

POWER GRAB

What Mexico's State-Centered
Electricity Policy Means
for Trade, Climate, and the
Economy

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Introduction

Since taking office in December 2018, Mexico's president, Andrés Manuel López Obrador, has taken a series of steps that undermine private investment in the country's power sector, including its burgeoning renewable energy sector, and erode key aspects of the sweeping market-oriented energy reform approved by Congress under his predecessor, Enrique Peña Nieto, in 2013. The moves appear driven by a desire to reduce private sector investment in the power sector and consolidate the monopoly of the state electric utility, the Federal Electricity Commission (CFE),¹ as part of López Obrador's goal to achieve "energy sovereignty" for Mexico.

This concept of "energy sovereignty" has been a core theme of López Obrador's presidency and is generally centered on a goal of energy self-sufficiency, distrust of the private sector, and prioritization not only of CFE in the power sector, but also of state giant Petróleos Mexicanos (Pemex) in the oil sector. It is driven by a belief that Mexico's state energy companies, and by extension the country, have been undermined by policies favoring the private sector, and that this damage must be undone by supporting the state companies and correcting these asymmetries. López Obrador's specific stated objectives include avoiding any rise in energy tariffs, increasing CFE's market share to 54 percent of power generation, reducing dependence on imports of natural gas and refined products from the United States, boosting Pemex's oil output, and revisiting energy contracts that are not seen as sufficiently beneficial to the state.² So far, his administration has sought to circumvent the energy reform, including its main law governing the power sector, the Electricity Industry Law, through regulation. However, the president and members of the ruling Morena party in the Senate have recently signaled plans to pass a constitutional counter-reform.

The regulatory changes affecting the electric power sector have broader implications for Mexico's economy.

The regulatory changes affecting the electric power sector in pursuit of these goals have broader implications for Mexico's economy, especially as it seeks to recover from the havoc wrought by the Covid-19 outbreak. Some of the gains in the power sector in creating private sector jobs and lowering electricity costs through competitive auctions could be lost. National finances could also be strained by reduced tax revenue from corporations in the industrial and energy sectors. The changes will likely lead to higher electricity costs, and to prevent rate hikes to residential users, as President López Obrador has promised, subsidies intended to cover CFE's higher costs would likely increase, also straining government purse strings.

The new regulations could also have detrimental impacts on trade and economic relations with Mexico's key trading partner, the United States. The recent steps have deterred investment in Mexico's wider energy industry and other economic sectors by raising the perception of regulatory risk. Investors in Mexico and the United States have already taken legal action against some of the regulatory changes. Moreover, if higher costs are passed on to industrial consumers through rate increases, it would raise the cost of some Mexican export products and undermine the ability of US companies to diversify their supply chains and relocate some operations from China to Mexico in a nearshoring process.

The Strength of the US-Mexico Trade and Investment Relationship

The United States and Mexico have long enjoyed a robust and mutually fruitful economic partnership, underpinned by the North American Free Trade Agreement (NAFTA) since 1994, and by its successor, the US-Mexico-Canada Agreement (USMCA), as it is known in the United States, since mid-2020. These agreements, as well as a land border nearly 2,000 miles long and large markets in both countries, have facilitated some of the greatest levels of bilateral trade in the world, and the integration and expansion of supply chains across the border. Growing geopolitical tension outside of North America (particularly between the United States and China) and the economic recovery from Covid-19 provide opportunities to deepen these ties. Yet affordable and reliable energy is an economic input that is crucial for this bilateral economic relationship to continue to flourish. This is especially true

due to the importance of energy-intensive industries, such as manufacturing, to the relationship.

Mexico and the United States have among the deepest trade relationships of any two countries in the world. In 2019, Mexico was the United States' largest trade partner, accounting for 14.8 percent of total trade of goods, according to the US Census³ (though exports from Mexico to the United States fell 47.9 percent in April due to the Covid-19 pandemic).⁴ The United States is Mexico's most important export market for goods, with 80 percent of Mexican exports destined for the United States in 2019, according to the US Congressional Research Service.⁵

A significant portion of merchandise trade between the United States and Mexico occurs in the context of production sharing as manufacturers in each country work together to create goods. Many of Mexico's export-oriented assembly plants—a majority of which have US parent companies—are closely linked to US-Mexico trade in various labor-intensive industries, such as auto parts and electronic goods, and play an important role in supplying goods for bilateral trade.⁶ These export-processing plants import parts and export a large share of their finished products to the US market. This trade model allows US companies to maintain a competitive edge in the global market by keeping production costs low. Mexico's proximity to the United States also bolsters employment rates on the US side, as it allows for a higher level of US content in production.

An increased desire on the part of US businesses for nearshoring (the transfer of business processes to companies in a nearby country from farther abroad) due largely to trade tensions with China, where much low-cost production currently takes place, highlights the importance of the US-Mexico relationship. While shipping a 40-foot container to the United States from China costs about \$4,300 and takes five weeks to arrive, the same shipment from Mexico would cost \$1,800 and take days, according to consulting firm Tetakawi.⁷ In addition to saving money and time on shipping, nearshoring to Mexico helps US companies cut expenses associated with intellectual property theft in China.

Foreign direct investment (FDI) has also been a key component of the US-Mexico economic relationship since the implementation of NAFTA in 1994. The United States is the largest source of FDI in Mexico. The stock of US FDI increased from \$37.2 billion in 1999 to a high of \$114.9 billion in 2018.⁸ While the Mexican stock of FDI in the United States is much lower, it has increased sharply over

the past two decades, from \$3.0 billion in 1999 to \$37.2 billion in 2018.⁹

In the energy sector, Mexico and the United States have a robust trade relationship with a high degree of interdependence. The two countries have a number of small but critical cross-border transmission

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interconnections, mainly connecting the US states of California and Texas with the Mexican states of Baja California and Tamaulipas, respectively. In 2015, the United States and Mexico traded roughly 7.7 million megawatt-hours (MWh), with the US exporting about 5 percent of the total and importing about 95 percent, or 7.3 million MWh, according to the US Energy Information Administration.¹⁰ The flow of oil, natural gas, and refined products between the two countries is even greater. Mexican imports of natural gas from the United States reached 5.1 billion cubic feet per day (bcf/d) in 2019, compared to 4.8 bcf/d in 2017 and 4.9 bcf/d in 2018.¹¹ In addition, numerous US companies invest in the power sector in Mexico, from renewable energy generation to natural gas pipelines bringing gas for power over the border. According to Mexico's economy ministry, US FDI in the power sector has amounted to \$445 million since 2015.¹² While this is significantly lower than the figures for Spain and Italy, whose companies have invested billions of dollars during this period, it is worth noting the upward trend since Mexico's 2013 reform: US power sector FDI from the last five years represents over half of the \$800 million total reported since 1999.

The new trilateral trade agreement, the USMCA, which entered into force on July 1, 2020, will help maintain strong US-Mexico trade ties. The USMCA retains some similarities to NAFTA, while also making changes, including market access provisions for automakers and agriculture goods. The USMCA also provides new rules for investment, government procurement, and intellectual property rights.¹³ While NAFTA's key investor-state dispute settlement (ISDS) system is largely eliminated, a similar mechanism

remains (between the United States and Mexico only) for government contracts in “covered sectors”: oil, natural gas, power generation, infrastructure, and telecommunications. Furthermore, US companies that invested in Mexico before the USMCA, including under the framework of the energy reform, continue to maintain access to the NAFTA ISDS system until mid-2023.

Under the USMCA ISDS system, companies with government contracts in covered sectors may make claims on the basis of direct or indirect expropriation, discrimination in favor of domestic or other foreign investors, and “failure to provide a minimum standard of treatment or full protection and security,” according to the law firm Kirkland & Ellis.¹⁴ The firm notes that the measures discussed in this report in some cases significantly reduce the value of power sector investments and may have been implemented without due process or may favor CFE. Thus, they could be considered indirect expropriations or constitute unfair treatment. However, power generation may not qualify as a covered sector in cases in which services are not “provided ‘to the public’ on behalf of a governmental authority of the host country.” For non-covered sectors, disputes must begin in domestic courts, and indirect expropriation and fair and equitable treatment claims are not permitted under the USMCA ISDS. Furthermore, (non-discriminatory) government regulation is also given some cover from indirect expropriation by a provision generally allowing for protection of “legitimate public welfare objectives, such as health, safety, and the environment.” This could be used as justification for some of the López Obrador administration’s measures that are purported to increase the security of the power system.

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Even given these caveats, the USMCA provides some recourse for US energy companies whose investments in Mexico are threatened by the López Obrador government’s regulations, and, importantly, guarantees that there are no tariffs on energy products that flow through North America.¹⁵

Energy Policy Changes in Mexico and Their Impact on Private Investment

López Obrador’s administration has sought to steadily strip away key aspects of the 2013 energy reform and systematically undermined private investment in the power sector. In December 2019, a “wishlist” prepared by CFE was leaked to the public. In it, CFE requested a series of regulatory modifications to strengthen its position in the market vis-à-vis private companies. Many of its requested changes, including six of the nine policies outlined below, have since been enacted, though many have subsequently been blocked in court. Then, in July 2020, the energy ministry (SENER) published the 2020–2024 Energy Sector Planning Program, a policy planning document, which established a series of strategies and objectives, including strengthening CFE and modifying the rules of the wholesale electricity market in alignment with regulations that undermine private investment in the power sector (though in late September, a federal court suspended parts of this plan that are detrimental to renewable energy development).¹⁶

More recently, in a leaked memo to public officials and regulators dated July 22, López Obrador laid out a list of actions he said should be undertaken to strengthen Pemex and CFE, including supplying national electricity demand first from hydropower, then from CFE plants, then from private wind and solar projects, and lastly from private combined cycle plants (which generate using both a fuel and the heat produced by combusting that fuel). This would be in spite of the fact that energy sources are currently dispatched in order of marginal cost, with renewables having the lowest marginal cost, followed by natural gas combined cycle plants, which benefit from very cheap gas imports from the United States.¹⁷ In late September, regulators met with López Obrador and agreed to begin carrying out actions to favor CFE and Pemex.¹⁸

Many of the recent measures benefit older, more expensive, and more polluting fossil fuel power plants, such as fuel oil and coal plants owned by CFE, and CFE is even using fuel oil in plants that were upgraded to consume cleaner and cheaper natural gas. Measures favoring fuel oil are widely thought to be aimed at creating a more reliable source of demand for fuel produced by Pemex, which has struggled to sell its high-sulfur fuel oil overseas given new regulations from the International Maritime Organization that ban the use of this fuel in international shipping.¹⁹

Many of the regulatory and policy changes have been challenged in court by companies and environmental organizations and could be overturned. However, the López Obrador administration and the ruling Morena party have also proposed changing the law itself, having been thwarted in many of their attempts to simply change or not enforce regulations. In the July 22 meeting with energy officials at which the leaked memo was read, López Obrador mentioned that he would prepare a new energy reform next year if necessary, and indeed, in early September, Morena congress members announced that a so-called “counter-reform” would be on the legislative agenda for the September-January session.²⁰ Later that month, Morena senators presented a constitutional reform proposal that seeks to amend articles which previously have allowed for private participation in the sector.²¹ Strengthening Pemex and CFE, as López Obrador has sought to do throughout his administration to date, will be core components of this effort.

López Obrador and his party have also undermined the political autonomy of the nominally independent Energy Regulatory Commission (CRE) and other independent bodies in various ways. Before López Obrador even took office, Morena introduced an (ultimately unsuccessful) legislative proposal to fold the agency (as well as its counterpart in the oil and gas sector) into the energy ministry.²² In López Obrador’s first two months in office, four of the seven CRE commissioners resigned, and all four were replaced by candidates that were appointed after twice being rejected by the Senate and widely criticized as inexperienced political allies of the president.²³ A fifth commissioner, the commission’s president, resigned months later. Following a 31 percent cut in its budget, nearly 60 percent of CRE’s staff was laid off in early 2019, and the workforce was reduced by half again in mid-2020.²⁴ Amid this shortage of funding and staff, and reports that only projects vetted by the executive, SENER, and even CFE itself are being approved, 285 energy projects valued at \$100 billion are said to be stalled by regulatory uncertainty or the permitting process.²⁵ In June 2020, Morena legislators proposed a merger of CRE, the telecommunications regulator, and the competition regulator Cofece—which has spoken against some of the administration’s policies in the power sector—purportedly to cut costs.²⁶ The initiative, which the president supported, was ultimately postponed following accusations of a “power grab.”²⁷ Finally, CFE is also being given control of Cenace, the independent system operator, a decision which led to the resignation of the entity’s head in September.²⁸

The government’s approach has deeply undermined investor confidence in Mexico.

Several of the most important measures López Obrador’s administration has taken to stifle the private power sector in favor of CFE are highlighted in greater detail in the following section. Regardless of the final outcomes of court proceedings related to these measures, the government’s approach has deeply undermined investor confidence in Mexico.

1. CANCELLATION OF LONG-TERM ELECTRICITY GENERATION AUCTIONS

What happened? January 2019: Cenace, the power system operator, cancelled Mexico’s planned fourth long-term clean energy auction at the request of SENER, marking the indefinite cancellation of government-led clean energy auctions in the country.

What’s the impact? The cancellation closed the main mechanism for bringing private investment to the Mexican power sector and came as a surprise to investors given that the three tenders held under the previous government had been highly successful in bringing new investment for projects providing energy at competitive prices through a transparent process. The cancellation also reduced clarity over long-term price formation given the auctions’ competitiveness and long-term nature. The end of the auctions leaves CFE with fewer options to purchase hedges for new energy and capacity since CFE Basic Supply (the state company’s subsidiary for providing energy to consumers with demand of less than 1 MW and to larger consumers with legacy contracts that opted not to become qualified users) is obligated by law to hedge energy through auctions organized by Cenace. This forces CFE to rely more on its older, more polluting fossil fuel plants. The auctions were also the main source of clean energy certificates, an important asset for clean power plants and accounting mechanism for Mexico’s clean energy goals.

2. CANCELLATION OF TRANSMISSION AUCTIONS

What happened? January 2019: SENER and CFE cancelled two megaprojects for the development of high-voltage

direct current (HVDC) transmission lines. The CFE Yauatepec-Ixtepec HVDC Line, spanning six states, would have transported wind energy generated in the wind-rich southern state of Oaxaca to the central part of the country, which has high industrial and residential electricity demand. The SENER project would have connected the Baja California Electric System, which is isolated from the rest of the country, with the National Interconnected System (SIN), the country's largest electric grid.

What's the impact? The projects would have relieved congestion at certain nodes in the grid, lowering rates and reducing blackouts in those areas and thereby democratizing energy access and reliability across the country, and especially in Baja California, which has recently faced electricity shortages due to a rise in power demand and inadequate transmission infrastructure. They also would have encouraged expansion of generation projects, allowing for the power supply increases necessary to keep up with Mexico's growing demand. Transmission line expansions are especially important to encourage renewable energy, for which potential is often far from demand centers. The cancellation of the auctions is especially important considering chronic underinvestment in transmission infrastructure by CFE.

3. RELAXATION OF CFE'S TERMS OF STRICT LEGAL SEPARATION

What happened? March 2019: SENER published an amendment to the "Terms of Strict Legal Separation" of CFE, which were originally published in January 2016 as part of the energy reform in an effort to safeguard open access to the grid and ensure efficient operation and effective competition in the power sector. The amendment reverses parts of these terms—for example, by allowing CFE to share information on operation, planning, maintenance, and commercial strategy among some of its own subsidiaries, coordinate its subsidiaries to benefit from economies of scale and create efficiencies, and share employees in some cases.

What's the impact? The way these amendments favor CFE could imply negative impacts on the market, due both to the increase in the firm's market power—which is already significant—and to the elimination of mechanisms that seek to prevent collusion between its subsidiaries, as noted by Cofece.

4. CLEAN ENERGY CERTIFICATES ISSUED TO CFE'S LEGACY POWER PLANTS

What happened? October 2019: SENER amended the regulations for clean energy certificates (CELs), which are financial instruments that accredit the production of clean energy, providing clean power generators with additional income to that of the sale of energy. Under the Electricity Industry Law, only clean energy plants that obtained generation permits after the law took effect in August 2014 could obtain CELs. This encouraged the expansion of new clean energy generation. However, SENER's amendment expanded the type of plants that could receive CELs to include several legacy hydroelectric, thermoelectric, and nuclear power plants owned by CFE.

What's the impact? This move would have flooded the CEL market, driving prices down and negatively impacting the value of most private clean energy generators' assets. However, private generators challenged this measure in federal courts, where several injunctions have been granted, and, as of today, the measure has not been implemented. The measure also generated confusion. Although CFE said it would sell the new CELs it had acquired to CFE Basic Supply in order for it to meet the targets imposed by the reform, it is unclear how this transaction would have taken place given that CFE Basic Supply is only permitted to acquire CELs through auctions. Additionally, there was uncertainty over whether the move would later be accompanied by an increase in CEL quotas, given the greater number of CELs in the market.

5. CRE'S AMENDMENT PROPOSAL FOR SELF-SUPPLY GENERATION PERMITS

What happened? February 2020: CRE issued a draft regulation proposing to change the terms to request authorization to modify or transfer self-supply electricity generation permits. The proposal is currently under the regulatory improvement process before the National Commission of Regulatory Improvement (Conamer).

What's the impact? The measures would effectively block the rights of generators that obtained permits before the energy reform to modify their permits and interconnection agreements under the abrogated Electric Power System Public Service Law. The move would prevent them from changing the volume of generation output or adding new partners as beneficiaries of the self-supply scheme, making it more difficult for projects to remain profitable.

6. CENACE'S COVID-19 GRID SAFETY RESOLUTION

What happened? April 2020: Cenace published a resolution on operational control of the national grid, citing the need to ensure grid reliability amid the drop in electricity demand resulting from measures to combat the Covid-19 pandemic. Cenace said it would suspend pre-operational testing of wind and solar photovoltaic (PV) plants in the process of starting commercial operation, impose electricity volume limits for key transmission lines, and review licenses requested by generators for scheduled maintenance. The resolution also provides for the prioritization of dispatch from “must-run” power plants in some regions of the National Electric System (SEN) to maintain control of voltage regulation in the system. Such plants, which are kept constantly running for safety and efficiency reasons, are comprised largely of conventional plants owned by CFE.

What's the impact? The resolution has been suspended for now following a series of lawsuits. If enforced, this measure would hurt all recently built renewable power plants that need testing to start operations. Importantly, the resolution does not indicate whether market rules will be used to determine dispatch of must-run plants and suggests the decisions will be discretionary.²⁹ When market rules are bypassed, must-run plants may displace variable renewable energy generators that would otherwise have priority dispatch according to the economic dispatch principle of Mexican regulation, which holds that the cheapest energy source should be dispatched first. Following the resolution, Cofece issued an opinion warning that the resolution was unclear, may harm competition in the SEN, and could be used to benefit conventional CFE plants over more efficient plants in violation of market rules and without a technical basis.³⁰ In short, the resolution would benefit older, more expensive, and more polluting fossil fuel power plants, such as fuel oil plants owned by CFE.

7. SENER RELIABILITY POLICY

What happened? May 2020: SENER issued a policy establishing “reliability” as the core principle to allow interconnection to the SEN and to dispatch energy. Critically, the policy also establishes interconnection priority for certain projects identified as strategic by SENER. Other consequential components of the measure include a requirement that solar and wind plants compensate other generators for the ancillary services required for their integration into the grid; new requirements and restrictions to interconnect renewable

energy generation facilities, including a feasibility opinion by Cenace related to grid planning and reliability; and allowing Cenace to reject future interconnection applications on the grounds of congestion or reliability risk.

What's the impact? By prioritizing certain reliability criteria over lowest marginal cost for dispatch, the policy effectively blocks the supply of intermittent renewables. In addition, by permitting SENER to select strategic generation projects, the policy allows the ministry to dispatch CFE plants that would otherwise be excluded because of their higher costs (particularly fuel oil plants) over privately run renewable energy and conventional plants. The new policy violates the economic dispatch principle and will raise electricity costs by requiring generation from more expensive plants. Power companies and environmental groups have challenged the policy and obtained injunctions that have halted its application until a final decision is made.

8. INCREASE IN TRANSMISSION TARIFFS FOR LEGACY INTERCONNECTION AGREEMENTS

What happened? May 2020: CRE adopted two resolutions increasing tariffs that legacy interconnection agreements, including conventional and renewable self-supply built before the energy reform, must pay CFE for transmission of the electricity they generate. The CRE justified the decision by noting that these renewable energy projects do not pay tariffs that cover the costs of transmission, a decision that was made in order to incentivize renewable energy development before 2014, when costs were higher.³¹ The increase ranges from 407 percent to 775 percent relative to June 2020 rates, depending on the tension of the transmission line, for renewable and efficient cogeneration (which capture waste heat from generation and direct it to other end-uses) projects under the self-supply scheme, according to the document released by CFE.³² Conventional energy projects would also see a rate increase, although a less significant one (conventional energy transmission rates are calculated case by case using a formula and did not receive the incentive that renewable projects did under the previous rates³³). The resolutions violate the reform's Electricity Industry Law, which allows legacy projects to continue operating under the prior legal framework or opt into the new regime.

What's the impact? The decision is expected to lead to an increase in transmission tariffs for many industrial and commercial users, rendering some projects unviable and complicating the operation of existing plants. It will also

make renewable energy less competitive with fuel oil by raising its costs. More than 527 legacy permit holders and 4,936 offtakers could be affected by the tariff increase, according to an analysis by Zumma Energy Consulting.³⁴ Many generators have filed lawsuits against the measures and requested suspensions of the new tariffs until the merits of the proceedings are decided, with mixed results. At least one company was granted the suspension,³⁵ while a number of others were denied, though with the possibility of having the payments returned to them if proceedings are successful.³⁶ Normally these transmission charges are paid by the beneficiaries of the self-supply schemes, so large energy consumers will be affected by these increases.

9. CRE VETO OF PUBLICATION OF APPROVED MEASURES ON GRID ACCESS, ENERGY STORAGE, AND DISTRIBUTED GENERATION

What happened? August 2020: CRE vetoed the publication of five measures that it had approved under the previous administration, three of which related to the electricity market. One of the measures guaranteed open access to national transmission and distribution networks. Another established a regulatory framework for energy storage, and a third allowed for the sale of energy from distributed generation between consumers.³⁷ The step was reportedly taken, despite CRE's nominal independence, at the request of SENER, partially because the effects of these measures on CFE were not taken into account.³⁸

What's the impact? The veto of the publication of the open-access measure strengthens CFE's position in the national power market, while the veto of the publication of the storage and distributed generation measures diminishes the prospects of two major innovations that could facilitate broader access to renewable energy, and energy in general, in Mexico. This also benefits CFE at the expense of private renewable energy developers and Mexican consumers. The establishment of a regulatory framework for energy storage, including a list of the goods and services that storage can provide, was an important step toward the legal certainty so critical to expanding storage, which helps resolve the intermittency challenge of renewable energy. Asolmex, a Mexican solar energy industry group, decried the veto of the publication of the distributed generation measure, arguing that it limits electricity access for rural communities and micro, small, and medium-sized businesses, which provide 80 percent of Mexico's employment.³⁹ Distributed generation capacity increased 40 percent in 2019, generating almost 1 gigawatt (GW), 130,000 connections, investment of \$2.1 billion, and more

than 10,000 jobs.⁴⁰ Finally, the industry group added that the veto created confusion, since the resolutions whose publication was vetoed remain in force.⁴¹ And according to law firm Mayer Brown, "it is still unclear why the original resolutions were not published given that they were approved since 2019."⁴² Thus, in addition to strengthening CFE to the detriment of both users and private companies, this action by CRE inflicted further damage on the sense of regulatory clarity and certainty in Mexico, particularly in the power sector.

Economic and Trade Impacts

The policy changes described above, if implemented, will have detrimental effects that reverberate well beyond the energy sector, negatively impacting Mexico's economy and even trade with the United States. Within Mexico, the private power sector has helped boost employment, and if privately run plants are not permitted to come online, additional jobs will be threatened. Equipment for renewable energy, particularly wind, provides a source of US-Mexico trade and employment in Mexico. A host of multinational companies in Mexico use private sources of power generation, which has allowed them to take advantage of lower electricity costs. Any rise in electricity costs stemming from measures that inhibit private investment in the power sector would have to be covered through an increase in tariffs to industrial consumers or in government subsidies. Moreover, energy-intensive industries comprise a significant share of Mexico's GDP and are important sources of employment. Some of Mexico's largest producers in energy-intensive industries (such as steel, food and beverage, and automotive manufacturing) have benefited from the opening to private investment in the power sector, which has allowed them to generate and consume cleaner energy at competitive prices. These companies are also major exporters to the United States. But the recent policy changes will likely increase energy costs, potentially leading to tariff increases that would damage the competitiveness of these companies in globalized markets and affect consumer prices and employment in both Mexico and the United States.

Many major multinational companies depend on private sources of power generation, which has allowed them to consume cleaner energy from modern renewable and efficient natural gas plants. Private companies also supply a large and growing share of total generation.

The main private participants in the wholesale electricity market are energy generators, “qualified suppliers,” and “qualified users.” “Qualified” users (large-scale users with > 1 MW of demand) can enter the wholesale electricity market by participating directly as a market participant or by purchasing energy from private or CFE qualified suppliers at negotiated rates. In contrast, “basic” users, such as individual households and industrial users with legacy supply contracts that choose not to enter the wholesale electricity market, purchase power from CFE Basic Supply at regulated rates established by CRE.

Qualified users constitute a large group of companies, including many major multinational companies that trade with the United States. As of February 2020, CRE reported there were 387 registered qualified users⁴³ (see Figure 1) across various industries such as cement (Cementos Moctezuma), steel (Suacero), plastic manufacturing (Polímeros Nacionales), paint manufacturing (Consortio Comex), food manufacturing (Nestlé México), and mining (Minera Excellon de México). These private companies generally purchase renewable or conventional power through bilateral contracts with private generators.

In particular, the availability of renewable energy in Mexico is an attractive feature for large companies with corporate sustainability or renewable energy goals, such as Mexico City-based Grupo Bimbo, the world’s largest baking company, which has pledged to use 100 percent

renewable electricity by 2025, and German pharmaceutical giant Bayer, which has a 2030 carbon neutrality target and recently signed a 15-year power purchase agreement (PPA) to acquire wind energy from a plant in Guanajuato.⁴⁴

On the supply side, private players generate a significant share of total power. According to SENER, at the end of 2018, private producers accounted for 28.6 GW, or 40.8 percent, of the country’s capacity compared to CFE’s 41.5 GW (59.2 percent). Of private generation capacity at the end of 2018, independent power producers (IPPs) accounted for 47 percent, with the other 53 percent supplied by generation permits under the Electricity Industry Law, self-supply contracts, small producers, and efficient cogeneration (see Figure 2). By June 2020, generation permit holders in Mexico numbered 1,196, with 70 percent of these projects in the wholesale market and the rest being legacy projects, according to Zumma Energy Consulting.⁴⁵

In addition, private companies generate a significant and growing share of their energy using renewable sources, particularly through the wholesale market or self-supply. According to CRE figures on permits awarded to August 2019, of around 10 GW of private capacity in the wholesale market, 53 percent is renewable, and of the 10.5 GW of self-supply capacity, 44 percent is renewable, while out of 15.4 GW of capacity sold to CFE by IPPs and small producers, just 4.8 percent is renewable.

FIGURE 1: QUALIFIED USERS AND APPLICANTS BY SECTOR (SHARE OF TOTAL), FEBRUARY 2020

Source: Zumma Energy Consulting.

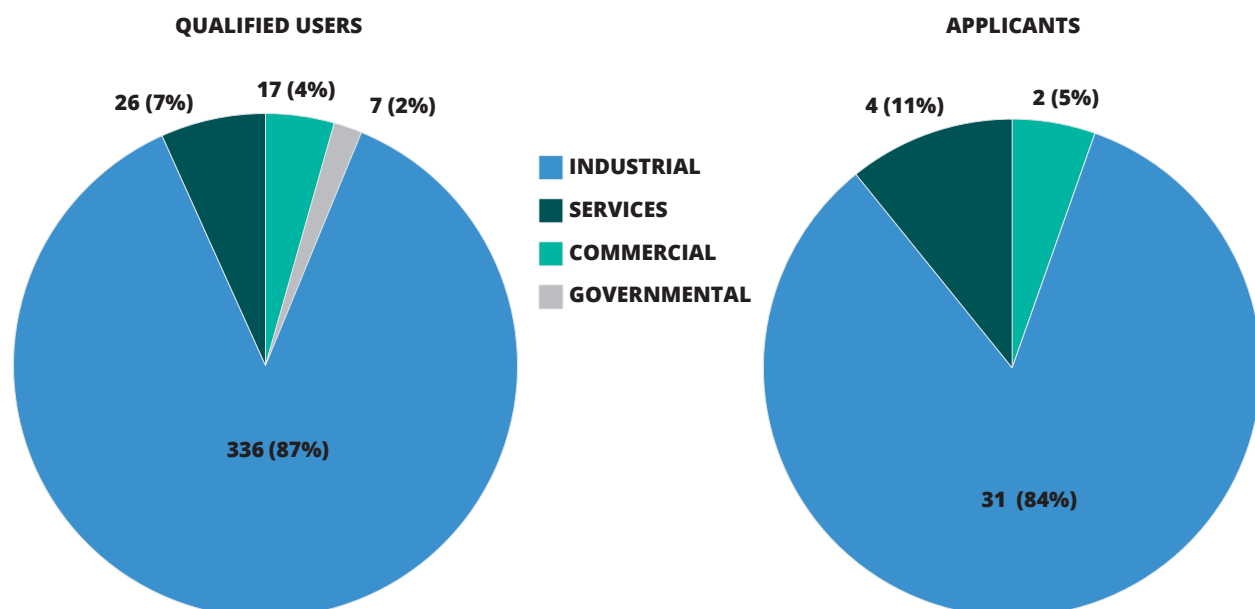
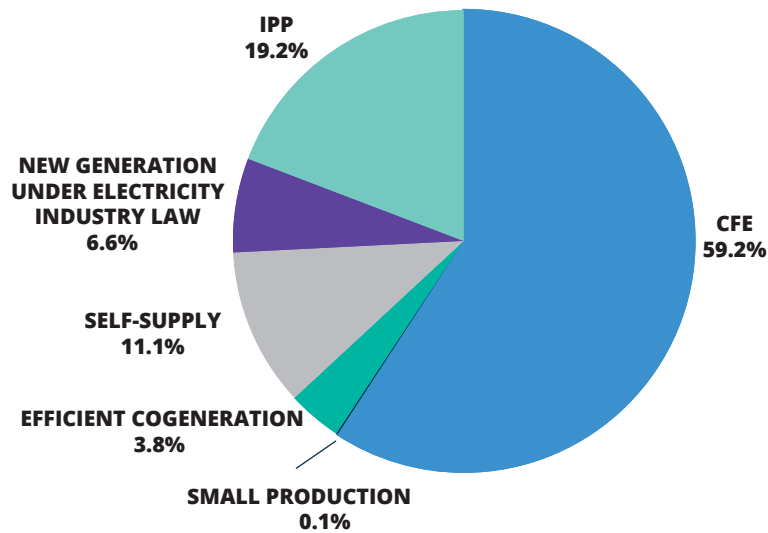


FIGURE 2: SHARE OF INSTALLED CAPACITY BY TYPE OF PERMIT (TOTAL: 70.053 GW), DECEMBER 2018

Source: "Infraestructura del Sistema Eléctrico Nacional," Energy Secretariat (Mexico), 2019.



Before the reform, CFE generated power supply for basic users through both its own plants and by purchasing electricity from IPPs. This financing mechanism allowed international companies to build power plants and facilitated their connection to the grid. Currently, there are 31 of these power plants with generation capacity of 14,104 MW which will provide power for CFE over the next 25 years, mainly from natural gas-fired combined cycle power plants. More recently, new projects have also come online after contracts were awarded in the clean energy auctions.

Privately run energy generation projects in Mexico are generally cheaper than CFE-owned plants, meaning that the new policies seeking to limit private electricity supply in the power market in favor of more expensive CFE plants will increase electricity costs and halt the expected decline in costs in the longer term. Any rise in costs will have to be covered through an increase in rates to consumers or an increase in government subsidies, which would ultimately be borne by taxpayers.

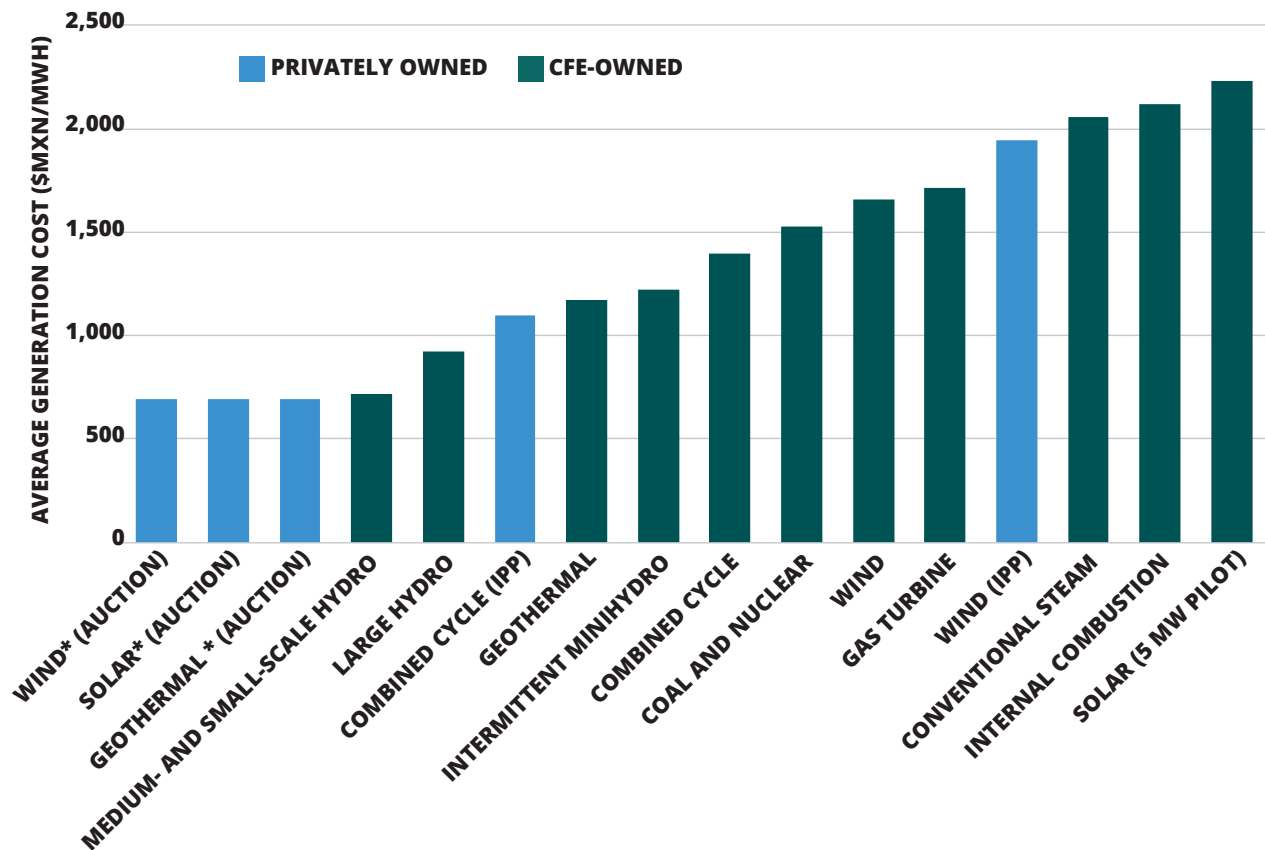
Generation costs of recently awarded renewable energy projects and privately owned combined cycle plants are lower on average than those of CFE plants (with the exception of CFE hydro plants). Costs for renewable energy technologies awarded in the three long-term auctions were the lowest of any technology and contract type in the first six months of 2020 (see Figure 3). This is partly a function of the lower marginal costs of renewables. Generation costs for conventional power plants vary depending on the fuel type and technology used and can

fluctuate significantly due to movements in global energy markets. But for wind and solar projects, once the plant is built, marginal generation costs are close to zero, since the primary energy is the wind and sun, and generating costs reflect only financing, operation, and maintenance costs. Costs are also falling fast for these technologies, as reflected in the low costs recorded by projects awarded contracts in recent long-term auctions relative to those of older renewable projects owned by private companies and CFE and those of projects that use conventional non-renewable generation sources. Through the three auctions, contracts for clean energy sources, including wind, solar, and efficient combined cycle, were awarded at highly competitive prices (see Figure 4). The third clean energy auction produced record-low generation prices, awarding long-term PPAs with the cheapest price for wind and one of the cheapest for solar PV worldwide at the time the results were published in November 2017. Privately owned conventional technologies in Mexico are also generally cheaper than CFE-owned conventional power plants. For example, IPP combined cycle plants had lower costs in the first six months of 2020 than CFE combined cycle plants.

In contrast to the private sector, CFE uses more outdated and expensive technologies, like diesel and fuel oil. As a result, the state utility is highly dependent on subsidies to provide below-cost rates to residential consumers and stay afloat—in 2019, the state utility received 75.2 billion pesos (around \$3.9 billion) in subsidies.⁴⁶ Industrial rates by law should reflect CFE's generation costs and therefore fluctuate depending on fuel costs. In 2018, for instance,

FIGURE 3: AVERAGE GENERATION COSTS BY TECHNOLOGY AND OWNERSHIP, JANUARY – JUNE 2020

Source: "Memorias de Cálculo de Tarifas de Suministro Básico," Government of Mexico, 2019.



*Auction costs include prices of clean energy certificates and are averaged across all technologies.

Note: All power in this graph is purchased by CFE Basic Supply, which originates this information based on its portfolio of power purchase contracts with CFE, IPPs, and auction projects.

CFE's generation costs rose sharply due mainly to a rise in fuel oil prices, natural gas shortages, and a drop in hydroelectric generation in CFE plants due to inefficiencies and droughts as well as high transmission congestion. Looking ahead, as generation costs rise as a result of the moves away from efficient, lower-cost private plants toward CFE-run plants, the government will either have to pass the costs on to industrial consumers by increasing rates or provide subsidies, exacerbating Mexico's already precarious fiscal situation.

The private electricity sector has helped boost employment in Mexico, providing billions of dollars in foreign direct investment and tens of thousands of direct and indirect jobs, and the sector is poised for further growth. However, if privately run power plants are not permitted to come online, additional investment and jobs will be threatened.

Private energy companies directly and indirectly employ more than 81,500 people in Mexico, of which around 12,000 are employed in the wind industry and around 56,000 in solar (including distributed generation), according to a group of Mexican energy industry associations. According to the Mexican Wind Energy Association (AMDEE), the Mexican wind manufacturing industry employs nearly 9,000 people directly, and 43,000 indirectly, across companies including TPI Composites, Nordex-Acciona, Viakon-Prolec, Frisa, Auge, Arcosa, Speco, and Windarmex. CFE is also a large employer, of course, but has not created nearly as many new jobs as the private sector. CFE added around 2,400 employees in 2019, expanding its staff size to 74,057 from 71,671 in 2018.⁴⁷

Employment in both the wind and solar industries could increase significantly if the construction of new plants is authorized. For example, AMDEE estimates that

FIGURE 4: RESULTS OF LONG-TERM CLEAN ENERGY AUCTIONS

Source: "Sobre las Fuentes Renovables Variables de Energía," Energía a Debate, July 17, 2020.

AUCTION	INVESTMENT (BILLION USD)	GENERATION OUTPUT (MWH)	AVERAGE PRICE (USD/MWH)	YEAR
First	2.6	5,402,281	47.7	2015
Second	4	8,909,818	33.47	2016
Third	2.3	5,492,575	20.84	2017

employment in the wind industry could reach 35,000 jobs by 2024. Conversely, industry groups estimate that SENER's May 2020 "reliability policy" would threaten 113,000 potential power sector jobs from 2021–2033 if it came into effect, as well as \$24 billion in power sector investments.

In addition, private energy companies have brought billions of dollars in investment, particularly to Mexico's burgeoning renewable energy sector. Between 2013 and its peak in 2017, renewable energy investment in Mexico quadrupled from \$1.5 billion to \$6 billion (see Figure 5), and cumulative investment since 2013 exceeds \$22 billion. The timing of the auction schedule contributed to a drop in annual investment in 2016.

Demand for renewable energy equipment provides cross-border manufacturing, investment, and trade opportunities. However, policies that undermine private investment in renewables threaten investment and manufacturing jobs in Mexico and supply chains of exporters to the United States, affecting US consumers as well.

In the wind sector, Mexico has emerged as an important hub for assembling equipment, including wind blades, towers, and electronic parts such as cables and transformers. The wind equipment is then exported mainly to the United States as well as other Latin American countries. US wind industry supply chains reach across the border. For instance, US wind blade manufacture TPI Composites recently renewed a supply deal with US-based generation giant GE Renewable Energy in Juárez, Mexico and is adding another production line in Mexico to supply GE's North American wind turbine business.⁴⁸

Mexico boasts three of its own wind manufacturing plants. Arcosa Industries, headquartered in Dallas, builds

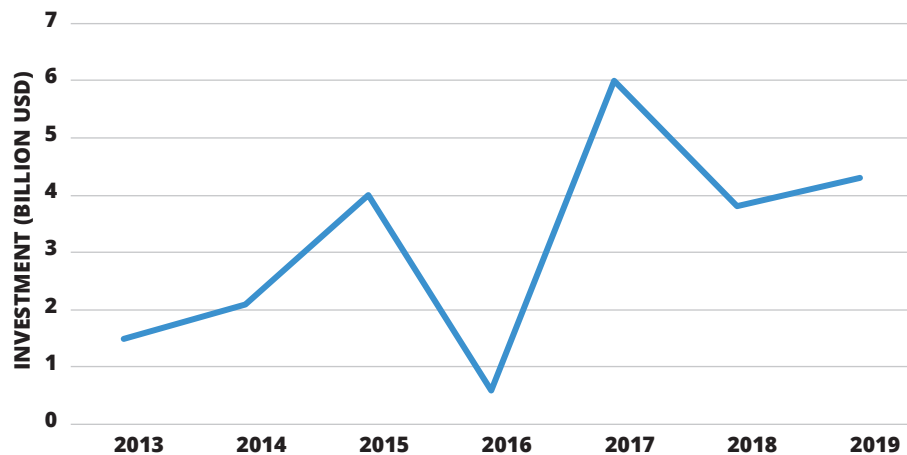
wind towers in Mexico for export to the United States. In 2018, following strong results in its 2018 fiscal year, the company hired an additional 1,726 workers in Mexico. Speco Wind Power, a subsidiary of Korean company Speco, located in Coahuila with 299 employees,⁴⁹ specializes in supplying industrial plants and steel fabrication works including wind turbine towers. Windarmex, a subsidiary of Windar Renovables, owned by Spain's Grupo Daniel Alonso Windarmex, produces wind towers for domestic use and export. The company, located in the port of Altamira, Tamaulipas, generates 200 direct and more than 100 indirect jobs.⁵⁰

US wind manufacturers also enjoy investment opportunities in the Mexican market. The top-three global wind turbine original equipment manufacturers, Vestas, GE, and Siemens—which together supply more than 90 percent of the US market—all have operations in Mexico. Vestas secured in February 2020 an engineering, procurement, and construction order for the 108-MW Energía Sierra Juárez II wind power plant, a joint venture between IEnova and Saavi Energía, to be located in Tecate, Baja California. The 306-MW Mesa La Paz wind farm in Tamaulipas, in operation since January 2020 and owned by a joint venture between The AES Corporation and Grupo BAL, uses turbines supplied and installed by Vestas. Eight GE wind turbines are used in the Santa Catarina wind farm in Nuevo León, owned by Mexican hydropower firm Comexhidro.⁵¹ And Siemens Gamesa will supply 60 units of its SG 4.5–145 wind turbines with a flexible power rating of 4.2 MW to Enel Green Power's Parque Amistad III and IV wind farms in Coahuila, Mexico. These projects were awarded to Enel during the third clean energy auction in 2017.⁵²

Mexico also has a nascent solar manufacturing sector.⁵³ US solar panel manufacturers such as SunPower (whose manufacturing assets were spun off into a new company, Maxeon, in 2020) and Flextronics have built plants in

FIGURE 5: RENEWABLE ENERGY INVESTMENT IN MEXICO, 2013-2019

Source: "Global Trends In Renewable Energy Investment" (2014, 2015, 2016, 2017, 2018, 2019, 2020 editions), Frankfurt School-UNEP Centre/BNEF.



Mexico to take advantage of proximity to the US market and the benefits of NAFTA.⁵⁴ At present, the vast majority of utility-scale solar panels used in Mexico are imported from China, but some parts such as cables are made in Mexico, and many rooftop solar panels are assembled in the country. In the longer term, Mexico could also increase manufacturing to assemble utility-scale panels if there is sufficient demand on both sides of the border.

However, the interest in wind and solar manufacturing was partly driven by expectations of growing demand from new privately run power plants, particularly through auctions, and the closing of opportunities for new private renewable energy investment will interest in manufacturing and assembly wind and solar parts in Mexico. Moreover, the lack of new Mexican renewables projects will halt investment from US manufacturers in the country.

Energy-intensive industries are central to Mexico's economy, comprising a significant share of Mexico's GDP and providing important sources of employment.

In 2018, some 30 percent of Mexico's GDP was generated by industry and 17 percent was generated by manufacturing, according to the World Bank. The industrial sector (including industry and manufacturing) is the second-largest consumer of energy in the country, according to SENER's National Energy Balance 2018 (see Figure 6). Indeed, industrial sector consumption made up 32 percent of total energy consumption in 2018, of which 36 percent was electricity consumption. These energy-intensive industries also provide a large number of jobs in the country. The steel industry, for example,

provides over 670,000 direct and indirect jobs in Mexico. The heavy-duty vehicle industry last year provided close to one million direct and indirect jobs in Mexico, according to the Mexican Automobile Association. General Motors (the largest light-duty vehicle manufacturer in Mexico) alone reported providing direct employment to more than 20,000 people in their 2020 report.

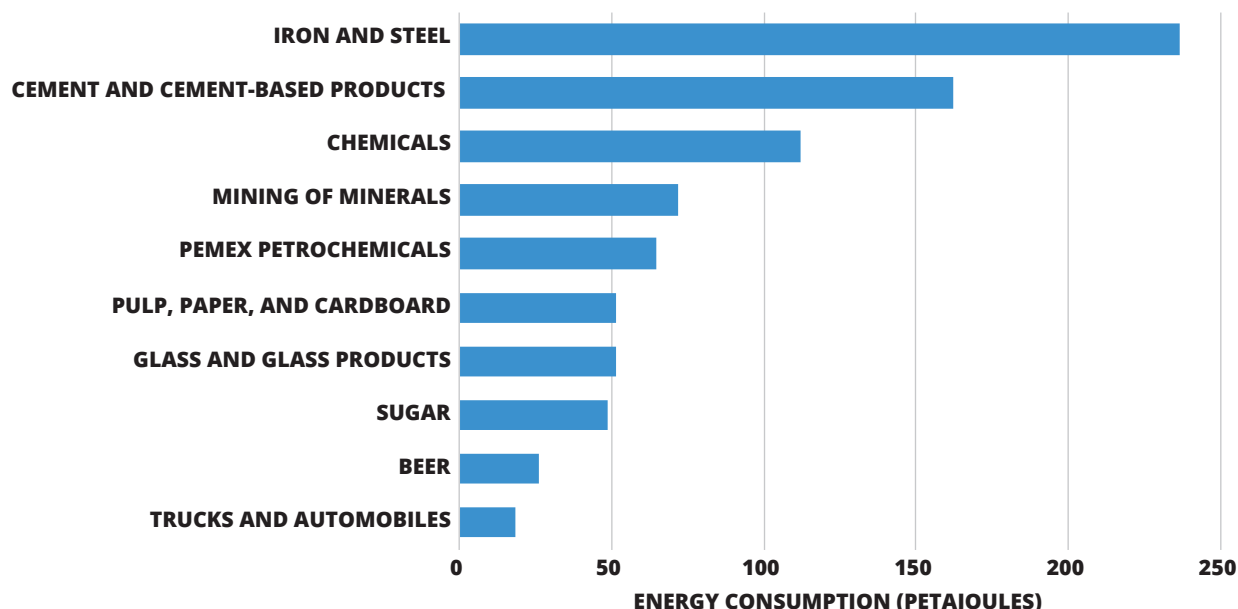
Many of Mexico's most energy-intensive industries produce critical products that are exported to the United States. Some of the largest Mexican producers in energy-intensive industries have benefited from the opening to private investment in the power sector, allowing these companies to generate and consume energy at more competitive prices, which gives them a competitive edge in global markets. These companies are major exporters to the United States, providing inputs and products for consumers throughout the country at competitive prices.

A wide variety of industries, including food and beverage, textiles, and plastics have migrated to the wholesale market as qualified users since the energy reform. The automotive and metal industries, two major industries for export to the United States, have the first- and second-largest numbers of qualified users in the market respectively (see Figure 7).

STEEL TRADE: Mexico was the world's 15th-largest producer of steel⁵⁵ and the third-largest steel exporter to the United States in 2019, providing 13 percent of total US steel imports. Over 70 percent of Mexico's steel exports go to the United States.⁵⁶

FIGURE 6: ENERGY CONSUMPTION FROM MEXICO'S TOP 10 ENERGY-CONSUMING INDUSTRIES, 2018

Source: "Balance Nacional de Energía 2018," Gobierno de México, January 24, 2020.



Deacero, Mexico's third-largest steel producer which has over 8,000 employees,⁵⁷ was the first company in the Mexican industrial sector to participate directly in the wholesale electricity market as a qualified user. As a result, Deacero is able to manage its own electricity supply and benefit from choosing among several suppliers to buy electricity at the lowest prices. Deacero has also been able to consume energy from renewable sources and manage the sale and purchase of CELs. The company will be supplied with almost half of the renewable energy produced by the 66-MW Eólica Río Bravo windfarm. The project is to begin construction in July 2021 in the municipality of Méndez, Tamaulipas, with commercial operation scheduled for July 2024. Ternium, Mexico's fourth-largest steel producer, as well as several other companies, will also receive power generated from the plant. Deacero has an integrated cross-border supply chain and exports a large share of its products to the US. The company owns several steel manufacturing plants in Mexico and three in the United States (two in Texas and one in Missouri). According to Deacero CEO Raúl Gutiérrez, the company ships 40 percent of its products abroad, with half of its exports going to the United States.

CEMENT TRADE: Mexico is a significant global cement producer and home to the world's fifth-largest cement company by production,⁵⁸ Cemex, which is headquartered in the Monterrey area. According to the National Cement Chamber (Canacem), the Mexican cement industry accounts

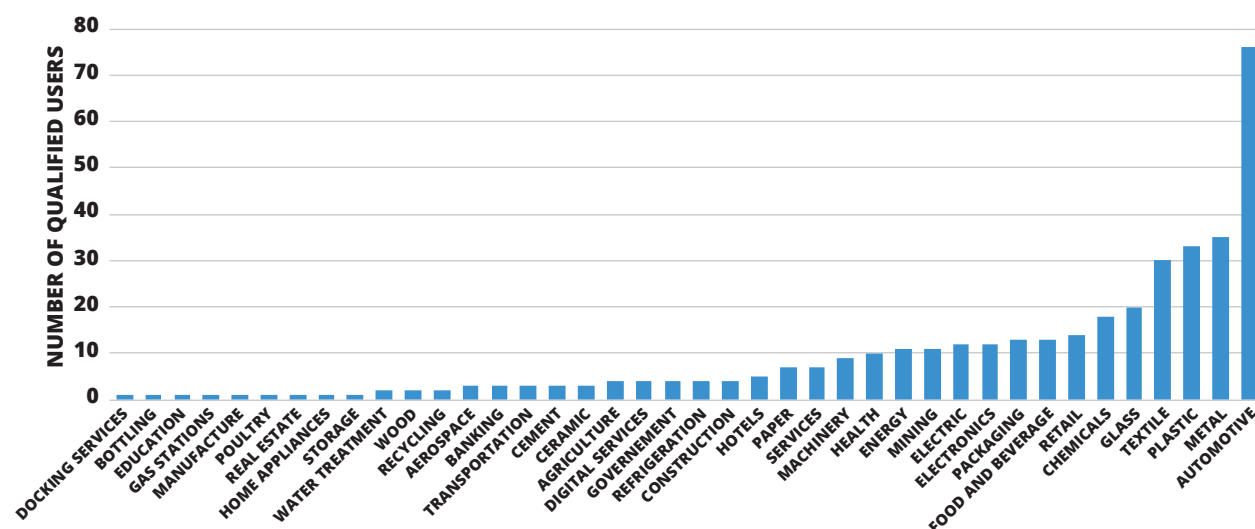
for 20,000 direct jobs and 1 percent of the country's GDP.⁵⁹ However, only around 3.4 percent of Mexican cement is exported to the US.⁶⁰ Cement is among the most energy-intensive industrial subsectors, accounting for almost 15 percent of manufacturing energy consumption worldwide.⁶¹ The cement industry has been estimated to generate 8 percent of the world's CO₂ emissions.⁶²

Like many other multinational and publicly traded corporations, Cemex has established ambitious climate-related targets, including a goal of 40 percent renewable energy by 2030 (up from 30 percent in 2019) and net-zero concrete production by 2050.⁶³ Through its energy business unit, the company both supplies energy for its own consumption and sells energy as a qualified supplier in Mexico, where the firm employs over 9,000 people (23 percent of its global workforce).⁶⁴ In 2015, Cemex Energía signed a joint venture with Pattern Energy to develop 1,000 MW of renewable projects in Mexico.⁶⁵ In June 2020, the company explicitly stated that changes in the Mexican electricity market that limit private renewable energy generation could increase its operating costs.⁶⁶

BEER TRADE: Mexico is a major beer exporter, according to the US National Beer Wholesalers Association, providing 70 percent of all beer imported into the United States and accounting for a 10 percent share of all beers sold in the country.⁶⁷ In Mexico, the beer industry generates approximately 900,000 jobs, both direct and indirect.⁶⁸

FIGURE 7: QUALIFIED USERS BY INDUSTRY, FEBRUARY 2020

Source: Zumma Energy Consulting.



Grupo Modelo, Mexico's largest brewer by market share, has shifted to using renewable sources such as wind and solar to help power its production facilities. In 2019, the group executed a long-term PPA with qualified supplier Amper Energía for more than \$60 million. As a result, Grupo Modelo will receive clean energy and CELs produced from a solar PV power plant located in Chihuahua. Grupo Modelo also has a PPA with Spanish company Iberdrola to receive electricity on a long-term basis from a 220-MW wind farm in Puebla state. During construction, the wind farm generated more than 500 direct jobs and led to contracts with 11 Mexican suppliers.

Another major beer producer and retailer, Heineken México, announced the execution of a PPA with Enel Energía México, an Enel Group retail subsidiary, in 2020. Enel will provide Heineken with 100 percent renewable energy for 10 years to power brewery operations at its plant in Meoqui, Chihuahua. Each year the plant will be supplied with 28.8 GWh of renewable energy, avoiding 16,100 tons of CO₂ emissions.⁶⁹

AUTOMOTIVE TRADE: Mexico is a top provider of vehicles to the US market. Last year, Mexico exported 86 percent of the almost four million light-duty vehicles it produced to the United States.⁷⁰

In the auto sector, General Motors México consumed 21 percent of its electricity from renewable sources in 2019. PPAs signed by the company allowed it to acquire wind power for its four manufacturing facilities. In

addition, the company owns installed PV capacity of 20 kilowatts (kW) and 90 kW in its Silao and San Luis Potosí facilities, respectively. Globally, General Motors has committed to consume 100 percent renewable energy by 2040 and aims to reduce energy intensity by 20 percent in 2020.⁷¹ BlackRock's 130-MW La Bufa wind farm in Zacatecas reportedly supplies 60 percent of the power⁷² for the largest automobile factory in Mexico, a Volkswagen facility in the state of Puebla, through a power purchase agreement.⁷³

As US companies attempt to reduce the risk to their supply chains posed by global threats like the US-China trade war and Covid-19 in a nearshoring process, Mexico is a top candidate due to its proximity to the United States and the USMCA.

The Mexican government has begun its efforts to attract investment to Mexico in light of the USMCA, the trend of shortening supply chains to mitigate global risks (nearshoring), and the US-China trade war that has led to higher trade tariffs on Chinese imports to the United States. On a July trip to Washington, López Obrador signed a declaration which cited the agreement as "the ideal instrument to provide economic certainty and increased confidence to our countries."⁷⁴ However, investors observe that López Obrador has undermined this very confidence in myriad ways, particularly in the energy sector. Industrial users compete in global markets, and for many manufacturers, costs for electricity and natural gas are the most significant variable cost of manufacturing. Any

hike in rates charged by CFE would put industrial users in Mexico at a competitive disadvantage to manufacturers in countries with lower electricity costs, negating the benefit of Mexico's lower labor costs and putting pressure on companies to cut other costs to compensate.

Environmental Impacts

Mexico has made a strong commitment to tackling climate change in part by promoting clean energy. The energy sector opening led to an increase in renewable energy capacity. However, due to the recent policy changes, Mexico will no longer be able to meet its clean energy targets.

In 2012, Mexico approved its first pieces of comprehensive climate change legislation to guide national policy, which included a General Law on Climate Change, a Special Program on Climate Change, and a National Strategy on Climate Change. The energy reform legislation also reiterated Mexico's aggressive target of generating 35 percent of its power from clean sources by 2024 and

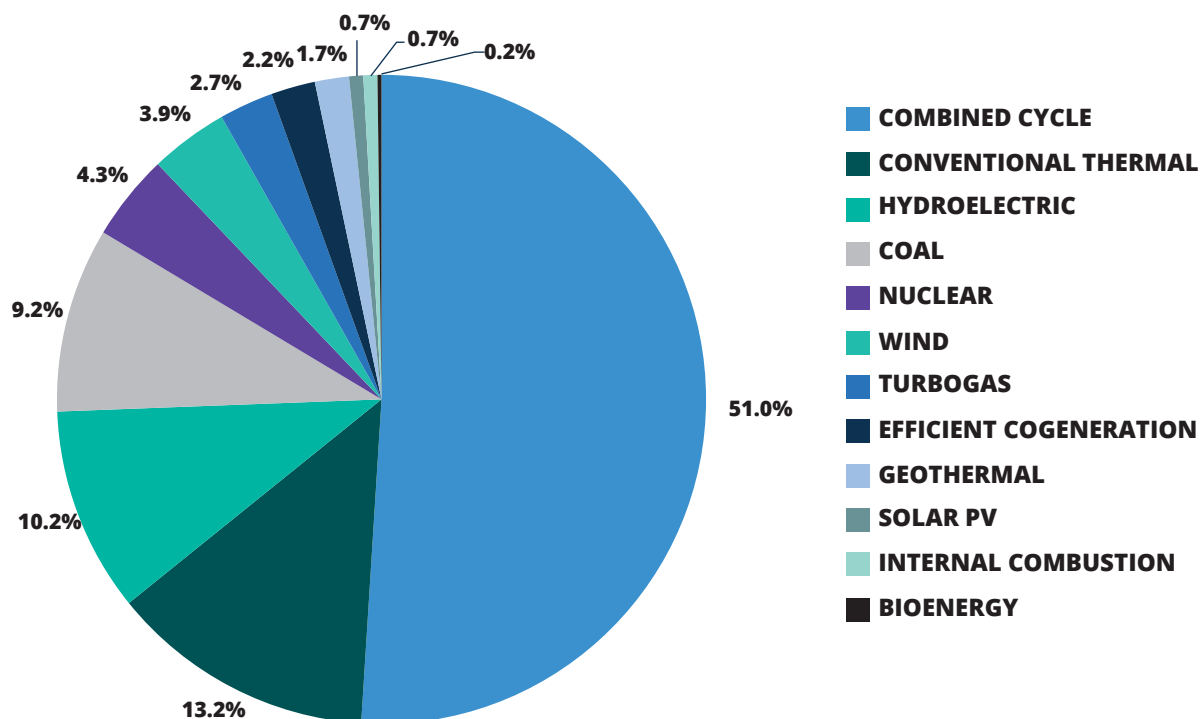
imposed interim targets to reach that goal, including a target of 25 percent in 2018 and 30 percent by 2021. Mexican legislation defines "clean energy" as wind, solar, geothermal, biomass, hydro, nuclear, efficient cogeneration, and thermoelectric plants with carbon capture and storage.

However, Mexico's ability to meet its clean energy targets was based on displacing fuel oil for clean energy. In 2018, Mexico only generated 23 percent of its power from clean energy sources (see Figure 8), missing its first target. Wind and solar generation have increased substantially over the past two years—from 5.8 percent and 1.7 percent of installed capacity respectively in 2018 to 7.5 percent and 4.3 percent this year, according to Energy Minister Rocío Nahle⁷⁵—but not enough for Mexico to meet its targets. At the same time, a recent study revealed that one of CFE's plants almost exclusively burned fuel oil from 2016 to 2019.⁷⁶ Mexico could still meet its 2021 generation target if existing clean energy plants are allowed to run but not if coal and fuel oil are given priority.

In the longer term, Mexico cannot meet its 2024 and 2030 targets without building new plants. In light of Mexico's

FIGURE 8: SHARE OF ELECTRICITY GENERATION BY TECHNOLOGY, MEXICO, 2018

Source: "Programa de Ampliación y Modernización de la Red Nacional de Transmisión y Redes Generales de Distribución del Mercado Eléctrico Mayorista, Prodesen 2019–2033," Cenace, Centro Nacional de Control de Energía, June 2019.



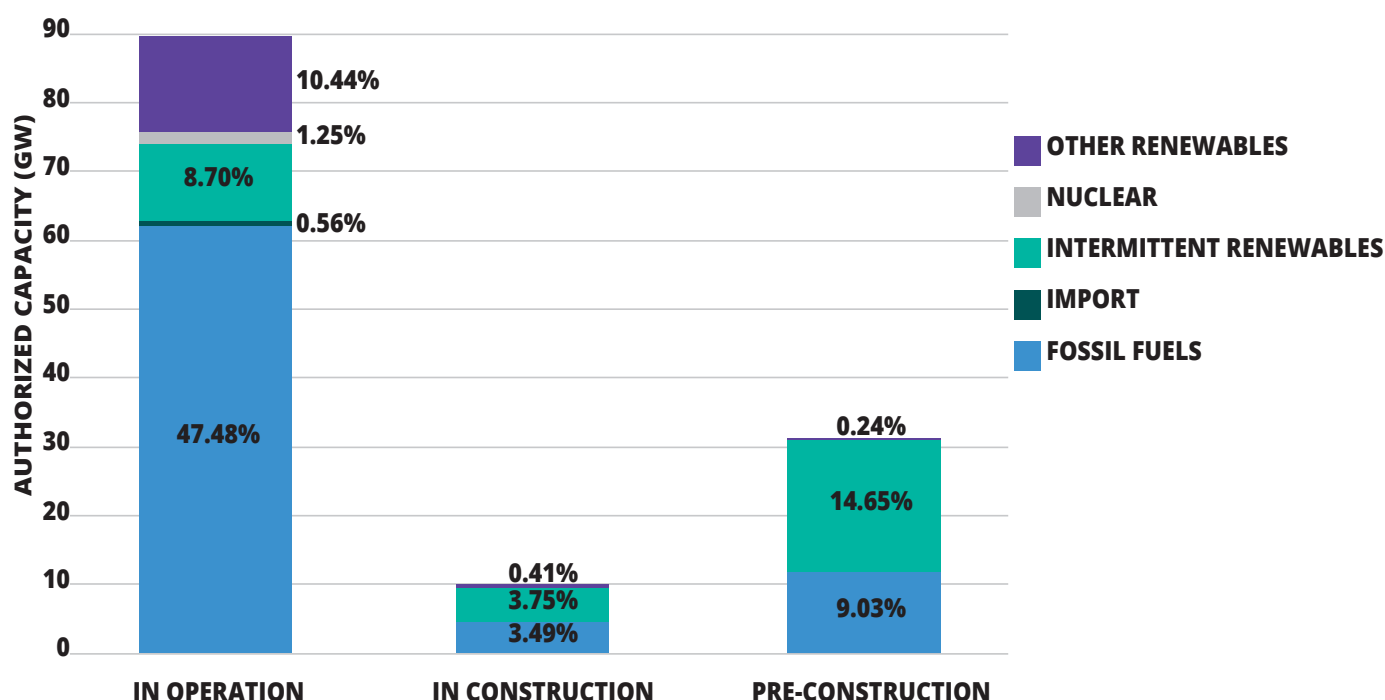
three long-term energy auctions, clean technologies are set to expand (see Figure 9). Wind, solar, and geothermal (mostly wind and solar) projects won all of the generation contracts (natural gas combined cycle won most of the capacity contracts) and capacity from these renewable technologies has been increasing as a result. As of February 28, 2020, out of the 66 renewable projects tendered through the three auctions between 2015 and 2017, 34 projects (51.5 percent) were already in commercial operation.⁷⁷ Currently, 54 wind farms are operating in Mexico, with 2,247 wind turbines providing 4,935 MW of capacity, according to the AMDEE.⁷⁸ Meanwhile, Asolmex reports installed PV capacity of 5,510 MW, divided between 67 large-scale plants and distributed generation.⁷⁹ However, with the cancellation of the auctions and other measures described above, new clean energy plants will no longer be built, preventing Mexico from meeting its medium- and long-term targets.

Additionally, many corporate energy consumers are concerned about not meeting their own lower-carbon goals and losing their place in sustainability indexes. As Mexican officials reportedly court companies including Apple, Google, and Microsoft, hoping to increase exports,

it is worth noting that many multinational companies have ambitious climate-related goals. In the tech sector, for instance, Apple has a 2030 carbon-neutrality plan, and Microsoft intends to be carbon-negative by then.⁸⁰ Google's renewable energy purchases were equal to 100 percent of its consumption from 2017–2019.⁸¹ Although the USMCA has already begun to attract investment to Mexico, such as \$65 million in manufacturing expansions by South Korea-based Kyungshin Cable in Durango state,⁸² preventing new, inexpensive, and particularly clean power from coming online will diminish the overall advantages that Mexico has through nearshoring and the USMCA and work in opposition to its own economic goals.

FIGURE 9: AUTHORIZED CAPACITY BY DEVELOPMENT STAGE, 2020

Source: Zumma Energy Consulting.



CONCLUSIONS

1

Even though most of the López Obrador administration's regulatory changes in the power sector have not actually taken effect, they have deeply damaged the impression of legal certainty for investors.

The cancellation of long-term clean energy and transmission auctions and the refusal of CRE to approve private generation projects over the last year and a half have left an estimated 285 power projects representing \$100 billion in investments in limbo.⁸³ However, most of the López Obrador administration's efforts to stifle private investment in the power sector have been held up in court challenges. Though these injunctions provide investors legal protection for now, the administration may also attempt to change the Constitution and reverse the Electricity Industry Law itself, which would provide sound legal footing for many of these recent measures. Regardless of the outcomes of the legal process and legislative agenda, the greatest impact of the López Obrador administration's policies thus far has been a collapse of legal certainty in Mexico's power sector,

including for investors in the US and around the world. In its 2020 Investment Climate Statement on Mexico, the US Department of State observes that "Investors are increasingly concerned the administration is undermining confidence in the 'rules of the game,' particularly in the energy sector..." In addition to regulatory changes, the report cites a "weakening [of] the political autonomy" of anti-trust and energy regulatory agencies, noting that four of seven CRE commissioners were appointed by the administration even after being voted down twice by the Senate, partly due to such concerns.⁸⁴ What's more, the lack of regulatory and legal stability in the energy sector has spooked investors in other sectors of the Mexican economy. Investor confidence will not be easily restored, whenever Mexico once again seeks private investment in energy and other sectors.

2

The actions that López Obrador's administration has taken to curb private investment in the power sector will have effects well beyond the end of his term in 2024.

The effects of the legal uncertainty López Obrador has generated and of the dwindling pipeline of new projects will not immediately be evident, as it takes several years to build power infrastructure. But the eventual gaps in energy supply created by this lapse in investment will take years to recover from. A lack of investment in human capital will also become evident over time. López Obrador has cut university budgets for training of renewable energy professionals, meaning that whenever the Mexican government chooses to embrace renewable energy once more, the local labor force will not be as strong as it could have been. This will delay or add costs to the restart of renewable energy development in Mexico.

Similarly, the effects on electricity costs in Mexico that result from steps taken today to curtail private power sector investment may be delayed or hidden from the view of most Mexicans. Because of the lag time associated with constructing power infrastructure, it will take time before López Obrador's policies lead to higher electricity costs as the country becomes increasingly dependent on older and more expensive CFE production. However, if electricity rates are kept artificially low through increasing subsidies, residential consumers may not even see this increase in cost, despite its insidious effect on the country's public finances. This situation will be further exacerbated by a decrease in tax revenue from the private sector as higher energy prices inevitably make Mexico's industry less competitive and profitable.

3

In the short term, inexpensive and reliable energy will be vital for Mexico to attract investment and create jobs in order to recover from Covid-19. In the long term, private energy investment will be essential to meeting the country's growing power demand.

Mexico had already slipped into a technical recession with a slight contraction in all four quarters of 2019 and an overall annual contraction of 0.1 percent.⁸⁵ With the onset of the Covid-19 pandemic and the global economic shutdown measures meant to slow the spread of the virus, Mexico's GDP fell 18.7 percent year on year in the second quarter and the central bank has projected a possible contraction of almost 13 percent in 2020.⁸⁶ If López Obrador intends to revive the economy without significantly increasing Mexico's deficit, fostering an environment conducive to private investment is an indispensable step. In fact, stimulating the economy through renewable energy and other climate-related investments, as other countries, most notably the European Union, have discussed, could be a very attractive option given Mexico's strong existing renewable energy market. For a start, unleashing the investment that is stalled in the permitting process looks like low-hanging fruit.

The long-term implications of López Obrador's policies for Mexico's economic growth are just as important to highlight given that, as previously stated, power projects take years to award, permit, and construct. As long as private power projects are stifled by policy, the power supply will act as an unnecessary constraint on economic activity. According to SENER, Mexico's power demand is growing at an annual rate of 3–3.5 percent (Covid-19 notwithstanding), meaning the country may be on track for a shortage of 30 GW of capacity.⁸⁷ This will serve as a hindrance to economic growth for years, make Mexico less competitive, reduce tax revenue and employment, and degrade reliability of the power supply across the country—none of which are goals of President López Obrador.



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