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Mexico: Energy Transition in an Uncertain Legal and Institutional Setting

Abstract: Mexico's legal framework for the energy transition faces major challenges to promote investment while protecting the environment and human rights, in the middle of contestation over the formal roles of state control and private markets. The conflict between multiple public objectives, within an uncertain institutional setting, has hindered the development of an appropriate legal system to decarbonize the economy, manage physical risks of climate change, and direct the country toward the goals of the Sustainable Development Agenda 2030. Within this context, the chapter reviews the implication of the oil and gas industry deeply entrenched in the neoliberal economies of North America. It describes the specific Mexican legislation on climate change and energy transition and its institutions, and how it is still failing to provide adequate policy tools or governance systems to guide public spending and industrial regulation for decarbonization. We critically consider the constraints and opportunities imposed by a model of state-owned companies' dominance, on the one hand, and by the model of liberalization and state de-risking of private investment on the other. Finally, we discuss how principles on human rights and sustainable development could serve as leverage to guide the energy transition.

1 Introduction

Mexico is one of the countries most vulnerable to climate change due to its geographical location, topography, and socioeconomic characteristics (Lachinet et al., 2012; Murray-Tortarolo, 2021). Climate variability has been increasing drought and water scarcity, storms, intense rainfall, and flooding across the country (Mora et al., 2018). If this situation prevails, it could affect the realization of the human rights to access to water, food security, and a healthy environment, among others.

Even though Mexico has enormous potential for renewable energy generation, the legal and institutional framework associated with energy transition does not focus on it. On the contrary, it presents a series of inconsistencies and contradictions

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that distance the country from fulfilling its obligations in terms of reducing greenhouse gases and guaranteeing human rights.

Energy transition requires experimentation and deployment of novel legal, regulatory and policy solutions, which can only be constructively pursued within an appropriate legal framework (Sabel and Victor, 2017). Therefore, it is necessary to have a clear energy policy that is aligned with climate goals and focused on the just and equitable energy transition. Mexico's legal pathway does not yet reflect the needs and requirements of energy transition and deep decarbonization, and has merely focused on reducing emission intensity of the energy system, despite having a robust climate change law (Valenzuela and Buira, 2021). This has created an uncertain environment which hinders the development of policy and regulatory experimentation required to find the appropriate conditions to decarbonize the energy system.

The country is still immersed in a long-standing political division over the form of economic governance of the energy sector: whether the state's role is to enable private investment or to directly manage the industry through state-owned enterprises (SOEs). Climate ambition has been secondary to both projects' focus on economic development. But the lack of progress towards more climate ambition in the energy sector can be seen from a regional perspective: Mexico has progressively veered towards integration with North America, a region that lacks climate ambition and with conflicting political paradigms on energy security (see Rodríguez Padilla, 2018; Coleman, in this volume). On the one hand, the liberalization paradigm focused on integration into international markets to secure timely and cost-effective supply notwithstanding the level of energy imports. On the other hand, the energy sovereignty paradigm emphasizes a high reliance on domestic production of fuels – including those required for electricity generation – with significant skepticism of the reliability of international markets in difficult times.

Mexican institutions are still in need of a minimal legal consensus about the priority of energy transition, beyond the private vs state debate. If this does not happen autonomously it might be driven through changes in North American markets, which might not result in addressing the particularities of Mexican legal traditions and domestic institutional capacities. We stress a key challenge: securing a just energy transition given the local development conditions and legal framework for the use of natural resources.

2 International and domestic climate legal mandates

Mexico has a broad and innovative climate legislation, which derives from the constitutional mandate –in Article 25, stating that national development must be comprehensive and sustainable. Based on this precept, the General Climate Change Law (Ley

General de Cambio Climático – LGCC) embodies the regulation of climate change in the Mexican legal system. It establishes the concurrent competencies relating to mitigation and adaptation in the three levels of government; provides for the creation of the Inter-ministerial Commission comprised of fourteen Ministries at the federal level: Interior, Foreign Affairs, Navy, Treasury and Public Credit, Welfare, Economy, Agriculture, and Rural Development, Communications and Transportation, Education, Health, Tourism, Agrarian, Territorial and Urban Development, Energy, and Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales – SEMARNAT), the latter holds the presidency. This Inter-ministerial Commission for Climate Change oversees the coordination of actions between the ministries and entities of the Federal Public Administration in matters of climate change.

However, to date, true coordination of inter-institutional action has not been achieved. What really happens is that each Ministry develops some effort related to climate actions, but these are not discussed and agreed upon among them, so the results may even be contradictory (Pacheco-Vega, 2021; Von Lüpke and Well, 2020). As an example, the Ministry of Welfare promotes the “Sowing Life Program,” which implies the planting of introduced species and, therefore, affects ecosystems and their functions; while the Ministry of the Environment implements the Payment for environmental services, aimed at maintaining forest areas.

Similarly, despite the bases for a low-carbon economy being legally and institutionally established, each Ministry has its own objectives. For example, the one for Agriculture promotes the expansion of the agricultural frontier, and the one for Energy (Secretaría de Energía – SENER) the production and utilization of fossil energy, which makes it difficult to integrate a true energy policy aimed at energy transition (Anglés-Hernández and Otero-Rovaló, 2019). In addition to the institutional complexity, the LGCC mandates the adoption of several planning instruments, including the National Climate Change Strategy (Estrategia Nacional de Cambio Climático), developed by the National Institute of Ecology and Climate Change (Instituto Nacional de Ecología y Cambio Climático – INECC), with a long-term vision. It identifies critical cross-cutting issues for long-term climate policy; including market-based approaches to pricing carbon, increased innovation, research and development of new technologies, and the need to move from fossil energies to renewable (not clean: see below) energies.

It is also important that there are other laws that regulate the energy sector with a clear impact on climatic aspects. So, in accordance with the Energy Transition Law (Ley de Transición Energética – LTE), Mexico recognizes the need to take actions to diversify the energy matrix and improve energy efficiency that contributes to the achievement of national climate goals, namely the achievement of 35% participation of clean energies in the electricity generation matrix by 2024. This law defines renewable energies as those whose source resides in natural phenomena, processes, or materials that can be transformed into usable energy by human beings, that regenerate naturally and are continuously or periodically available, and that when generated do

not release polluting emissions. And as clean energies those energy sources and electricity generation processes whose emissions or residues, if any, do not exceed the efficiency criteria issued by the the Energy Regulatory Commission (CRE) and emissions criteria established by the SEMARNAT. Therefore, they are not necessarily clean energies, since their categorization depends on a range allowed by law.

Additionally, the LTE ordered the publication of a Transition Strategy to Promote the Use of Cleaner Technologies and Fuels. Following the first published version in December 2014 and revised in 2016, clean energy generation goals of 37.7% by 2030 and 50% by 2050 were proposed (SENER 2016). As a tool to reduce GHGs, the Electrical Industry Law of 2014 (*Ley de la Industria Eléctrica – LIE*) created Clean Energy Certificates (CELs). Each CEL accredits the production of one megawatt-hour (MWh) from clean energy and serves to comply with the obligations established by the SEN-ER associated with consumption in charging stations.

In the international context, Mexico affirmed its commitment to fighting climate change, consequently, it signed and ratified the United Nations Framework Convention on Climate Change (UNFCCC) and its derived instruments, at the time the Kyoto Protocol and, subsequently, the Paris Agreement. In this context, Mexico formulated its NDC, which states an intention to reduce unconditionally its emissions of GHG by 22% by 2030, or up to 36% conditional to the implementation of international technology transfers and carbon pricing, among other factors.

Despite the legal advances in Mexico, key challenges to climate action still need to be addressed in order to limit the country's emissions. Nowadays, the NDC conditional and non-conditional goals are not consistent with the 1.5°C temperature limit, and do not necessarily put the country on a path to achieving the country's mid-century target, which is only aligned to the 2°C temperature limit as argued by the official Long Term-Low Emission Development Strategy (LT-LEDS) presented to the UNFCCC. Moreover, the country has not developed the policy instruments required to set the emission reductions needed by 2050 and the subsequent sectoral decarbonization plans.

Instead, Mexico is invested in a development path reliant on natural gas considered as a cleaner fuel. This path leads the country away from the long-term GHG reduction goals and discourages private investments in renewable energy – which have already fallen sharply in 2019–2020 (Demôro et al., 2021). This situation has become more complex since the election of the incumbent government (2018–2024), with a vision of nationalist development that leverages fossil fuels as instruments of energy sovereignty. Therefore, the energy sector, which has been formally and legally liberalized, is materially monopolized and locked into the fossil fuel economy, not unlike its North American partners.

3 The institutions of a fossil fuel economy in North America

Mexico is known as a major oil producer and exporter in the international economy. But for almost a decade already, the country has been a net energy importer due to a decreasing oil and gas production platform and a secular growth in fossil fuel demand across the economy. For instance, in the middle of the oil price crash at the beginning of the COVID-19 pandemic, the Mexican government made headlines as it held up an agreement between OPEC and other major oil producers to cut global production (Reuters, 2020).

In the 2010s, several large economies in Europe initiated a severe turn towards deep decarbonization in the energy sector. At the same time, Mexico engaged in major legal reforms to reinvigorate the fossil fuel industry in line with North American energy economics and politics (IEA, 2017; Wood, 2018; Hernández Ochoa, 2018). The constitutional reform in 2013 and ensuing implementation legislation served to harmonize the domestic legal framework with the dominant North American business model of private investment to develop conventional and unconventional hydrocarbons (shale/gas oil) that require fracking and emit significant amounts of methane into the atmosphere. Methane has an atmospheric life of approximately 12 years, and a global warming potential 25 times greater than that of carbon dioxide (Howarth et al., 2011), and remains an unsolved problem in the region.

These reforms were the culmination of a two-decades long attempt to liberalize the energy sector (Valenzuela and Studer, 2017), and represented a drastic change to the existing oil & gas sector, since they allowed the participation of private actors in the exploration and production of oil and natural gas, as well as in the refining of oil and the basic petrochemical sector –previously reserved for SOEs. The electric sector was liberalized by enabling market entry and a wholesale pool market. This encouraged the modernization of supply infrastructure, mainly from fossil fuels, and to a lesser degree in new renewable energy facilitated by state-backed long-term contracts. With the constitutional reform of 2013, Mexican Petroleum (Petróleos Mexicanos – Pemex) and the Federal Electricity Company (CFE), both SOEs, became productive state companies, to be managed according to market principles.

Pemex has been identified as one of the top corporations by historical aggregate emissions globally (Ekwurzel et al., 2017), which speaks to the relative size of the footprint of the national hydrocarbon sector in global climate change. However, in light of the still-rising global demand and the historical rise of unconventional hydrocarbon production in the US, Mexico's 2013 reforms did not seek to contain the climate footprint of the oil industry but instead to reverse the production decline through new private investment. Government reports on the achievements between 2012–2019 refer to commitments of 8,600 million USD on clean energy, more than 12,000 million only on new gas pipelines, and more than 160,000 million USD in hydrocar-

bons production. In addition to domestic production, natural gas import capacity from the US increased by 220% (Gobierno de México, 2018).

In the electricity sector, liberalization meant going beyond the inclusion of Independent Power Producers to sell to a single buyer and limited private bilateral contracts markets. The reforms made wholesale market competition the backbone of the industry – at the expense of the market share of the state-owned company CFE (Hernández Ochoa, 2018; Ibarra-Yunez, 2015). However, equally influential to the transformation of the electricity industry was the government’s decision to lock the electricity system into natural gas-based power generation, making CFE a fossil fuel trading company, planning for natural gas to account for two-thirds of generation, and in the long-term, capping the share of clean energy at 50 percent by 2050. But this electricity target is hardly close to what the scientific literature considers appropriate for Mexico to achieve long-term climate ambition – the electricity sector already has technological alternatives, and it is fundamental to decarbonize other sectors (Buira and Tovilla, 2015; Buira et al., 2021; Veysey et al., 2016; Elizondo et al., 2017).

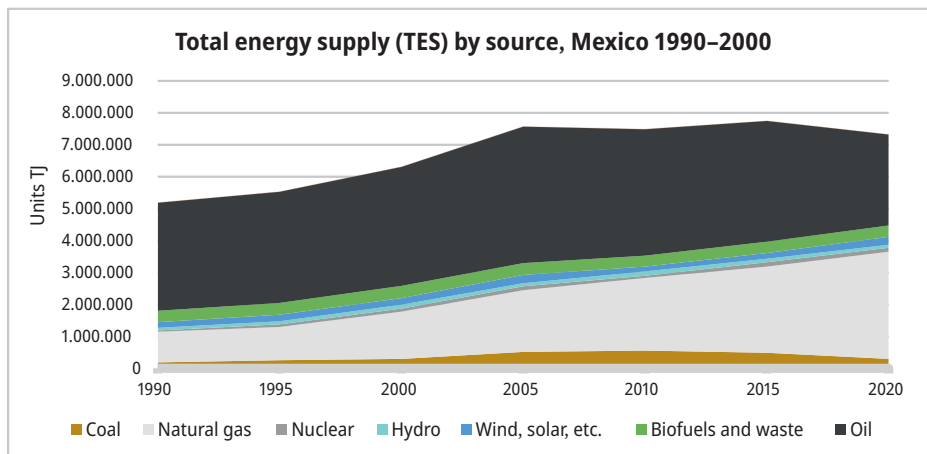


Figure 3: Energy supply in Mexico. Source: IEA, 2021.

Mexico’s turn to natural gas is based on two historical conditions. The first condition is the technological progress on natural gas combined cycle power plants (NGCC) with high efficiency and consumption. They are intended to substitute heavy fuel oil and meet growing demand in the country, just as natural gas substituting for coal is considered a climate policy success in the United States. But more generally, the energy sector policy in the North American region has simply not reflected the requirements of decarbonization in the three countries.

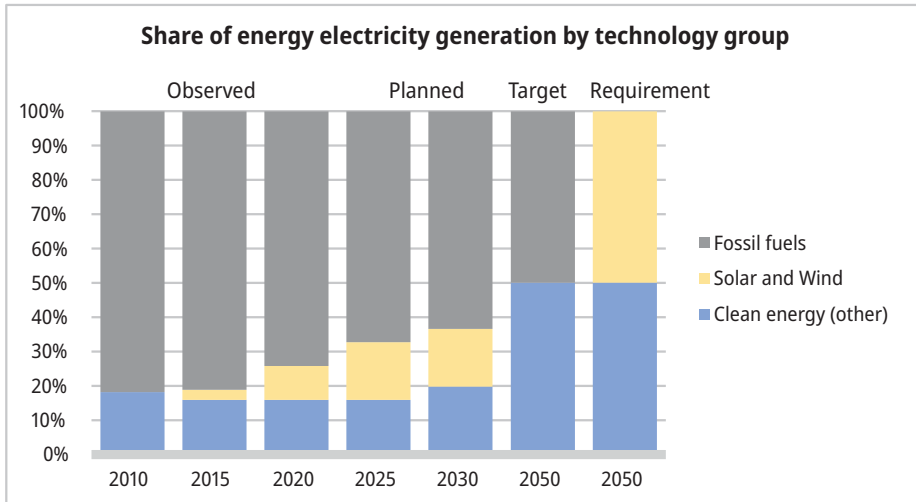


Figure 4: Indicative planning and the requirements of decarbonization. Source: Buira and Tovilla, 2015; SENER, 2018.

Climate policy shows a certain parallelism of integration. Mexico is unique in the region for having a national climate change law that does not yet exist in the United States or Canada. But there has been synchrony in other aspects, primarily on the policy reforms to enable the growth in the use of natural gas through electricity market reforms (Carreón-Rodríguez et al., 2006; Victor and Heller, 2006). The second condition was the shale gas boom in the United States, which led to an abundance of supply and a rapid and consistent drop in the price of natural gas to the lowest level among major economic regions. Government and economic stakeholders are expected to grasp benefits from abundant low-price natural gas and develop a domestic natural gas industry that could resemble that of the US. As events later showed, these expectations were incompatible, as the favorable economics of importing gas created inappropriate conditions to produce domestically. Ultimately, the state-owned electricity company, CFE, deployed the largest-ever expansion of natural gas import capacity infrastructure, which resulted in the electricity industry relying up to 90 percent on imported natural gas – essentially through pipelines from the United States.

Mexico's energy industry has converged towards a North American fossil fuel economy, both materially based on integrating infrastructure and markets, and institutionally in modes of governance and policy priorities. The governing coalition from 2018 has stopped the process of liberalization and turned towards protecting the current market share and role of state-owned companies. Similarly, there are intentions to make only minor changes to the structural integration of the fossil fuel economy in North America. In the 2020s, this integration is best described by Pemex's decision to purchase Shells' participation in the jointly owned Deer Park refinery in the state of Texas (Martinez, 2022).

Ultimately, domestic policy has not yet challenged the incumbent businesses in the fossil fuel industry. Instead, it has remained focused on developing the hydrocarbon industry, which, up until 2019, was based on the progressive expansion of private investment. The following sections will further discuss the nature of the two conflicting legal pathways and their implications for energy transition.

4 The liberalization path: de-risking private investment

A key pillar for the development of the energy sector, as embraced by reformists since the late 1990s and up to 2019, has been to allow and de-risk private investment in the energy sector. In contrast to common notions of liberalized markets as a setting for private risk-taking, developing countries' energy sector liberalization is much more characterized by the evolution of means to de-risk investment. This can happen by allowing for a high concentration of markets (as in Chile since the 1980s); through the development of Independent Power Producers contracts guaranteed by government agencies (IPPs with a single buyer); or through price regulation that allows investors to have certainty at power plant level (as in the Chinese fair price regulation).

De-risking mechanisms can target both fossil fuels and renewable energy industries. Promoters of de-risking argue these legal, regulatory, or contractual measures are central to achieving the best market conditions in developing countries. De-risking policies are based on the notion that there is an optimal distribution of risk allocation between private investors and governments (Gabor, 2021; Dafermos et al., 2021). As the government pushes forward the frontier to allow for increased private sector participation in infrastructure businesses, they can choose multiple mechanisms to distribute the risk from investors participating in the industry. The Mexican governing coalition deployed two mechanisms to de-risk private investment that are consequential to the energy transition.

The first and most straightforward is the issuance of long-term contracts for supply. This became particularly relevant in the electricity industry, where natural gas supply contracts and electricity supply contracts have a length of over 25 years for gas or 20 years for renewable energy contracts. CFE has anchored the expansion of natural gas transport infrastructure through long-term supply contracts and most of the wind and solar energy investment through the auction system. Government choices have led the company to simultaneously bet on both the expansion of natural gas power generation and renewable energy power generation.

In addition to this, between 2015 and 2018, the SENER and the National Energy Control Center (CENACE) held three long-term auctions in which CFE and other suppliers purchased CELs, energy and power – at the most competitive prices worldwide – to fulfill their obligations. As a result, over the next three years, 70 new power

plants would be built in 19 states, adding 7,600 MW to Mexico's current generation capacity (García, 2016). The CELs were oriented to new projects, those installed from 2014 onwards, and to the generation of clean electricity.

However, in 2019, in direct opposition to the de-risking mode of governance, the government changed the rules of the game to benefit the CFE, by determining that power plants installed before 2014 could also acquire CELs. This fact makes evident the lack of legal certainty for investors, national and foreign, and puts at risk the development of renewable and clean energies in the country. The federal executive then proceeded with the project for a major overhaul of the legal regime. In 2021 the federal executive power sent to the Chamber of Deputies a preferential initiative with various reforms to the LIE, to eliminate the Wholesale Electricity Market as it currently stands, an act that could jeopardize the achievement of the commitments assumed by Mexico (on environment, climate or investment), the constitutional reform of 2013 and various human rights, the exercise of which depends on the quality of the environment.

Given these actions by the Mexican State, investors have resorted to the judiciary in defense of their rights. Until now, the court rulings have been in favor of maintaining current regulations, so legal reforms have not materialized. However, the climate of uncertainty and insecurity remains, which does not favor investment in the energy sector and causes harm to climate and human rights objectives. Although the revised North America trade agreement (USMCA in the US or TMEC in Mexico), which entered into force in 2020, allows constitutional modifications, this does not exclude the national treatment obligations that Mexico must give to the companies of its commercial partners and the rules of indirect expropriation, typical of investment treaties.

The second mechanism for de-risking is containing and dismantling dominant market players in ways that constrain their capabilities to outcompete new entrants into the industry. In private markets, this happens through anti-trust and unbundling policies, but in the case of state-owned companies that remain under the direct control of the government, this can take the form of policy. In the case of Mexico, the constitutional reform of 2013 focused on the figure of Coordinating Regulatory Bodies in Energy Matters to regulate energy markets, through the intervention of the CRE and the National Hydrocarbons Commission (CNH), with a view to developing a competitive market based on eminently technical and non-discriminatory criteria. So, the energy SOEs have been partially unbundled, and legal mandates have been devised to limit the capability of SOEs to participate in the markets autonomously. For instance, CFE public electricity supply company can only purchase energy through auctions conducted by the system operator.

De-risking private investment has implications in defining the types of support policies for clean energy promotion, as much as defining which types of decarbonization policies are avoided. Carbon pricing has been part of the policy choices for energy transition in the sector, however it has been too small and narrow to have a systematic impact on the decarbonization of the energy industry (Stevens, 2021; Dibley

and Garcia-Miron, 2020). The government has decided not to introduce new “distortions” into markets. Within OECD countries that have officially adopted some form of carbon pricing, such as an emissions cap and trading system (ETS) or a carbon tax, Mexico has adopted the least stringent one, with the lower carbon tax amongst the OECD members. The surcharge covers vehicle fossil fuels and heavy fuel oil, but not natural gas – the second-largest fossil fuel by consumption share and primary energy source for the manufacturing and electricity industries. This has resulted from leaning towards the preferences of incumbent business interests. This logic of investors’ support is critical to understanding the first wave of solar and wind expansion between 2009–2013, built on regulatory exceptions that allowed renewable energy associations that resembled bilateral contracts with discounted wheeling fees.

5 The state path: centralizing industrial development

Mexico’s waves of liberalization reforms since 1992 have been described as a one-direction process. The turn to the left-wing coalition in 2018 and the calls for increased state intervention in the economy should not be seen as an unexpected turn, since the contestation against liberalization reforms was patent in domestic politics but had not yet gained an electoral majority. But in the 2020s, internationally a growing number of voices embrace the call for a larger state role in the economy to achieve climate goals, for example, in the European New Deal or the US Green New Deal. It is now possible to clearly identify state-capitalism as a form of organizing production through direct state ownership of strategic corporations that can articulate economic activities within and outside borders (Alami et al., 2021).

The 2018–2024 federal government follows a logic of developmental effectiveness as it attempts to revitalize SOEs as the backbone of the energy industry. The preference for industrial coordination through state-owned companies has a long political and institutional history in Mexico. The oil industry was nationalized in 1938, and the electricity industry was progressively brought into state-ownership with a critical inflection point at the 1960 nationalization law. In Mexico, promoters of state-centered energy development consider SOEs as the main tool to limit private (mainly foreign) business power and redirect investment into underdeveloped regions or industrial activities that might have been withering in the last decades. However, industrial development policies have focused chiefly on existing technological platforms, such as the expansion of refining capacity, new fossil fuel power plants, and the renovation of hydropower capacity. These state investment preferences appear inconsistent with domestic and international climate pledges.

The purported advantage of state-owned corporations is their capacity to rapidly change priorities in response to political and societal considerations. However, there

is only a limited turn to other renewable energies by the state-owned company, for instance, in developing a 1 GW solar energy project in the Northeast of the country. Instead, the most relevant progress on energy transition has happened on less visible forms of state-ownership, in the transport sector. These examples include expanding electric public transportation systems, from inter-city railways to new cable cars, and the expansion of electricity-based BRT and trams in the capital, most of which happens through existing or new local government owned transport corporations in Mexico City. These developments have not yet reflected a significant legal change but rather major policy revisions by national or local authorities, very slow changes that started in local government over a decade ago (Valenzuela, 2014).

State-managed economic development can address problems that are common to markets, particularly price volatility, and societal externalities and impacts. Having an electricity SOE has been central to the willingness of the state to maintain subsidized electricity rates for final consumers. This has allowed the country to have relatively low electricity prices compared to other OECD countries, with significant public resources that might have a positive development and distributional consequences, even if this represents a burden to public finances. The turbulence of natural gas markets that has affected North America (Texas in particular) and Europe in 2021 and 2022 are important examples of the Mexican state institutions managing what otherwise could have been important disruptions to the supply of energy to final consumers.

In the oil industry, the logic of state-dominated development resulted in important contestation to existing legal mandates. In 2018, the government stopped the leasing programs to limit the expansion of exploration and production by private players. The tension created by the halt of leasing might result in a historical opportunity to consider the progressive and managed decline of fossil fuel production. Actions like the electricity SOE investment in one of the largest solar power plants on the continent, and the decision to halt new leases on hydrocarbons are not articulated within an explicit policy of deep decarbonization but could potentially contribute to that purpose.

6 Mexico's challenges: just transition, local appropriateness and inclusive industrial policy

The “just transition” is a tool for balancing decarbonization with human right protection, accelerating climate action in a governance framework that considers all the actors involved. In turn, the decarbonization of the industry offers an opportunity to redirect economic activities towards sustainability, by reducing environmental damages, enabling local development, and creating industrial jobs.

Only through a just transition approach to decarbonization will these benefits be equitably shared and accessible. The energy matrix should stop using coal and heavy fuel oil for power generation, which cause serious negative environmental, climatic, and health impacts. The current policy sees natural gas in open and combined cycles as serving this purpose. But we claim that faster expansion of renewable energy is desirable, given the existing overcapacity of natural gas power plants able to complement these variable generation technologies.

Decentralization is the other route to respond to the energy needs of the population, making the most of local resources through community/traditional knowledge and ability to use energy systems by and for the population. This option is oriented towards self-production and the sharing of resources, energy efficiency, and consumption reduction.

Finally, in contrast with other, larger industrialized economies, is the lack of domestic industrial manufacturing policies. In the UK, the auctions served to kick-start a domestic offshore wind manufacturing industry, while Brazil achieved it through obligations imposed as part of loans from development banks (Kern et al., 2014; Hochstetler, 2020). The more local high skilled jobs, the more inclusive the transition. The location of production capacity immediately creates further support for the expansion of renewable energy given the growth of skilled employment dedicated to supply the emerging industries (Nahm, 2017). The absence of any such policies in Mexico is noteworthy, given the deployment of centrally coordinated mechanisms like auctions, but also the significant role of development banks in providing funding to winners of long-term auctions.

The implementation of climate policy in Mexico must reflect the ambition of long-term mitigation goals, including actions and objectives for the short-term and long-term, with differentiated roadmaps among GHG sources and sectors. The energy matrix must be expanded to take advantage of all the resource opportunities that the country has, with a view to reaching local and rural areas, where the requirements are diverse.

Although the legal and institutional framework exists to carry out the energy transition in the country, the López Obrador government has placed emphasis on rescuing the oil & gas sector and strengthening the productive state companies (PEMEX and CFE); a decision that, in addition to generating legal uncertainty for investors, makes it clear that decarbonizing the economy and advancing in the just energy transition is not a national priority of the current government (Anglés-Hernández, 2020). The previous government (2013–2018) devised new mechanisms to de-risk private investment in renewable energy, but at the same time locked fossil fuels further into the energy system through a legal framework to expand oil production and transform the state-owned utility into the largest gas trader in Mexico, with long-term liabilities to import gas from the United States (Valenzuela and Buira, 2021).

The government over-committed the country to natural gas imports for the electricity sector due to concern over reliability of the supply of natural gas after critical shortages in 2010–2013. And in 2018, the government paradigm changed to focus on energy sovereignty as equivalent to reducing the exposure to potential influence from foreign private actors and governments in control of assets and supply for fuels. The very recent turn to strengthen state-ownership, curtail the expansion of private investment in oil and gas, and revise the marginalist market model all have domestic political origin. However, they have parallelisms to concerns that have become internationally patent after the Russian invasion of Ukraine. The invasion takes place in the context of a European continent that is highly dependent on Russian fossil fuel supply. But it also takes place after decades of marginalist market reforms in Europe and with national energy markets severely hit by the increase in the price of natural gas – already at historic highs before the invasion.

Certainly, the European experience provides evidence of the significance of understanding energy security beyond a mere timely access to international energy markets in normal times – which is a stance in the 2018–2024 administration to revise liberalization reforms. But the strong calls to expand energy efficiency and the supply of renewable energy to reduce dependence of fossil fuel from Russia, shed light onto the untapped potential for Mexico to search for energy sovereignty in clean energy.

Table 4 : Timeline.

	Pre-liberaliza- tion (1992–)	First liberalization (1992–2007)	Energy transi- tion appears in the agenda (2008–2012)	Second liberalization (2013–2018)	Contestation to liberalization (2019–2022)
Electricity	1960: Nationalization of the electricity industry	1992: Law on the Public Service of Electricity 2004: Regulation on preferential access and wheeling subsidies for renewable energy	2009: Law for the Use Renewable Energy and Financing the Energy Transition	2013: Constitutional reform for wholesale market 2014: Implementing legislation for wholesale market	2018: Suspension of long-term auctions 2020: Electricity legislation reforms (partially struck down by the judiciary) 2021: New proposal for Constitutional Reform
Hydrocarbons	1938: Expropriation of oil industry	1992: Pemex Law and partial opening of the sector	2008: Creation of Sustainable Energy Science and Technology Fund from hydrocarbon rent	2013: Constitutional reform for opening to competition all markets	2019: Suspension of all new oil and gas leases
Energy transition	1988: General Law on Ecology and Environmental Protection		2009: Law for the Sustainable Use of Energy 2010: First non-fossil fuel target (35% in 2024, 50% in 2050). 2012: General Law on Climate Change	2015: First and second long-term auctions 2015: INDC to the Paris Agreement 2015: Energy Transition Law enacted	2021: Revised NDC (without changes on mitigation)

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