AMLO'S DILEMMA: BALANCING ENERGY SOVEREIGNTY AND CLIMATE ACTION

Nain Martínez
El Colegio de México, México
nain.martinez@colmex.mx

Abstract: This study examines how President López Obrador's (AMLO) energy policy—centered on "energy sovereignty" through strengthening the Federal Electricity Commission (CFE)—collided with Mexico's national climate mitigation targets and the shift toward renewables. Using political economy analysis, the article traces government decisions, opposition from companies and NGOs, and external influences from both the Trump and Biden administrations and the USMCA. The government's reorientation marginalized the renewable sector, triggering litigation and creating a climate policy vacuum. International pressure particularly from the Biden administration, along with domestic opposition prompted policy adjustments after 2021, though fundamental contradictions persisted. The findings reveal a rise in GHG emissions, underscoring the urgency of rethinking energy sovereignty within the global climate crisis. Thus, the Mexican case demonstrates that left-wing governments may adopt divergent strategies for the energy transition, shaped by historical, institutional, and geopolitical factors. The study concludes by highlighting the need for policies that integrate the expansion of clean energies as a key component of energy self-sufficiency and security, thereby transcending the false dichotomy between state control of fossil fuels and a free-market approach to renewables.

Keywords: climate change; energy transition; renewable energy; energy sovereignty; energy nationalism; climate diplomacy.

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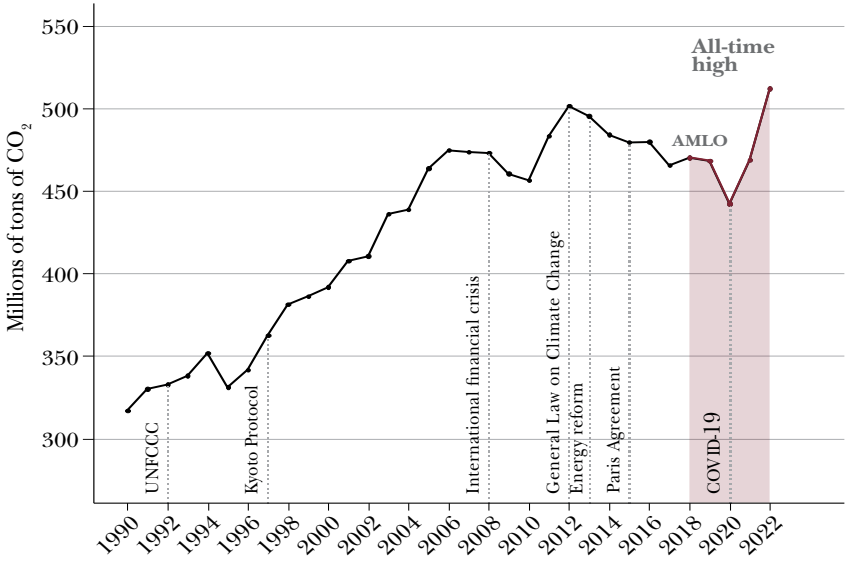
1. INTRODUCTION

During the presidency of Andrés Manuel López Obrador (AMLO), climate policy emerged as one of the most contentious issues facing his administration. Both national and international environmental organizations criticized the government's neglect and the gradual erosion of Mexico's climate policy institutions and instruments. A primary critique centered on the administration's emphasis on fossil fuel extraction and use—directly at odds with Mexico's statutory greenhouse gas (GHG) reduction targets and international commitments under the Paris Agreement. Beyond the public debate, these policies led to a notable rise in national GHG emissions, which reached an unprecedented peak during this six-year term (see Figure 1).

FIGURE 1
National Emissions of Greenhouse Gases



Source: Prepared by the author, based on Global Carbon Budget 2023, Friedlingstein et al.

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Against this backdrop, this article explores the tensions between AMLO's energy policy and the electricity sector transition, along with their implications for climate change mitigation. Although climate policy encompasses both adaptation to adverse impacts and the reduction of GHG emissions in sectors such as transportation, industry, and agriculture, this study focuses on the energy transition within the electricity sector—understood as the transformation of a fossil fuel-based system, in both its technical (sources, technologies, infrastructures) and sociopolitical dimensions (institutions, regulations, markets), into a system reliant on low-carbon energy[1]. This focus is justified not only by the electricity sector's strategic role in emissions reduction, but also by its position at the center of climate controversies during AMLO's presidency.

Transitioning the electricity sector does more than reducing emissions from power generation itself; it also plays a key role in broader decarbonization by enabling the phaseout of fossil fuels in other sectors. As noted by the Intergovernmental Panel on Climate Change[2], electricity-sector transformation is among the strategies with the highest mitigation potential. For instance, the benefits of electrifying transportation would be limited if the electricity matrix still relied on fossil fuels. Similarly, reducing fossil energy use in industry, commerce, and households facilitates the substitution of natural gas and coal in heating and cooking systems. Consequently, lowered fossil fuel demand reverberates along the entire energy industry value chain—from resource extraction to end use—across multiple sectors that collectively account for 78% of global GHG emissions[3].

Although the rhetoric of energy sovereignty initially centered on the oil industry, the administration's most controversial decisions took shape within the electricity sector—an especially revealing development. Academic literature typically

[1] Geels 2018. Sovacool 2016.
[2] IPCC 2018.
[3] IPCC 2014.

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associates left-wing governments with proactive climate policies, partly because of their ties to environmental movements and their tendency to regulate market externalities[4]. Nonetheless, AMLO's administration defies this expectation and raises a core paradox: why would a left-wing government prioritize the recovery of energy sovereignty over electricity transition, despite national and international mitigation commitments? This question positions the Mexican case as a strategic setting to examine the influence of historical factors—such as the evolution of national energy development—on a left-wing government's climate policy choices.

Guided by a political economy perspective on climate change and employing process-tracing methodology, this study argues that AMLO's drive to restore "energy sovereignty" collided with progress in the electricity transition and the pursuit of emission reduction targets. Far from a mere rhetorical clash, this conflict materialized through concrete measures to strengthen the Federal Electricity Commission (CFE), discourage private investment in renewable energy, and prompt litigation by both business groups and environmental organizations. In response, the government followed an institutional escalation strategy that heightened domestic opposition and left a gap in mitigation efforts, ultimately drawing greater international scrutiny.

Nevertheless, the trajectory of AMLO's energy policy cannot be fully understood without considering external factors. From the outset of Trump's term, his administration's climate skepticism and negotiations over the United States–Mexico–Canada Agreement (USMCA) afforded AMLO leeway to refocus national energy policy. Later, the accession of President Joe Biden and growing international pressure, combined with internal opposition, propelled adjustments to Mexico's energy and climate agenda beginning in 2021. Initiatives such as the Sonora Plan for Sustainable Energy sought to reconcile pressures for climate action with the

[4] Harrison & McIntosh Sundstrom 2007. Tobin 2017. Wang et al. 2022.

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government's priority of bolstering the CFE and promoting economic growth. Yet these measures did not resolve deeper contradictions, which reemerged toward the close of the administration.

The remainder of this article proceeds as follows. Section 2 examines the distribution of costs, capacities, and benefits underpinning resistance and setbacks in national mitigation policies. Section 3 describes the process-tracing methodology, highlighting its utility in reconstructing causal links between policy decisions and observed outcomes. Section 4 provides a historical and regulatory overview of Mexican climate policy, laying the groundwork for the case analysis. Finally, Section 5 presents the empirical core of the study, divided into three chronological stages: (i) the initial phase of AMLO's government and shifts in energy policy (2018–2020), (ii) mounting tensions and climate policy adjustments (2021–2022), and (iii) the balance between climate action and energy priorities at the end of the six-year term (2023–2024). Thus, the study offers a critical perspective on the paradox faced by an emblematic left-wing government —AMLO's administration—when favoring energy sovereignty over electricity transition, underscoring the historical, political, and international factors at play. It also outlines the implications of this legacy for Claudia Sheinbaum's incoming administration, furnishing key insights for rethinking Mexico's future on energy and climate matters amid intensifying domestic and external challenges.

Thus, the study critically examines the paradox confronting a prominent left-wing administration—AMLO's government—in prioritizing energy sovereignty at the expense of renewable energy transition, highlighting how historical legacies, domestic politics, and international dynamics shaped this controversial trajectory. Furthermore, it outlines the implications for Claudia Sheinbaum's administration, providing essential insights for rethinking Mexico's energy and climate future amid increasing domestic and international challenges.

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2. The Political Economy of Climate Change

From a political economy perspective, climate change constitutes a global collective action challenge, as both its causes (GHG emissions) and impacts transcend national borders and jurisdictions. In this view, reducing emissions can be understood as a global public good requiring international cooperation. However, emissions reduction yields widely distributed, long-term benefits shared worldwide, while imposing more immediate, localized, and concentrated costs on the actors responsible. Due to this mismatch between who bears the costs and who reaps the benefits, major industries—such as oil, electricity, and automotive—have strong incentives to continue profiting from fossil fuel extraction and consumption, externalizing the consequences of their emissions at a global scale[5]. Climate policies directly affect these industries, which are among the most influential in the global economy and thus possess substantial financial and political resources to protect their interests both domestically and internationally[6].

Despite the global scope of climate change, the international system—composed of sovereign states with diverging interests and capacities—constrains coordination[7]. Although all countries would benefit from cooperating to reduce emissions through a more stable climate and equitable cost-sharing, at the individual level incentives to maintain pollution levels due to uncertainty about others' behavior remain. This situation can lead to free-riding, whereby actors that do not participate in mitigation efforts profit from those who do, avoiding costs and gaining competitive advantages in international trade[8]. Consequently, without a global climate agreement that firmly commits all parties over the long term—thereby providing certainty about the measures adopted by trading partners

[5] Thompson 2010.
[6] Levy & Egan 2003.
[7] Keohane & Victor 2011.
[8] Thompson 2010. Bernauer 2013.

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and competitors—governments lack incentives to enforce effective climate policies and overcome this collective action dilemma[9]. Accordingly, such a treaty is crucial to advancing national policies.

Nevertheless, since 1992, negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) have faced significant challenges due to asymmetries in responsibilities, capabilities, and risks among parties[10]. Industrialized countries, including the United States and the European Union (EU) countries, bear greater historical responsibility for GHG emissions. Yet, since the 1990s, these countries have stabilized or lowered their emissions, while the major emerging economies (China, India, Brazil, Russia, South Africa, and Mexico) have substantially increased theirs. As a result, industrialized countries and emerging economies together are the primary contributors to global emissions and possess more financial and technical capacity to reduce them and, paradoxically, to adapt to climate impacts and tolerate a greater temperature increase. In contrast, island nations and less developed countries—despite having both historical and current lower contributions to global emissions—are more vulnerable to climate hazards and possess limited adaptation options. Meanwhile, countries endowed with large fossil fuel reserves and economies reliant on hydrocarbon exports stand to be most adversely affected by the shift to low-carbon technologies, explaining their reluctance to commit to robust international climate action[11].

This discussion is crucial for understanding a key feature that distinguishes climate change from other policy arenas: the tight interconnection between international and domestic political processes. UNFCCC negotiations have played a fundamental role in mainstreaming the climate agenda. For instance, the adoption of the Kyoto Protocol catalyzed a wave

[9] Tørstad 2020.
[10] Eckersley 2012. Keohane & Victor 2011.
[11] Eckersley 2012. Chasek, Downie & Brown 2018.

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of national climate policies in numerous countries, whereas domestic opposition in the United States, Canada, Australia, and Russia hindered its implementation, triggering a domino effect that weakened climate action globally[12]. This pattern repeated in later cycles: post-Kyoto negotiations from 2007 onward stimulated a new round of national policies; more recently, the Paris Agreement spurred a third wave of national commitments and actions[13]. As a result, domestic policies are typically linked to these multilateral climate commitments, and their continuity is highly sensitive to shifting international political landscapes.

At the national level, mitigation policies and energy transition strategies vary notably due to an array of internal factors driving their adoption and ambition. Environmental organizations stand as the principal champions of the domestic climate agenda. Hence, the density and capacity of these groups, as well as their links to transnational advocacy networks, shape the scope of climate policy[14]. Likewise, public interest in and awareness of climate issues generate institutional and electoral incentives conducive to adopting mitigation measures. This public engagement is fostered by activists and scholars, along with the domestic effects of extreme events such as hurricanes and droughts[15]. Moreover, economic blocs and international cooperation organizations—including the OECD, BRICS, and the EU—encourage policy coordination and mitigation objectives among member states and trading partners[16]. Structural factors, such as a country's renewable energy potential and the cost-effectiveness of available technologies, also frame a government's level of ambition[17].

Nevertheless, the impact of these factors is mediated by the political and institutional framework. For instance, democratic

[12] Bernstein 2002. Miyamoto & Takeuchi 2019.
[13] Höhne *et al.* 2017.
[14] Edwards & Roberts 2015.
[15] Hoffman 2015. Howe *et al.* 2019.
[16] Hochstetler & Viola 2012. Kammerer & Namhata 2018.
[17] Johnstone, Haščič & Popp 2010.

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systems enable the operation of environmental organizations and public scrutiny, both of which are critical for formulating national climate agendas. Party-system configurations also affect how these agendas are processed. Pluralist models tend to create openings for environmental movements and facilitate the formation of supportive legislative coalitions, whereas in two-party systems, interest aggregation can accentuate polarization on climate policy[18]. Another relevant element is ideological orientation. Right-wing and neoliberal governments typically adopt more conservative positions aligned with economic interests, often leading to less ambitious climate policies and policy reversals. In contrast, left-wing parties tend to endorse progressive, long-term measures that address social and market externalities through state intervention; historically, they have also been closely linked with environmental movements. Consequently, left-wing governments often push for more robust climate agendas, stricter industrial emissions standards, and dedicated public funding for mitigation[19].

Policy style likewise shapes policy adoption and stability. Command-and-control measures, such as emissions standards and renewable energy mandates, entail direct, mandatory regulations for carbon-intensive industries, thereby affecting their operations and competitiveness. Affected industries may mobilize to veto these policies during the legislative process, and even when approved, these measures can face regulatory volatility and rollbacks. In contrast, market-based instruments—such as cap-and-trade systems, clean energy certificates, and renewable energy auctions—provide greater flexibility for companies to meet requirements, encourage innovation, and potentially reduce compliance costs. They also foster broad advocacy coalitions among government officials, environmentalists, and the private sector by streamlining implementation, facilitating mitigation progress, and expanding

[18] Harrison & McIntosh Sundstrom 2007. Lachapelle & Paterson 2013.
[19] Tobin 2017. Wang *et al.* 2022.

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business opportunities[20]. This convergence of interests bolsters political acceptability. Consequently, over the past two decades, market-based instruments have become the dominant paradigm in mitigation policies.

However, this trend—often labeled "climate capitalism"—has faced substantial criticism and calls for environmental justice. Such mechanisms can promote superficial solutions that do not meaningfully reduce emissions. For instance, corporations may use carbon offset schemes to maintain their own emissions while financing mitigation projects elsewhere, frequently in marginalized communities and developing countries[21]. Moreover, an overriding emphasis on maximizing emissions cuts at the lowest cost can overlook broader social and environmental dimensions. One illustration is the proliferation of utility-scale wind and solar plants in rural, marginalized, or Indigenous territories, where land is cheaper. This dynamic has led to land and resource dispossession, disrupted local livelihoods and ecosystems, displaced communities, and provoked conflicts. Consequently, the populations least responsible for, and most vulnerable to climate change may paradoxically gain little from the energy transition yet bear disproportionate burdens from its development[22]. These instruments therefore raise complex questions of equity, environmental justice, and long-term effectiveness.

In light of this, energy transition must go beyond simply replacing fossil fuels with lower-carbon sources and renewables. Energy systems are intricately bound to economic, social, and political structures, meaning that altering their technical components (primary sources, technologies, infrastructures) requires corresponding shifts in institutions, regulations, markets, and planning practices[23]. Nevertheless, the prevailing approach in energy transition policy has largely

[20] Meckling 2011.
[21] Newell & Paterson 2010.
[22] Ottinger 2013. Levenda, Behrsin & Disano 2021.
[23] Sovacool 2016. Geels 2018.

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concentrated on expanding renewables, placing less emphasis on the sociopolitical changes this implies. As a result, policy effectiveness is often undermined, reproducing development models that perpetuate social inequalities and reliance on large energy corporations. Concurrently, alternative pathways—such as distributed systems, community ownership, or self-consumption—remain underexplored[24]. From this vantage, there is a clear need for comprehensive energy transition policies that incorporate sociopolitical dimensions. Furthermore, the very trajectory of this transformation constitutes a contested terrain over environmental justice, energy sector governance, and democratization.

Taken together, this discussion provides an analytical lens for understanding the complexity of climate mitigation and the logic behind actors' resistance to it. In particular, it highlights three central dimensions for this study. First, the interplay between international climate policy and domestic politics in Mexico, including the influence of UNFCCC negotiations, features of the Paris Agreement, and key actors such as the United States. Second, domestic factors, such as the role of environmental organizations, high-emitting enterprises like the Federal Electricity Commission (CFE), and public perceptions of climate risks. Third, the impact of Mexico's political and institutional framework, including the government's ideological orientation and policy style. These dimensions set the stage for analyzing tensions between AMLO's energy policy and mitigation demands, as explored in the following sections.

3. Methodology

The research design of this study relies on process tracing. Although chronology is central to this method, its purpose goes beyond mere historical description (which, given the rapidly

[24] Miller, Ritcher & O'Leary 2015.

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changing energy and climate landscape during AMLO's six-year term, would be a significant contribution in itself). Instead, the objective is to reconstruct the causal process that links governmental decisions to the outcomes observed in the case[25]. Unlike quantitative approaches aimed at statistical generalization, process tracing focuses on examining the chain of specific decisions and actions that help explain, for instance, how certain policies and reforms by AMLO's government prompted particular responses from domestic and external actors—such as businesses, environmental groups, and regulators—in the form of litigation, institutional tensions, or gaps in climate policy.

This article adopts the inductive (or explanatory) variant of process tracing. This approach is especially suited to contexts of high complexity and causal heterogeneity, as well as to periods showing substantial changes in key variables—such as the shift in climate policy from the [first] Trump administration to the Biden administration. Under this perspective, the research design follows an iterative procedure, in which collecting and organizing empirical evidence is progressively refined in dialogue with theoretical considerations and event interpretations.

This iterative procedure consisted of three main phases. First, in an inductive phase, the study collected and chronologically organized evidence generated by the main agents, which enabled the identification of critical stages and turning points in the case. Second, the analytical framework of the political economy of climate change was applied to formulate plausible explanations about the relationships between actors, events, and decisions. Third, these explanations underwent validation, refinement, or reformulation by means of: (i) triangulating empirical evidence and (ii) confronting competing interpretations. Through this process, two complementary analytical products emerged: the factual sequence shaping the overall process, and the causal explanations, which—although

[25] Bennett & Checkel 2014.

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limited in scope—are backed by empirical data and collectively reconstruct the causal chain[26].

The empirical work comprised two principal components. First, the study collected, analyzed, and cross-checked primary sources (official statements, legal decrees, interviews, meeting minutes, and stakeholders' public remarks) and secondary sources (press reports, academic research, and policy documents). This body of evidence enabled the reconstruction of key events, and the positions of the main actors involved. Second, to assess the concrete effects of the policies beyond public discourse, the study examined the evolution of indicators such as emission levels, investments, and installed capacity. This analysis relied primarily on official data; however, given discrepancies and gaps in historical records, additional information was requested via Mexico's National Transparency Platform from the Federal Electricity Commission (CFE), the National Energy Control Center (Cenace), the Ministry of Energy (Sener), and the Energy Regulatory Commission (CRE), yielding only partial and restricted datasets. Consequently, the study supplemented these requests with open-access databases—such as the Global Carbon Budget[27], Climate Action Tracker[28], and the World Bank[29]. Cross-referencing these diverse sources facilitated a robust reconstruction of the causal mechanisms explaining how and why AMLO's energy policies led to the tensions and outcomes discussed in Section 5.

4. From Reluctance to Leadership: Mexico's Evolving Climate Policy

Since the 1990s, Mexico has undergone a significant evolution in its approach to climate change, moving from initial

[26] Beach 2017.
[27] Friedlingstein et al. 2023.
[28] Climate Action Tracker 2022.
[29] World Bank n.d.

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reluctance to a more proactive stance. In 1991, during the inaugural meeting to draft the United Nations Framework Convention on Climate Change (UNFCCC), countries such as Denmark, the Netherlands, Sweden, and Germany supported a protocol mandating binding mitigation commitments. This proposal met strong resistance from oil-exporting nations, emerging economies with growing energy demands, and industrialized countries benefiting from low-cost fossil fuels—namely the United States, Canada, and Australia[30]. In these negotiations, Mexico was wary of assuming new obligations due to domestic considerations: the potential repercussions for its economic development, limited institutional capacity on environmental matters, and a marked dependence on fossil fuels[31]. As the world's fourth-largest oil producer—Petróleos Mexicanos (Pemex) contributed nearly one-third of public revenues and the electricity sector relied heavily on fossil fuels—Mexico aligned with the United States and others opposing additional mitigation commitments[32].

Despite these reservations, Mexico signed the UNFCCC at the landmark 1992 Rio Earth Summit. This agreement constituted a milestone, recognizing: (i) the responsibility of human-generated GHG emissions in driving climate change, (ii) the urgency of reducing global emissions to 1990 levels, and (iii) the importance of addressing climate action under the principle of common but differentiated responsibilities. Consequently, industrialized countries and those emerging from the former Soviet Union committed to leading global mitigation efforts, while developing countries such as Mexico agreed to report on their emissions and advance domestic policies. The Conference of the Parties (COP) was also established to oversee implementation of the UNFCCC[33].

[30] Chasek, Downie & Brown 2018.
[31] Martínez 2024.
[32] Pulver 2013.
[33] Chasek, Downie & Brown 2018.

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Following the Rio Summit, Mexico undertook a series of institutional reforms to meet its new obligations. President Carlos Salinas's administration created the National Institute of Ecology (Instituto Nacional de Ecología, INE) to foster research and provide technical support on climate-related matters. Meanwhile, the signing of the North American Free Trade Agreement (NAFTA) in 1994 and Mexico's integration into the Organization for Economic Cooperation and Development (OECD) prompted the harmonization of national environmental regulations with international standards, strengthening environmental legislation overall. This context also encouraged the expansion and diversification of environmental organizations in Mexico. Building on these developments, when Ernesto Zedillo took office in 1994, he established the Ministry of Environment, Natural Resources, and Fisheries (Semarnap), consolidating federal responsibilities in environmental policy and elevating its public profile[34].

With the UNFCCC in force, COP-1 in Berlin (1995) set out to adopt a protocol for coordinating emissions reductions by 1997. Mexico faced pressure to assume mitigation commitments, given its membership in the OECD, as well as its income and per capita emissions levels, which exceeded those of other emerging economies. Although this issue was not a primary focus of negotiations, it influenced the Mexican delegation—led by the Ministry of Foreign Affairs (Secretaría de Relaciones Exteriores, SRE) and Semarnap—who concluded that the country should soon be prepared to accept mitigation responsibilities[35]. At COP-3 in 1997, the Kyoto Protocol introduced the first period of mandatory emissions reductions for industrialized nations and economies in transition, targeting a 5% cut relative to 1990 levels. It also created the Clean Development Mechanism (CDM), granting some flexibility in meeting targets through mitigation projects in developing countries[36].

[34] Lezama 2010.
[35] Pulver 2006.
[36] Chasek, Downie & Brown 2018.

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Although the Kyoto Protocol did not impose direct obligations on Mexico, declining U.S. demand for oil could harm Pemex exports, and Mexico's economic and energy ministries initially opposed ratification. Nevertheless, Semarnap and SRE advocated for Mexico's involvement and convinced President Zedillo of the importance of preparing the country to assume formal mitigation commitments, suggesting that the CDM could defray the associated costs. Eventually, in 2000, Mexico ratified the Kyoto Protocol. However, when the United States withdrew in 2001 under the Bush administration, the Protocol's implementation—and the CDM's financing mechanism—was severely undermined, affecting key funding sources for Mexican mitigation projects[37].

Under President Felipe Calderón (2006–2012), Mexico took on a leading role in UNFCCC negotiations and made notable progress in climate policy and energy transition. From the beginning of his term, Calderón advocated for Mexico's participation in the Bali Action Plan Working Groups, outlining the path to negotiate a treaty following the expiration of the Kyoto Protocol's at the end of 2012. These discussions revealed tensions between industrialized countries—seeking broader mitigation commitments from emerging economies—and China, India, Brazil, and South Africa, who insisted on differentiated responsibilities[38]. Navigating a middle ground, Mexico was open to mitigation targets that were proportional and voluntary.

In parallel, the 2008 Special Climate Change Program set voluntary mitigation objectives for 2012 and 2030, including targets for the energy transition. To support these goals, the 2008 Law for the Use of Renewable Energy and Financing of Energy Transition (Ley para el Aprovechamiento de Energías Renovables y el Financiamiento de la Transición Energética, LAERFTE) aimed to advance renewable electricity generation by tackling legal and technical obstacles. The law (i) enabled

[37] Pulver 2006.
[38] Torres 2013.

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private projects under a self-supply scheme between consumers and renewable energy companies, (ii) mandated preferential dispatch for power generated by renewables, and (iii) provided legal certainty for interconnection and transmission contracts. Further reforms in 2012 established the General Climate Change Act, including mitigation targets of 30% by 2020 and 50% by 2050, along with the National Climate Change System to coordinate actions among ministries and levels of government. Despite these advances, large-scale wind projects in the isthmus of Tehuantepec provoked local opposition from Huave and Zapotec communities, leading to social conflict near the end of Calderón's term.

Under Enrique Peña Nieto (2012–2018), the 2013 Energy Reform amended Articles 25, 27, and 28 of the Constitution, deepening private involvement in the energy sector[39]. Subsequently, the 2014 Electricity Industry Act (Ley de la Industria Eléctrica, LIE) created markets for electricity generation and marketing and reorganized the Federal Electricity Commission (Comisión Federal de Electricidad, CFE) into a structure akin to private firms. The LIE also introduced Clean Energy Certificates (Certificados de Energías Limpias, CELs) and an auction mechanism for the purchase of electricity, capacity, and CELs.

Ahead of COP-20, the Energy Transition Act (Ley de Transición Energética, LTE) was presented to Congress to replace the LAERFTE, aiming to regulate the sustainable use of energy and promote an energy transition. This law established specific targets to reduce dependence on fossil fuels and gradually expand the share of clean energy in electricity generation: 25% by 2018, 30% by 2021, and 35% by 2024. These objectives tied CEL obligations to power producers and large consumers, thus incentivizing clean-energy investment. Carbon-intensive industries initially lobbied against the initiative in Congress, delaying its passage.

Nevertheless, pressure from environmental NGOs, public opinion, and U.S. diplomacy under the Obama administration

[39] Rousseau 2020.

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propelled approval of the LTE during negotiations for the Paris Agreement in 2015[40]. Under the Agreement, all UNFCCC parties must define their climate commitments through Nationally Determined Contributions (NDCs) and gradually increase ambition in five-year cycles, adhering to the principle of progressivity, until collective mitigation is aligned with the goal of keeping global warming below 2°C—or ideally at 1.5°C. In its NDC, Mexico pledged to cut GHG emissions by 25% by 2030, and to generate 35% of its electricity from clean sources by 2024 and 45% by 2030[41]. National regulations, through CELs and Renewable Energy Auctions, underpinned these commitments.

During the Calderón and Peña Nieto administrations, therefore, wind and solar energy deployment grew significantly. However, this did not necessarily entail comprehensive planning for an energy transition. Both the LAERFTE and the LIE emphasized private investment attraction without establishing a robust institutional framework for long-term planning, transmission network modernization, or substantial community involvement. Consequently, although clean energy investment and installed capacity increased notably, these developments did not trigger a systemic transformation of the electricity sector—leaving important gaps in equity, governance, and climate justice.

This historical overview serves a dual purpose: it provides the context for understanding the policies and regulations predating AMLO's government and illustrates how the analytical factors discussed in Section 2 materialized on the ground. Mexico's climate policy evolution, for instance, highlights the interplay between international negotiations and domestic reforms. Each cycle of UNFCCC negotiations—from the Kyoto Protocol to the Paris Agreement—corresponded to significant changes at home. U.S. administrations, ranging from Bush's pullback to Obama's leadership, also shaped the pace and scope of

[40] Martínez 2024.
[41] Climate Action Tracker 2022.

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Mexico's climate agenda. Moreover, institutions and interests in the energy sector played a pivotal role at critical junctures. Finally, environmental organizations and the private sector—initially mere bystanders—grew into active participants in policy formation and execution. This intricate matrix of institutions, laws, and interests would form the starting point from which AMLO's administration would frame its vision of energy sovereignty and respond to Mexico's climate commitments.

5. AMLO: Between Energy Sovereignty and the Global Thermometer

5.1 Change of Course

Andrés Manuel López Obrador's (AMLO) accession to the Mexican presidency in 2018 signaled a substantive shift in the country's energy policy, guided by his vision of "energy sovereignty." In this subsection, I argue that two international factors—the Trump administration's adversarial stance on climate policy and provisions in the newly negotiated United States–Mexico–Canada Agreement (USMCA)—together paved the way for this turn in Mexico. On one hand, these factors weakened the climate agenda in North America, and on the other, they granted Mexico additional latitude to reorient its domestic energy policy. In this context, AMLO's government prioritized strengthening Petróleos Mexicanos (Pemex) and the Federal Electricity Commission (Comisión Federal de Electricidad, CFE) at the expense of private sector participation in electricity generation. This new course of action particularly affected the renewable energy sector, which until then had largely relied on private investment and market mechanisms championed by previous administrations. As a result, while the government did not abandon the rhetoric of energy transition and emissions reduction, in practice these objectives were subordinated to the broader agenda of state-led energy policy and consolidation of CFE.

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Donald Trump's election as president of the United States in 2016 marked a stark departure from the trade and climate change strategies of his predecessor, Barack Obama. The Obama administration had enacted ambitious measures for GHG mitigation, particularly the Clean Power Plan (2015), which promoted energy efficiency and zero-emission renewables to reach 21% of U.S. electricity generation by 2030[42]. In foreign policy, Obama channeled technical and financial resources through USAID to support climate policies in key partner nations such as Mexico and Brazil. Meanwhile, U.S. diplomacy, led by Secretary of State John Kerry, played a critical role in finalizing the Paris Agreement[43].

In contrast, from his election campaign onward, Trump labeled climate change a Chinese hoax designed to undermine the U.S. economy[44]. Upon taking office in January 2017, he surrounded himself with executives from major oil, gas, and coal firms, and in the first months of his presidency, issued executive orders to rescind the Clean Power Plan and roll back methane emission regulations for hydrocarbon production and distribution. Then, in June 2017, Trump declared the U.S. withdrawal from the Paris Agreement[45].

Simultaneously, Trump threatened to terminate the North American Free Trade Agreement (NAFTA), arguing that it had unfairly benefited Mexico by creating a U.S. trade deficit and job losses in emblematic industries such as automobile manufacturing. In response, Canada and Mexico—then still under President Enrique Peña Nieto (EPN)—entered an uncertain renegotiation process in August 2017. Canada and Mexico pushed for explicit references to the Paris Agreement and clean energy provisions in the new trade deal, yet the Trump administration, aligned with major fossil fuel interests, resisted these measures on grounds of competitiveness.

[42] EPA 2015.
[43] The White House 2015.
[44] Schuster 2017.
[45] Shear 2017.

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In this context, AMLO's victory in Mexico's 2018 elections, heading a coalition led by the National Regeneration Movement (Morena), also influenced the trade negotiations. During his campaign, AMLO capitalized on public dissatisfaction by promising a profound transformation centered on government austerity, anti-corruption efforts, and poverty reduction. Although his political platform acknowledged climate change and renewable energy development[46], these issues were secondary to the goal of reasserting state control in the energy sector and fortifying Pemex and CFE—objectives rooted in AMLO's political background.

During the transition period, EPN's outgoing administration granted AMLO, as president-elect, considerable leeway to shape policy. AMLO appointed Jesús Seade to represent him in the NAFTA renegotiation, in which Seade advocated for the incoming government's energy sovereignty priorities. This stance clashed with the openness to private investment championed by the 2013 energy reform, prompting unease among U.S. and Canadian negotiators intent on securing equitable market access for their energy firms.

Ultimately, the USMCA, signed on November 30, 2018, contained only limited references to climate change and did not set any specific commitments in that domain. Chapter 8 of the USMCA explicitly recognizes Mexico's sovereignty over its hydrocarbons and its authority to reform its Constitution and energy laws, provided such changes do not violate other treaty provisions or infringe upon the rights of the other parties[47]. The agreement also outlines multiple mechanisms for dispute resolution, including those for interstate trade disputes and conflicts related to foreign investment in the energy sector[48]. In effect, the USMCA diminished the momentum for climate collaboration in North America and simultaneously opened the door to further reforms of Mexico's energy sector.

[46] González-Blanco Ortiz-Mena 2018.
[47] Secretaría de Economía 2023.
[48] Laurens *et al.* 2019.

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Seizing this opportunity, President AMLO placed transformation of energy policy at the forefront of his agenda, focusing on two main objectives: repealing the 2013 energy reform to reassert state authority, and strengthening the national energy industry, particularly Pemex and CFE. In line with this vision, on December 8, 2018—just days into his presidency—AMLO, joined by CFE director Manuel Bartlett, presented the National Electricity Program[49], clearly signaling a shift in policy priorities toward restoring CFE's leadership and expanding its role in electricity generation.

This approach stood in stark contrast to the reforms pursued by previous governments. Since the 1990s, Mexico had encouraged private sector involvement in electricity generation to meet rising demand, given the CFE's budgetary constraints. Initially, the 1992 electricity reform[50] opened generation to private investment under various schemes, such as independent power producers (IPPs), spurring investment in combined-cycle plants[51]. In 2008, the Use of Renewable Energy and Financing of the Energy Transition Act (LAERFTE) further incentivized private renewable projects via self-supply arrangements, driving development of wind energy. Finally, the 2013 energy reform and the 2014 Electricity Industry Act (LIE) fully liberalized generation and marketing activities, introducing electricity auctions to procure power, capacity, and Clean Energy Certificates (CELs), thus attracting significant investment in solar photovoltaic and wind projects (see Figure 2).

[49] Sener 2018a.

[50] The 1992 reform to the Public Electric Power Service Act allowed private participation in electricity generation through various schemes, including independent power production (IPP, or PIE in Spanish). Under this scheme, CFE tendered long-term power purchase agreements, specifying technical requirements and locations for the plants. Private producers built and operated the power plants, selling electricity to CFE, which retained control over transmission, distribution, and marketing.

[51] Carreón-Rodríguez, Jiménez y Rosellón 2005.

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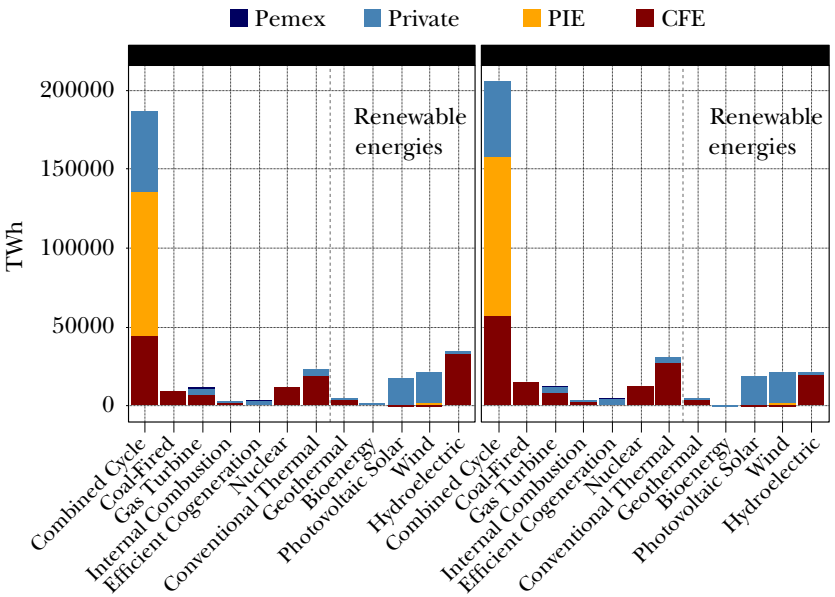
FIGURE 2
Energy Generation by Type of Technology and Owner



Source: Prepared by the author, based on Ferrari et al. n.d. and Sener 2023.

In contrast, AMLO's National Electricity Program aimed to increase the CFE share of national electricity generation, which had fallen from 100% to 54% between 1999 and 2018[52]. This entailed rehabilitating and maximizing output from existing CFE plants and expanding the agency's generation capacity. Although the program included developing CFE-owned clean energy facilities (hydroelectric, geothermal, and nuclear), it also proposed the strategic use of all of Pemex's primary resources, including fossil fuels and cogeneration from refinery steam. Unsurprisingly, observers raised concerns over potential impacts on the energy mix transition.

Aligning with this new direction, the National Energy Control Center (Centro Nacional de Control de Energía, Cenace)

[52] Sener 2023.

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canceled the fourth electricity auction on January 31, 2019[53]. This decision signaled a break from EPN's energy transition policy. Between 2015 and 2017, three long-term auctions had assigned contracts for 7518 megawatts (MW) across 90 projects—mostly wind (58%) and solar PV (38%), as well as some geothermal, hydroelectric, bioenergy, and efficient cogeneration (4%)—representing over USDls 9 billion in investments[54]. Mexico's low-cost renewable bidding prices and high capital inflows had placed it among the top 10 nations for renewable investment[55]. Consequently, the country's renewable capacity rose from 16.4 MW in 2015 to 20.4 MW in 2018, with contracted projects potentially surpassing 30 GW by 2022[56]. Suspension of the fourth auction brought uncertainty regarding ongoing contracts and the country's mitigation commitments.

CELs had been granted to facilities installed since 2014 to spur new investment. Under that framework, CFE was the main buyer of CELs due to its aging plants and limited share of clean energy. However, new rules issued CELs to CFE for its hydroelectric, geothermal, and nuclear plants, reducing its need to purchase them externally[57] and, in turn, lowering overall demand. As a market instrument, CEL values hinged on supply and demand, so renewable companies and industry associations (e.g., the Mexican Wind Energy Association, the Mexican Solar Energy Association) opposed the measure, claiming that project viability—and the electricity price they offered—depended on revenue from CEL transactions[58].

Environmental organizations reacted with concern but did not voice strong opposition. Under EPN, groups such as Greenpeace, World Wildlife Fund, Mexico Climate Initiative, and the Mexican Center for Environmental Law (Cemda) had

[53] Cenace 2019.
[54] Cenace 2018.
[55] McCrone y Mosiener 2018.
[56] Sener 2016. Sener 2019.
[57] Solís 2019.
[58] Ini 2019.

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already criticized the overly commercial approach to renewables and the lack of community engagement. In response, the LIE had introduced Social Impact Assessments to reduce local adverse effects and Indigenous Consultations to ensure prior consent from indigenous communities—intending that developers would internalize social impacts. Yet implementation remained uneven, and certain auctions continued to award large-scale projects, such as Vega Solar in indigenous territories of the Yucatán peninsula and the isthmus of Tehuantepec, despite community opposition[59].

Consequently, many environmental organizations believed that the renewables development model required revision to foster a just energy transition—one that would meaningfully involve local communities in decision-making and benefits. Thus, they expected the AMLO government to recalibrate the model, balancing private investment objectives with social considerations, and to promote alternative approaches such as distributed generation, community partnerships, and public investment.

Some support for this approach emerged with the appointment of Víctor Toledo as Secretary of the Environment and Natural Resources (Semarnat) in May 2019, following Josefa González-Blanco Ortiz-Mena's brief six-month term. Toledo, an academic researcher in ecology and environmental management, maintained ties with environmental organizations and leftist factions, enabling him to engage with key social actors. Unlike most cabinet officials, who had low public profiles, Toledo visibly advocated strengthening clean energy and proposed a national energy transition plan emphasizing local development, self-consumption, and cooperatives[60].

However, tensions between energy and climate policy soon intensified due to the COVID-19 pandemic. Lockdowns and global recession slashed industrial activity and transportation, collapsing oil prices and reducing electricity demand,

[59] Martínez 2024.
[60] Semarnat 2019.

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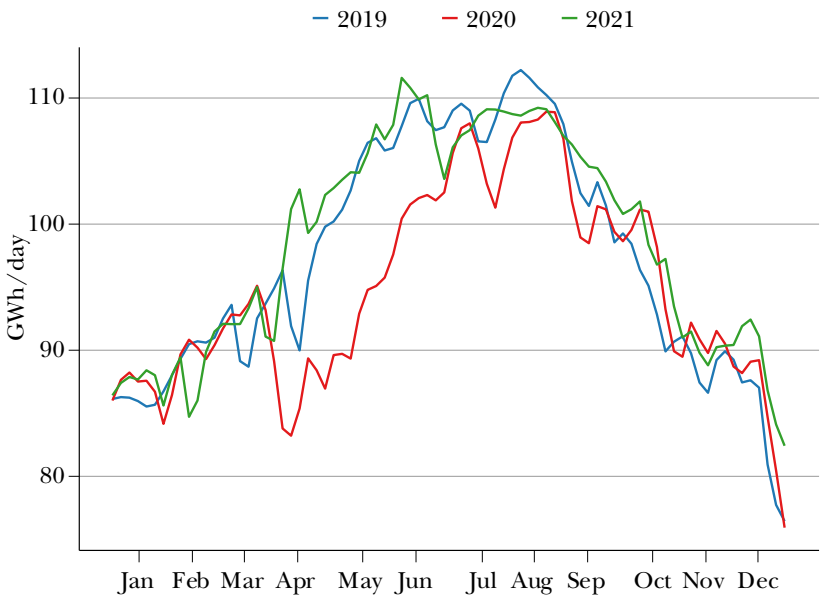
especially in industrial and commercial sectors. Naturally, Mexico was also affected, as Pemex faced major financial challenges and the government's revenue declined, while domestic demand for electricity dropped (see Figure 3).

FIGURE 3
Estimation of Energy Demand in the Mexican National Electric System.



Source: Prepared by the author, based on Cenace 2024.
Note: Weekly Average by Balance.

In April 2020, Cenace issued an Agreement for Ensuring Efficiency, Quality, Reliability, Continuity, and Security of the National Electricity System[61], halting preoperational tests for 17 solar and wind projects—nine of which held CFE-awarded contracts—and stipulating that no new authorizations would

[61] Cenace 2020.

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be granted to plants yet to begin such tests. Cenace justified the measure as "necessary to utilize the safest energy generation sources to avoid blackouts and supply failures" in order to "mitigate the drop in electricity demand due to the coronavirus pandemic and protect grid reliability"[62].

Shortly thereafter, on May 15, 2020, the Ministry of Energy (Sener) issued the Policy on Reliability, Security, Continuity, and Quality in the National Electricity System, granting priority dispatch to CFE plants over renewable generators[63]. In response, environmental groups spoke out against the government's intention to use Pemex refinery fuel oil in polluting CFE plants.

At this juncture, Canada and the European Union formally opposed these measures, as they undermined clean energy investments already underway[64]. Environmental organizations such as Greenpeace and Cemda, as well as affected investors, filed over 170 legal injunctions (*amparos*), and the Federal Economic Competition Commission challenged the new policy's constitutionality in Mexico's Supreme Court of Justice[65]. The courts granted these injunctions, and eventually the Supreme Court invalidated most of the policy.

This conflict further strained relations between the government and environmental organizations. Meanwhile, Semarnat's influence waned, reflected in severe budget cuts in 2020 that sharply limited its operational capacity. Tensions peaked in August 2020 with Víctor Toledo's resignation after he publicly criticized the so-called "Fourth Transformation," marking the second change in the environment ministry's leadership in under two years[66] and revealing the administration's limited commitment to environmental and climate policy.

The first international repercussions emerged in December 2020 when Mexico presented an update to its first Nationally

[62] Arellano 2020.
[63] "Acuerdo por el que se emite…" 2020.
[64] García & Morales 2020.
[65] "Juez ampara…" 2020. Greenpeace 2020.
[66] "Víctor Toledo deja…" 2020.

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Determined Contribution (NDC) from 2016[67]. National and international environmental organizations condemned the new NDC as less ambitious than the original and lacking transparency. Notably, it raised the baseline scenario for 2030 emissions without clarifying underlying assumptions, effectively allowing higher absolute emissions while maintaining the same percentage reduction[68]. Thus, even though mitigation targets from the earlier NDC remained nominally intact, in practice they were weaker and contradicted the Paris Agreement's principle of "progressivity," whereby each new NDC should represent successively stronger climate commitments (see Table 2).

In short, the 2018–2020 period marked a significant shift in Mexico's energy and climate policy. Measures undertaken to reinforce Pemex and CFE in line with AMLO's energy sovereignty vision had substantial repercussions. Domestically, the reorientation of energy policy spurred lawsuits, legal uncertainty, opposition from affected firms, and tensions with environmental groups. The COVID-19 pandemic magnified these dynamics by driving measures that favored CFE more decisively while restricting both existing renewable operations and new renewable projects.

5.2 The Fourth Transformation Under Green Pressure

During the second third of AMLO's six-year term, tensions between energy policy and the imperative to accelerate the transition to clean energy intensified. This section contends that measures enacted in the prior period sparked robust opposition and litigation, obstructing the government's energy agenda. In response, the administration initiated a process of institutional escalation, first advancing reforms to the Electricity Industry Act (LIE) and later proposing a constitutional overhaul. Each new initiative triggered stronger pushback,

[67] Semarnat & INECC 2020.
[68] Climate Action Tracker 2022. GCF Task Force 2021.

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prompting the government to double down on dismantling market-based instruments and private investment mechanisms for energy transition, ultimately creating a vacuum in national emissions reduction policy that drew international scrutiny. Faced with diplomatic pressure, particularly from the United States, AMLO's government eventually adjusted its energy and climate policy to meet international mitigation commitments, yet it remained committed to its broader vision of energy sovereignty.

Joe Biden's inauguration on January 20, 2021, ushered in a marked shift in U.S. climate policy, with significant implications for Mexico. Early on, Biden appointed John Kerry—a former Secretary of State under Obama—as his Special Presidential Envoy for Climate, giving climate issues a cabinet-level platform. On his first day in office, Biden also signed an executive order rejoining the Paris Agreement and pledged to revive and expand Obama-era climate policies[69]. Consequently, the new administration made climate a priority both domestically and internationally, seeking to restore U.S. leadership in implementing the Paris Agreement—a role weakened by Donald Trump's policies.

In contrast, AMLO's government continued pursuing its goal of reasserting energy sovereignty—a vision that did not inherently incorporate renewable energy targets or GHG mitigation aims. Against this backdrop, on February 1, 2021, AMLO submitted a reform bill for the Electricity Industry Act (LIE)[70]. This proposal aimed not only to formally embed the administration's energy priorities in law but also to remove legal barriers that had hindered the government's plan for the electricity sector (see Section 4). By directly amending the LIE, officials hoped to secure a stronger regulatory basis for reshaping the sector.

The reform package laid out sweeping modifications to the structure and operation of the electricity sector. It proposed

[69] DOS 2021.
[70] Sauri Riancho 2021.

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revisiting existing contracts with independent power producers (IPPs) in order to secure more favorable terms for the Federal Electricity Commission (CFE). Additionally, it sought to alter the dispatch order, prioritizing CFE's plants over private generators—a notable departure from the existing rules, which favor lower-emission, lower-cost sources (thus benefiting renewables). The initiative also intended to make electricity auctions optional, granting CFE broader autonomy in procurement decisions. Finally, it included changes to the Clean Energy Certificates (CELs) scheme by incorporating CFE's hydroelectric facilities—a move with repercussions for the CEL market[71].

From the administration's perspective, the LIE reform was essential to reinforcing CFE and thereby ensuring the country's energy security. Officials argued that the growing reliance on private and foreign producers—stemming from decades of privatization—jeopardized the stability of the grid, fostered corruption, and benefited only large private consumers. In contrast, as a state-owned enterprise, they claimed, CFE could better guarantee reliability of supply and provide more affordable electricity for the majority of Mexicans[72].

The legislative proposal drew immediate criticism, both domestically and abroad. The private sector warned of potential declines in investment and flagged the risk of rising long-term electricity costs that could impair economic competitiveness[73]. Meanwhile, environmental organizations, including Greenpeace and the Mexican Center for Environmental Law (Cemda) described the reform as a setback in climate action, anticipating that it would delay the transition to clean energy and ultimately increase GHG emissions[74]. On the international front, reactions were similarly critical. The European Union, via its ambassador to Mexico, expressed concern about

[71] Decreto por el que…" 2021.
[72] Presidencia de la República 2021a. Sener 2021.
[73] Cofece 2021.
[74] Cemda 2021.

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the reform's impact on European investments and on Mexico's commitment to the energy transition[75]. The Biden administration also struck a cautious note: while the U.S. State Department signaled willingness to collaborate with Mexico on energy and climate issues, it stressed the importance of maintaining an "open and competitive" energy market in accordance with the USMCA[76].

Despite these objections, the LIE reform sped through Congress. On February 23, 2021—barely three weeks after its introduction—the Chamber of Deputies approved the bill, and the Senate followed suit a week later, prompting internal and external backlash. Domestically, more than 30 legal injunctions were filed by affected companies[77]. In parallel, new legal actions arose under the USMCA, arguing that Mexico's reform violated key provisions of the trade deal[78]. These developments not only underscored the intensity of opposition but also deepened the electricity sector's legal uncertainties.

The lack of a coherent strategy to advance Mexico's clean energy goals became apparent at President Biden's virtual Leaders' Climate Summit in April 2021. That summit, bringing together 40 heads of state, aimed to reassert U.S. climate leadership, boost global mitigation efforts aligned with the Paris Agreement, and set the stage for COP26. Mexico's participation drew particular attention, not only as one of Latin America's largest economies but also as a key regional partner of the U.S.

During the summit, however, President López Obrador focused on three main themes he deemed Mexico's chief contributions. First, he announced that newly discovered oil and gas deposits would be reserved for domestic consumption, intending to end crude exports and gasoline imports—a step he argued would reduce excessive reliance on fossil fuels.

[75] Mignot y Salazar 2021. Santos Cid 2021.
[76] Embajada de los Estados Unidos en México 2021.
[77] Monroy 2021.
[78] Rodríguez 2021.

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Second, he highlighted the modernization of hydroelectric plants to reduce fuel oil and coal in the electricity mix. Third, he devoted much of his address to "Sembrando Vida" (Sowing Life), framing it as a significant reforestation program that also combats climate change. In an unexpected proposal, AMLO urged the U.S. to finance the initiative's expansion into Central America, arguing that it could create jobs and mitigate the root causes of regional migration[79].

What the president omitted was as telling as what he mentioned. Absent from his remarks were any specific mitigation pledges or policies to foster renewables—standing in sharp contrast to other leaders' announcements. The gap was especially evident when compared with the U.S. pledge to cut emissions 50–52% by 2030[80], or even Jair Bolsonaro's surprisingly ambitious pledge to end illegal deforestation in Brazil by 2030, despite previously dismantling much of his country's climate policy[81]. AMLO's remarks, emphasizing energy sovereignty, cast doubt on Mexico's genuine commitment to fulfilling its international mitigation obligations.

Tensions escalated further in the ensuing months. After an initial court ruling against aspects of the LIE reform, on September 30, 2021, AMLO introduced a wide-ranging constitutional reform bill[82]. More ambitious than the LIE reform, it proposed amending Articles 25, 27, and 28 of the Constitution[83], effectively overturning not only the 2013 energy reform but also many regulations adopted since the 1990s.

This new initiative sought to guarantee that CFE would generate at least 54% of Mexico's electricity, capping private production at 46%. It also envisioned revoking private generation permits, canceling power purchase agreements with independent producers, merging the National Energy Control Center (Cenace) into CFE, and dissolving autonomous

[79] López Obrador 2021a.
[80] The White House 2021.
[81] Newburger 2021.
[82] "Iniciativa del Ejecutivo federal…" 2021.
[83] López Obrador 2021b.

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regulatory bodies such as the Energy Regulatory Commission and the National Hydrocarbons Commission—folding their responsibilities into the Ministry of Energy (Sener). The proposal further mandated phasing out CELs and prioritizing CFE generation over privately produced—including renewable—power[84]. But unlike the LIE reform, these constitutional changes required a two-thirds majority in Congress, setting off months of legislative debate and public consultation involving civil society, experts, and the business sector.

Against this backdrop, the U.S. ramped up its diplomatic efforts on climate in Mexico. On October 18, 2021, John Kerry made his first official trip to the country, strategically timed a few weeks before COP26 in Glasgow. His itinerary included meetings with President López Obrador and senior officials, as well as a visit to Palenque, Chiapas, to learn more about *Sembrando Vida*[85]. Kerry emphasized the urgency of the climate crisis and the critical need for all countries—Mexico included—to adopt more ambitious emission-reduction targets leading into COP26. AMLO, stating that "President Biden has an ally in the defense of climate policy," highlighted the benefits of *Sembrando Vida* and justified his contested energy reforms as a way to modernize hydroelectric stations and advance clean energy goals[86]. Although no concrete commitments emerged, Kerry's visit underscored the high priority the U.S. placed on climate issues ahead of COP26.

At COP26, countries were expected to submit the second round of their Nationally Determined Contributions (NDCs), in line with the Paris Agreement's "progressivity" principle. Yet Mexico merely reiterated its 2020 NDC update (see Section 4). Environmental organizations and climate experts criticized Mexico and Brazil for in effect lowering their ambition relative to earlier pledges (see Table 2)[87]. Even so, the Glasgow

[84] "Iniciativa del Ejecutivo federal…" 2021.
[85] Embajada de los Estados Unidos en México 2022.
[86] Presidencia de la República 2021b.
[87] Tobin & Barritt 2021.

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Climate Pact did bring notable achievements, including the first explicit mention of phasing out fossil fuel subsidies. However, collective NDC commitments still fell short of global mitigation targets, prompting the U.S. to propose that countries reexamine their pledges before COP27.

Accordingly, the Biden administration heightened its diplomatic engagement with Mexico (see Table 1). During John Kerry's second visit on February 9, 2022, both countries agreed to establish the U.S.–Mexico Working Group on Climate and Clean Energy, aiming to align their climate and energy policies and strengthen Mexico's NDC[88]. Nonetheless, AMLO's administration remained intent on passing a constitutional reform in the electricity sector, prioritizing its vision of energy sovereignty.

TABLE 1
Visits by U.S. Officials to Mexico

Official	*Date*	*Location*	*Purpose*	*Details*
John Kerry (U.S. Presidential Envoy for Climate)	October 2021	Mexico City and Chiapas	Discussions on COP 26 and the Sembrando Vida Program	Kerry underscored the need for ambitious climate targets and emphasized the lethal consequences of climate change.
Jennifer Granholm (U.S. Secretary of Energy)	January 2022	Mexico City	Meetings on energy reform and sector competitiveness	Discussion on the negative impacts of Mexico's energy reform.
John Kerry	February 2022	Mexico City	Promote collaboration between the U.S. and Mexico on clean energy	Discussions on investments in clean energy, concerns regarding Mexico's energy reform, and strengthening the U.S.–Mexico relationship.

[88] Embajada de los Estados Unidos en México 2022.

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Official	*Date*	*Location*	*Purpose*	*Details*
John Kerry	March 2022	Mexico City	Discuss the energy transition and the future of clean energy	Meetings on accelerating renewable energies, economic integration, and compliance with the USMCA (T-MEC).
John Kerry	June 2022	Mexico City	Discuss gas flaring and the transition to clean energy	Talks on reducing gas flaring and speeding up Mexico's transition to clean energy.
John Kerry	October 2022	Sonora	Presentation of the Sonora Plan	Discussions on NDC goals, clean energy generation, and the promotion of zero-emission vehicles.
Jennifer Granholm	January 2023	Mexico City	Promote opportunities in renewable energy	Dialogues on the potential of renewable energy in Mexico.
John Kerry	March 2023	Oaxaca	Discuss opportunities to address the climate crisis	Discussions on solar and wind energy projects and next steps to reduce emissions.

Source: Prepared by the author, based on press releases from the U.S. Embassy in Mexico, the U.S. Department of State, and the Government of Mexico.

Recognizing that U.S. leadership on climate hinged on Mexico's cooperation, the State Department adopted a pragmatic approach, initially focusing on less controversial topics while "gradually increasing efforts in clean energy in areas not perceived as threatening the CFE and Pemex"[89]. Domestically, the standoff climaxed on April 17, 2022, when the constitutional amendment failed to secure the two-thirds majority in Mexico's Chamber of Deputies. AMLO quickly retaliated by proposing amendments to the Mining Law, declaring the exploration, exploitation, and utilization of lithium to be solely state activities. The bill also banned private concessions and

[89] DOS 2022.

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planned a state-run company to manage lithium[90]. Approved in both chambers in just three days, by April 20, 2022, it established government control over a critical mineral for clean technology supply chains—thus revealing the limit of how far AMLO could reshape the legal framework at that point.

Subsequently, on June 17, 2022, at the Major Economies Forum on Energy and Climate led by President Biden, López Obrador announced a set of 10 climate actions. These included modernizing 16 hydropower plants, building a photovoltaic park in Sonora, committing to generate 35% of the nation's electricity from clean energy by 2024, and reducing 98% of Pemex's methane emissions[91]. AMLO's participation addressed U.S. concerns by laying out tangible steps for Mexico to meet its mitigation obligations.

At COP27 in Sharm El-Sheikh, Mexico presented a more ambitious NDC (see Table 2) and introduced the Sonora Sustainable Energy Plan, centered on solar power, clean technologies, and electric vehicles[92]. Although these commitments still faced constraints—lacking a formal emissions peak date or net-zero goal—analysts considered them a significant improvement over Mexico's posture at COP26[93]. The change reflected not only consistent advocacy from environmental NGOs but also vigorous U.S. diplomacy.

Ultimately, despite AMLO's initial resistance to shifting his energy policy, the interplay of internal and external forces spurred revisions in both climate and energy transition stances. Intense American diplomacy, in conjunction with environmental criticism and investor pressure, proved central in this evolution. Though the government's adjustments did not drastically alter the core priorities of its sovereign energy agenda, they did represent a strategic repositioning of Mexico's climate policy. This newfound stance became evident in a more

[90] Decreto por el que se reforman… 2022.
[91] Presidencia de la República 2022.
[92] SRE 2022.
[93] Climate Action Tracker 2022.

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Table 2
Comparison of Mexico's NDCs

Component	*2015*	*2020*	*2022*
Baseline (BAU in 2030)	973	991	991
Unconditional GHG reduction (% by 2030)	22%	22%	35%
Unconditional GHG reduction ($MtCO_2e$ by 2030)	210	210	397
Conditional GHG reduction (% by 2030)	36%	36%	40%
Conditional GHG reduction ($MtCO_2e$ by 2030)	350	347	397
Emissions peak	2026	No	No
Net-zero emissions target	No	No	No

Source: Prepared by the author, based on Climate Action Tracker 2022.

ambitious NDC update[94] and in tangible transition measures such as the Sonora Plan, woven into the broader narrative of national development and energy sovereignty. Thus, López Obrador's administration found a way to sustain CFE's dominance while partially accommodating international expectations for climate action.

5.3 The Twilight of the Administration and Contradictions of Climate Action

Between 2023 and 2024, President Andrés Manuel López Obrador (AMLO) adjusted his climate policy, achieving concrete advances in the electricity sector transition. The development of the CFE's Puerto Peñasco photovoltaic plant and the launch of the Sonora Plan showcased both the technical and economic feasibility of clean energy and the potential to reconcile its expansion with energy sovereignty. In this section, I argue that these gains were offset by the urgent push to restore CFE's dominance in electricity generation before the end of the six-year term, aiming to secure this achievement as part

[94] Climate Action Tracker 2022.

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of AMLO's historic legacy. This short-term priority triggered a range of measures—such as acquiring combined cycle power plants and drafting a new constitutional reform proposal—that ultimately produced contradictory, and in some cases adverse, repercussions on emissions mitigation goals.

By early 2023, the Sonora Plan emerged as the linchpin of AMLO's mitigation strategy. With an estimated investment of USD 7 billion, the plan rested on two main pillars: (i) constructing a CFE-owned photovoltaic facility in Puerto Peñasco, split into two phases (the first inaugurated in 2023 at 120 MW, the second slated for 2024 adding 320 MW), and (ii) exploiting a lithium deposit in Bacadéhuachi, Sonora, through the newly created decentralized entity LitioMx[95]. The plan also encompassed initiatives to foster innovation and technological development, including science parks and specialized professional training in key engineering and knowledge fields essential for the clean-tech industry.

With the Sonora Plan, the government sought to reconcile seemingly competing objectives: (1) implementing tangible measures for the energy transition, (2) maintaining state control and CFE involvement in this emerging sector, and (3) leveraging the economic and political benefits of closer alignment with the Biden administration's climate agenda. For instance, the Puerto Peñasco photovoltaic plant contributed to clean power generation while bolstering CFE's role, and lithium extraction would enable the growth of clean-tech industries in North America, simultaneously ensuring the State's pivotal role in managing this critical resource.

The Sonora Plan's emphasis on electromobility and renewables merits special attention. It closely tracked U.S. trade and climate objectives aimed at speeding up the shift to these technologies while cutting reliance on Chinese industry[96]. Consequently, the Plan dovetailed with "nearshoring" strategies by attracting private capital to produce solar panels,

[95] Ramírez 2024.
[96] Martínez y Terrazas-Santamaria 2024.

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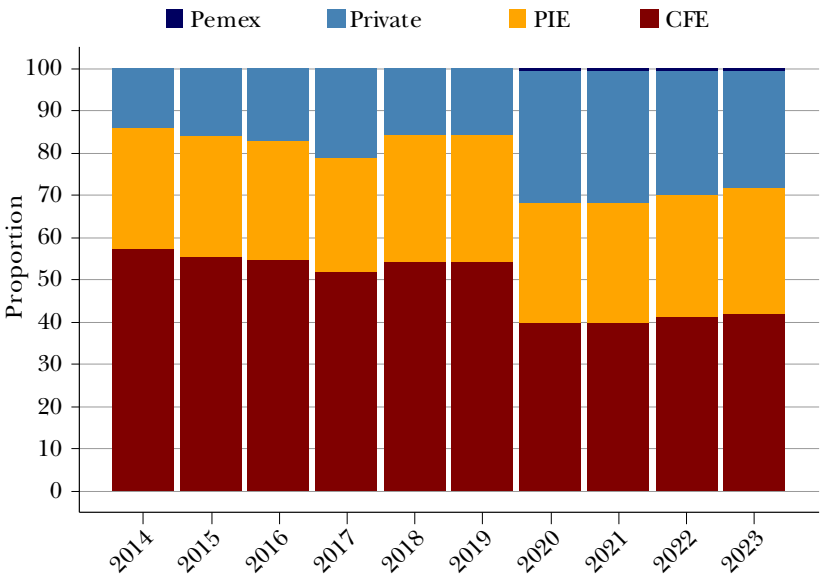
lithium batteries, and other vital components, positioning Sonora as a regional hub exporting to the U.S. market.

In parallel, AMLO's administration maintained its commitment to reestablishing CFE's primacy in electricity. On April 4, 2023, officials announced the purchase of 12 combined cycle plants and a wind farm from Iberdrola in Mexico, adding 8,539 MW of generation capacity. Valued at approximately USD 6.2 billion, this deal was forecast to raise CFE's share in the national electricity matrix from 39% to 55% (see Figure 4)[97]. However, it also highlighted contradictions in the government's notion of energy sovereignty.

FIGURE 4
Proportion of Energy Generation by Type of Owner



Source: Prepared by the author, based on Sener 2015.Sener 2016. Sener 2017. Sener 2018b. Sener 2019. Sener 2022. Sener 2023. Sener 2024.

[97] SHCP 2023.

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Analysts and environmentalists cautioned that although the acquisition boosted CFE's share, it did not expand overall installed capacity. Moreover, while the transaction ostensibly served energy security and sovereignty, critics noted a paradox: the newly acquired combined cycle plants still relied on imported natural gas from the United States[98]. Skeptics argued that given a constrained public budget, these funds might have been more effectively allocated to building new CFE renewable facilities, thereby mitigating the drop in private investment in clean technologies during AMLO's term (see Figure 5). Such an alternative could have helped meet growing electricity demand, harness abundant domestic renewable resources, and more directly bolster sovereignty and modernization of CFE.

Against this backdrop, Mexico's participation at COP28—held November 30 to December 12, 2023, in Dubai, United Arab Emirates—reinforced the country's emerging climate agenda. On one hand, Mexico joined a historic consensus calling for a "transition away" from fossil fuels for the first time in COP history and backed an agreement to triple global renewable capacity by 2030, implying a significant scale-up of these technologies in the coming decade[99]. Simultaneously, the Mexican delegation showcased progress under the Sonora Plan, highlighting its substantial potential for solar energy and lithium exploitation, as well as favorable international conditions for positioning Mexico as a strategic hub of clean-tech industries. As a result, the Sonora Plan garnered notable interest from climate finance sources and international investors[100].

Only weeks after COP28, legal uncertainty reemerged as a barrier to the private investment necessary to consolidate the Sonora Plan. On January 31, 2024, Mexico's Supreme Court of Justice (SCJN) declared the 2021 LIE unconstitutional, ruling that its dispatch priority unjustly favored CFE

98 Gómez Ayala y Vela Dib 2023.
99 Monsalve 2023. SRE 2023.
100 Dilge 2023.

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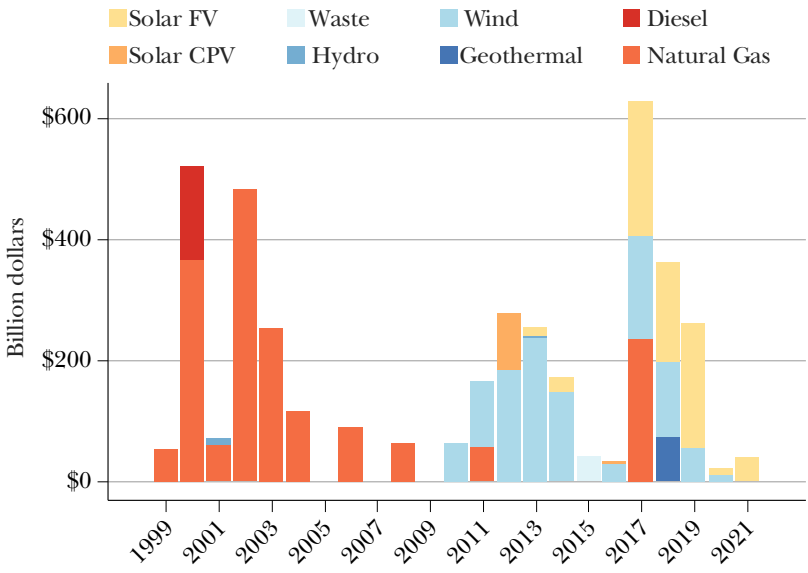
FIGURE 5
Electricity Generation Investment in Mexico



Source: Prepared by the author, based on World Bank n.d.
Note: Values constant to 2018; projects with at least 20% private participation.

and contravened constitutional principles of fair competition and free markets[101]. This decision not only overturned the LIE reform underpinning CFE's strengthened role but also cast doubt on AMLO's energy policy legacy beyond his presidency.

In the wake of this judicial blow, on February 5, 2024, President López Obrador introduced a package of 20 constitutional reforms, tying them to the electoral campaigns that would shape his succession[102]. Approving these reforms required the governing coalition to secure a two-thirds majority in both legislative chambers during the June 2, 2024, elections—effectively

[101] SCJN 2024.
[102] Segob 2024.

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making them a campaign platform. Among the proposals, the most prominent concerned strategic state industries, seeking to amend Articles 25, 27, and 28 of the Constitution. More sweeping than the 2021 electricity constitutional proposal, this new initiative called for eliminating the concept of "state productive enterprise" and restoring CFE as a purely public company tasked with guaranteeing energy security and self-sufficiency. It also aimed to enshrine state control over the national electricity system and ensure the primacy of the public utility over private players[103]. Despite its far-reaching scope, however, the plan did not outline how the government would create incentives and conditions for an effective shift to renewable energy. Once again, the unresolved tension between Mexico's urgent climate challenges and AMLO's energy policy—a core contradiction—underlined the legacy that would define the final phase of his term.

6. Conclusion

The López Obrador administration's energy policy was guided by the principle of recovering energy sovereignty, primarily understood as reinforcing the predominance of the Federal Electricity Commission (CFE) over private actors and reestablishing state control of the national electricity system. This stance diverged sharply from the policies of preceding governments, which had promoted the expansion of renewables through private investment and market-based mechanisms. It is unsurprising, therefore, that measures such as auction cancellations faced opposition from affected companies and environmental organizations, sparking litigation that disrupted their implementation.

Over the six-year term, three major phases emerged. First, a shift in direction (2018–2020) characterized by a sovereigntist turn and a vacuum in climate policy; second, a period

[103] Segob 2024.

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of escalating tensions (2021–2022), in which legal reforms prompted stronger domestic and diplomatic opposition; and finally, the administration's last stretch (2023–2024), marked by partial reconciliation efforts—exemplified by the Sonora Plan—that did not fully resolve the deeper contradictions. This trajectory unveiled a negative feedback loop: each new official measure heightened resistance, culminating in domestic uncertainty and international scrutiny. Despite certain adjustments near the end of 2022 to address mitigation commitments, the government's vision of energy sovereignty continued to favor fossil fuels and slow the expansion of renewables, resulting in a resurgence of national GHG emissions.

The Mexican case also underscores the substantial impact of external factors, notably the political dynamics of the United States under the Trump and Biden presidencies. Developments such as the renegotiation of the USMCA and U.S. climate diplomacy shaped President López Obrador's energy agenda, initially providing leeway yet ultimately pressuring Mexico to make partial policy modifications. These narrative challenges prevailing assumptions about a straightforward link between left-wing governments and more ambitious climate policies. AMLO's experience suggests that beyond ideology, the historical trajectory of the energy sector and the symbolic and political value of the fossil fuel industry are decisive. More broadly, this study reveals the need to rethink—and possibly redefine—energy sovereignty in light of the global climate crisis. Accordingly, a new paradigm must place clean energy at the center of energy security, supported by effective state stewardship that fosters innovation, social inclusion, and emission reductions.

Looking ahead, the incoming administration of Claudia Sheinbaum will inherit the complexities left by López Obrador and face the urgent task of accelerating Mexico's energy transition. The backdrop is even more critical given Donald Trump's second term, characterized by policies running counter to climate action and intensifying trade tensions—both of which will shape the bilateral agenda and constrain the new

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government's fiscal latitude. In this context, the challenges are formidable: modernizing and decarbonizing CFE's plants, implementing constitutional reforms in the energy sector, resolving outstanding litigation, and reestablishing Mexico's role in international climate collaboration. Achieving these objectives will require strengthening CFE's technical, financial, and organizational capacities; devising innovative public—private partnership models; maintaining constructive dialogue with organizations, communities, and investors; and enhancing long-term strategic planning tools. Only through determined commitment and a forward-thinking vision can Mexico effectively meet the demands of climate change mitigation and confront the unavoidable obstacles to energy stability and security in an increasingly uncertain economic and geopolitical landscape.

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