transformation of the global energy matrix, yet this process unfolds amid a broader trend of de-globalization. In the West, this process consolidates the influence of the United States over Mexico. From the **supply-side perspective**, Mexico's energy generation remains heavily concentrated in fossil fuels (see Graphs 1 and 2). Within this renewable segment —dominated by hydroelectric power, followed by wind, solar, and nuclear power— the majority of firms are North American or European.

Only a small number of projects involve Chinese design, ownership, or technology. Notably, a Spanish renewable energy company active in Mexico was acquired by a Mexican investment fund, further consolidating domestic or regional ownership.

China's interests in Mexico's energy sector center on the development of **solar and wind projects**, where it has sought to act not merely as a supplier of technology but as an equity investor in generation capacity. It aligns with Beijing's broader global strategy of renewable energy market expansion. However, joint ventures with other foreign or domestic capital appear to fare better than wholly Chinese-owned projects, with at least one entirely Chinese investment reportedly failing to obtain operational approval. China Power planned to invest in transmission networks but abandoned the project after the reform of the *Ley de la Industria Eléctrica* introduced legal uncertainty.

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Chart 1
Chinese Investment in the Energy Sector in Mexico. Millions of USD (2013-2025)

Year	Investor or Builder	Amount
2013	China Petroleum and Chemical (Sinopec)	280
2016	Envision Group	100
	China National Offshore Oil (CNOOC)	1110
2019	Risen Energy	230
	Power Construction Corp. (PowerChina)	180
	China Petroleum and Chemical (Sinopec)	140
2020	Power Construction Corp. (PowerChina)	110
	State Power Investment	530
2021	China Petroleum and Chemical (Sinopec)	360
2022	China National Petroleum Corp. (CNPC)	180
	JL Mag Rare-Earth	100
	State Power Investment	240
2023	China National Offshore Oil (CNOOC)	120
	China Petroleum and Chemical (Sinopec)	160
	China Energy Engineering	380

Note: American Enterprise Institute (2025).

The Chinese energy-related investment has stopped since 2022 (see Chart 1). As seen in Chart 2, between 2013 and 2023, the Chinese energy-related investment added more than 4,200 million USD. Until 2016, capital flows were for fossil fuels, but then they changed. Since 2019, it has been related to clean energy (Risen Energy) and electrical generation (State Power Investment) and accounted for 42.5% of the total flows. This movement follows the transition to renewables in China, its internal process of electrification, and the consolidation of sectors related to new energies, like the mass production of photovoltaic panels, batteries, and electric vehicles.

Chart 2
Chinese Investment in the Transportation Sector in Mexico. Millions of USD(2015-2025)

Year	Investor or Builder	Amount
2015	Jiangnan Mould and Plastic	100
2016	China National Chemical (ChemChina)	200
2017	JAC Motors	110
2020	China Communications Construction	830
2022	China Communications Construction, China Railway Construction	160

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Chart 2
Chinese Investment in the Transportation Sector in Mexico. Millions of USD(2015-2025)

2023	China Railway Rolling Stock Corp. (CRRC)	680
	Ningbo Tuopu	190
	Ningbo Xusheng	280
2024	Sailun Tire	120
	Hunan Sinoboom	140
	Hangzhou Great Star	270
	Ningbo Tuopu	230

Note: American Enterprise Institute (2025).

Investment from China in the transportation sector has grown since 2015 (see Chart 2). Until 2024, the outlays reached 3,300 million USD, ranging from cars to railroads. Both include fossil means of transportation, hybrid and electrical; for example, companies like JAC have diversified their productions, covering a wide range of commodities in terms of their energy source. In 2023 and 2024 Chinese companies have also invested in manufacturing automotive components. It all poses a challenge to the U.S. companies and pressures Mexico in questioning on whether it should continue to encourage Asian investment or not, forcing the country to choose between fossil fuels, supported by the U.S., or renewable ones, led by Chinese technology. Washington plays a significant role in shaping the **limits of Chinese renewable technology penetration in North America** through tariffs and regulatory restrictions. The United States imposes high duties on Chinese-made solar panels and wind turbines, and foreign investments involving critical technologies —including renewables— are subject to review by the Committee on Foreign Investment in the United States (CFIUS). These measures constrain Chinese influence across the continent and, given Mexico's position within the U.S. strategic sphere, likely inform the cautious and limited nature of Mexico's renewable energy policy.

From the **demand-side perspective**, Mexico's transition in public transport electrification lags behind its regional peers. Despite having smaller populations, cities such as Bogotá and Santiago de Chile have replaced their entire operational bus fleets on a scale several times greater than Mexico City's. The very slow change in mass passenger transport vehicles in Mexico City could be attributable to a combination of limited federal funding and indirect pressure from Washington to maintain alignment with U.S. energy transition priorities. From a spheres of influence perspective, Mexico remains firmly embedded within the U.S. orbit and avoids opening its energy sector to significant Asian competition or to renewables. Yet the mass transport EV vehicles are mostly of Chinese origin except for Volvo, which is a Swedish firm with Chinese capital.

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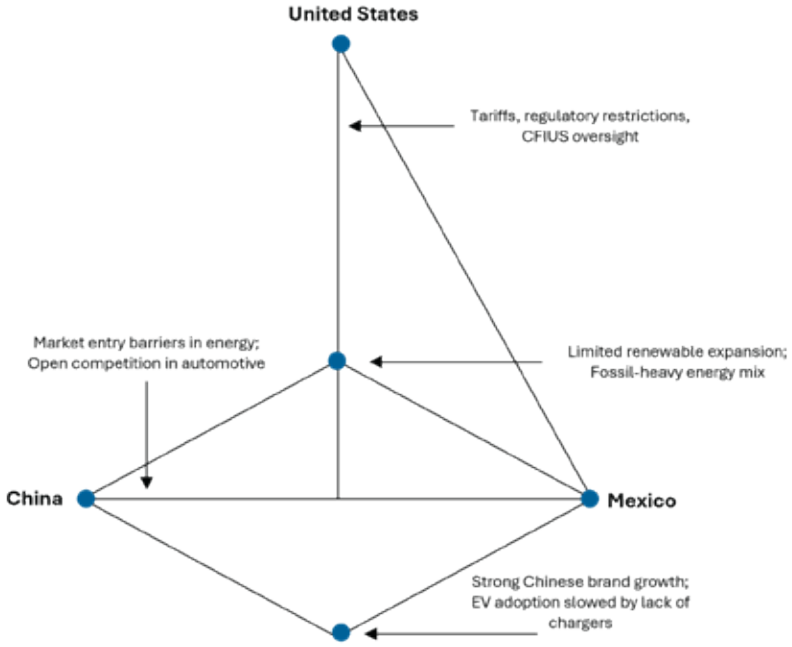
Graph 5

U.S.-China-Mexico Policy and Market Dynamics: Energy and Automotive Sectors



Note. Authors' own elaboration with assistance from ChatGPT (OpenAI, 2025)

In contrast, **Chinese private passenger vehicle companies** in Mexico face far fewer restrictions than in the U.S. Between 2018 and 2022, several Chinese brands expanded significantly in the Mexican market. At the same time, in 2025, the Trump administration locked in new tariffs on Chinese goods, imposing a 100% duty on electric vehicles and raising levies on batteries and critical minerals. The move extended existing restrictions on Chinese-made cars and components, at a time when China had already become the world's leading auto-exporter.

The massive arrival of BYD, all EVs, and the intense market penetration of Chinese fossil-fuel vehicle brands suggest growing consumer trust, which could facilitate a future shift toward electric vehicles. Starting in 2022, when BYD arrived, it sold 5,000 vehicles Rodriguez, 2024). By 2024, it had positioned itself in the top 10 of new car sales, in a country previously dominated by Nissan, Toyota and Volkswagen with 50,000 units sold in 2024 (America Malls & Retail, 2025).

However, Mexico's EV adoption faces a structural bottleneck: the country currently has only 2,089 public charging stations —far fewer than the approximately 43,000 in the United States— and well below the density per vehicle seen in Europe or Asia. Without substantial public investment in charging infrastructure, led primarily by the CFE, EVs will remain concentrated in elite consumer segments, limiting their impact on national development and climate change mitigation. Pressure from the U.S. may also influence Mexico's pace and scope of EV infrastructure deployment.

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6. Conclusions

Mexico occupies a strategic position in the evolving competition between the United States and China, not because of the scale of its bilateral trade with Beijing, but because of its role as a technological and infrastructural link in the energy and transportation sectors. Chinese investments in Mexico's fossil and renewable energy projects, as well as its dominance in the electrification of public transport, intersect directly with U.S. concerns over critical infrastructure control, supply chain resilience, and technological leadership (Asian Development Bank, 2020). It situates Mexico as a key intermediary within a triangular strategic relationship, where domestic policy choices have regional and global implications (see Graph 5).

The 2021 reform of the *Ley de la Industria Eléctrica* reasserted state control over the electricity sector through the Comisión Federal de Electricidad (CFE), aligning with an energy security model that reinforces sovereignty over energy assets. This approach strengthens Mexico's ability to manage its energy infrastructure, yet introduces regulatory uncertainty for all private investors, including Chinese firms. Also, the broad definition of "clean energy" may equally slow the country's decarbonization and limit opportunities for renewable deployment.

In the automotive industry, the transition to EVs is an arena for GPC. The United States has implemented protectionist measures, such as the Inflation Reduction Act of 2022, against Chinese brands, to foster its domestic EV supply chain. This strategy might slow its energy transition, particularly on the demand side, in the public mass passenger transportation sector, where Chinese firms are the world leaders. In Mexico, Chinese automotive brands have rapidly increased their market share, without any comprehensive national policy that could channel this growth into domestic EV manufacturing or infrastructure development.

Chinese firms' dominance in Mexico's public mass transport electrification projects underscores their competitive edge in manufacturing capacity, pricing, and technology. Contrastly, it exposes the limitations of U.S. and Canadian manufacturing of these vehicles within the USMCA framework. Chinese vehicle manufacturers expand their market presence in Mexico, while facing increasing restrictions in the U.S. domestic market under the logic of national security and industrial strategy. México is then accused of being an accomplice to Chinese presence in North America and helping them smuggle their goods into this USMCA market.

Ultimately, Mexico's energy and industrial policies are squeezed between geopolitical pressures and domestic priorities. The interaction between state-led energy strategy, foreign investment patterns, and shifting global industrial policy suggests that Mexico risks becoming a passive arena for U.S.–China great power competition unless it develops a coherent long-term strategy for renewable energy deployment and advanced vehicle manufacturing. Such a strategy would need to balance its integration into North American production chains ensuring that GPC translates into domestic capacity-building rather than dependency.

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