



**COUNTRY
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Mexico

RENEWABLE ENERGY

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This country-specific Q&A provides an overview of renewable energy laws and regulations applicable in Mexico.

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MEXICO

RENEWABLE ENERGY



1. Does your jurisdiction have an established renewable energy industry? What are the main types and sizes of current and planned renewable energy projects? What are the current production levels?

Yes, Mexico has an established renewable energy industry.

According to the Development Program of the National Electric System 2023 – 2037 (Programa de Desarrollo del Sistema Eléctrico Nacional 2023 – 2037) issued by the Ministry of Energy (Secretaría de Energía), Mexico had a clean energy generation capacity of 31,369 MW (megawatts) as of December 31, 2022 (including solar, hydropower, wind, geothermal, nuclear, cogeneration and biomass), which represented 36% of the total generation capacity.

The main types of renewable energy projects are: (i) hydropower, with an installed capacity of 12,613 MW (megawatts); (ii) wind farms, with an installed capacity of 6,921 MW (megawatts); (iii) solar, with an installed capacity of 6,535 MW (megawatts), and (iv) geothermal, with an installed capacity of 976 MW (megawatts).

During 2022, the production of clean energy was 82,983 GWh (gigawatt hours), which represented 31.2% of all the energy produced in Mexico on that year.

2. What are your country's net zero/carbon reduction targets? Are they law or an aspiration?

Mexico is a part of the Paris Agreement, which has the goal to keep the rising of global temperature under 2 °C with respect to pre-industrial levels. In addition, the General Law of Climate Change set forth a goal of at least 35% of production of clean energy for the year 2024.

3. Is there a legal definition of 'renewable energy' in your jurisdiction?

Yes. The Electricity Industry Act and the Energy Transition Act define both “clean energy” and “renewable energy.” According to article 3, section XXII of the Electricity Industry Act, “clean energy” is the sources of energy and processes of electricity generation in which emissions or waste (if any) do not exceed the thresholds established in the regulation issued thereunder. Article 3 lists certain sources and processes considered to be clean energy, for example wind, solar irradiation, tidal energy, geothermal, bioenergetics, biogas, hydrogen, hydropower, nuclear power, efficient cogeneration, energy produced in sugar mills and energy produced in thermal power plants using the process of carbon capture. In some cases, to be considered clean energy, such sources and processes are required to comply with the efficiency criteria or emissions thresholds established by the Energy Regulatory Commission or the Ministry of Environment and Natural Resources.

On the other side, the Energy Transition Act defines “renewable energy” as energies obtained from natural phenomena or from processes or materials that can be transformed into energy by humans and are naturally regenerated, and therefore, are available in a continuous or recurrent manner, and whose production processes do not cause emissions. Among the sources that are considered renewable energy are wind, solar irradiation, the movement of water on natural courses or artificial courses with existing reservoirs, with a generation capacity of up to 30 MW or with a power density over 10 watts/m², ocean energy, geothermal and bioenergetics.

4. Who are the key political and regulatory influencers for renewables industry in your jurisdiction and who are the key private sector players that are driving the green renewable energy transition in your

jurisdiction?

The key political influencer for renewables industry in Mexico is the Ministry of Energy. The Ministry of Energy set forth the public policy for renewables and the power sector overall, which is followed by the governmental authorities in the power sector and by the state-owned utility Federal Electricity Commission (Comisión Federal de Electricidad).

The key regulatory influencer for renewables industry is the Energy Regulatory Commission (Comisión Reguladora de Energía). The Energy Regulatory Commission was created in 1993 as an advisory regulatory body (órgano desconcentrado) within the Ministry of Energy. However, it became an entity with technical, operational and management autonomy until the constitutional reform of the energy sector of 2013.

The Energy Regulatory Commission has the power to issue and modify the regulation in the electricity sector and has the authority to grant the generation permits required by law to produce power, including through renewable sources. In connection with renewable generation, the Energy Regulatory Commission is also in charge of granting Clean Energy Certificates (Certificados de Energías Limpias) to those generators who produce power without using fossil fuels and is in charge of operating the system used for trading such certificates.

5. What are the approaches businesses are taking to access renewable energy? Are some solutions easier to implement than others?

There are two main schemes to access renewable energy for businesses. The businesses that require major amounts of power (demand greater than 1 MW) may receive the power supply from qualified suppliers, requiring those suppliers the acquisition of the power from clean generators.

The second scheme is distributed generation, which may be convenient for businesses that require minor amounts of power (less than 500 kW). Those businesses may install solar panels on their rooftops or in their yards to produce clean power to be consumed in their businesses. This scheme benefits the environment by producing clean energy and the businesses owners by reducing their power bills.

Choosing qualified supply or distributed generation depend on the power requirement of the business rather than the easiness to implement one scheme or the

other.

6. Has the business approach noticeably changed in the last year in its engagement with renewable energy? If it has why is this (e.g. because of ESG, Paris Agreement, price spikes, political or regulatory change)?

Yes. The interest of businesses for renewable energy has noticeably increased in recent years.

Businesses are increasingly implementing ESG-related policies, which typically include consuming a certain amount of power generated through renewable sources. In addition, renewable power tend to be cheaper than power produced using fossil fuels. The access to cheaper and better performing generation equipment has also allowed more companies to engage in generating clean energy.

In Mexico, regulatory change increased the interest on renewable energy. The 2013 Constitutional Energy Reform, the enactment of the Electricity Industry Act (August 2014) and the Energy Transition Law (December 2015) allowed private investment in power generation and established incentives for the development of new renewable energy generation projects (i.e., the existence of Clean Energy Certificates, the creation of a Wholesale Electricity Market based on production costs, long-term and mid-term auctions, among others).

7. How visible and mature are discussions in business around reducing carbon emissions; and how much support is being given from a political and regulatory perspective to this area (including energy efficiency)?

In recent years, the discussions in businesses around reducing carbon emissions have been increasingly mature and visible.

Nevertheless, there is not much support from a political and regulatory perspective. Several high-level officials and authorities related to the energy-sector have stated that generation of power through renewable sources affect the reliability of the power system. In addition, they have taken political decisions that affect the incentives for generating power through renewable sources, such as cancelling the long-term and mid-term power auctions, modifying the rules for granting Clean Energy Certificates, delaying the process of granting and

modifying generation permits, among others.

Furthermore, in recent years, the government has promoted an amendment to the Electricity Industry Law and even reforms to the Mexican Political Constitution with the purpose to modify the energy industry and the energy transition principles. Those political and regulatory measures do not contribute to continue reducing carbon emissions.

8. How are rights to explore/set up or transfer renewable energy projects, such as solar or wind farms, granted? How do these differ based on the source of energy, i.e. solar, wind (on and offshore), nuclear, carbon capture, hydrogen, CHP, hydropower, geothermal and biomass?

For setting up renewable projects in Mexico, the law establishes that all power plants with an installed capacity of 0.5 MW or higher require a generation permit granted by the Energy Regulatory Commission, regardless of the source of the energy. The generation permit allows the permit holder to produce power in the relevant generation facility, as well as operate the transmission line required to interconnect the power plant to the transmission or distribution grid, as the case may be. Generation permits are granted for a term of up to 30 years. In addition, depending on the source of energy, other governmental authorizations could be required.

Regarding geothermal energy, the obtainment of an exploration permit granted by the Ministry of Energy is required, which allows the permit holder to explore areas with geothermal potential within an extension of up to 150 km² and for a term of up to three years (extendable for three more years). If geothermal resources are discovered, the exploration permit holder could request a concession for the development of such geothermal resources, which is also granted by the Ministry of Energy for a term of up to 30 years.

In connection with hydropower, a concession granted by the National Water Commission (Comisión Nacional del Agua) is required for using water to produce power, except if used in small-scale generation projects. Water concessions are granted for a term of up to 30 years and can be extendable.

Regarding biomass, permits granted by the Ministry of Energy or the Energy Regulatory Commission could be required for production, storage, transportation, distribution by pipelines, commercialization and retail. No particular governmental authorizations are required

for using solar or wind resources for generation purposes.

Nuclear generation is reserved for the Mexican State through the Federal Electricity Commission. There are no specific rules for carbon capture or hydrogen.

The governmental authorizations required for transferring renewable projects would depend on how the transfer is being implemented (sale of assets, sale of shares of a special purpose vehicle, among others). Those usually include authorizations from the Energy Regulatory Commission and the Federal Antitrust Commission.

9. Is the government directly involved with the renewables industry? Is there a government-owned renewables company or are there plans for one?

The government participates in the renewables industry, but there is not a government-owned renewables company per se. In Mexico, the Federal Electricity Commission (Comisión Federal de Electricidad) is the state-owned utility that participates all along the chain value of the electricity industry. The Federal Electricity Commission participates in the generation activity in a regime of free competition with private power producers within the wholesale electricity market. In addition, the Federal Electricity Commission is in charge of carrying out transmission and distribution activities in an exclusive manner and is the main basic supplier for final users, with more than 45 million clients.

10. What are the government's plans and strategies in terms of the renewables industry? Please also provide a brief overview of key legislation and regulation in the renewable energy sector, including any anticipated legislative proposals?

The key legislation of the renewable energy sector is based on the Mexican Constitution, which set forth the key principles for the promotion of renewable generation projects: (i) the recognition of the human right to a sound environment; (ii) the free competition regime within the power generation activity; and (iii) the provision to include, in the applicable regulation, obligations regarding clean energy and reduction of polluting emissions.

Within the key legislation of the renewable energy sector, it highlights the Electricity Industry Law (Ley de la Industria Eléctrica, published on August 11, 2014),

which established the basis for the power sector in Mexico, including renewable generation. In addition, the Energy Transition Law (Ley de Transición Energética, published on December 24, 2015), has the objective to increase the participation of clean energy generation within the electricity industry, facilitate the achievement of the goals regarding clean energy, create incentives to promote power generation without using fossil fuels, such as the Clean Energy Certificates, among others. It also highlights the Law for the Promotion and Development of Bioenergetics (Ley de Promoción y Desarrollo de los Bioenergéticos, published on February 1, 2008), and the Law of the Geothermal Energy (Ley de Energía Geotérmica, published on August 11, 2014).

Mexico is currently facing a political context, which does not incentive the development of new renewable generation projects. Several high-level officials and authorities related to the energy-sector stated that the generation of power through renewable sources affects the reliability of the power system. In addition, they have taken political decisions that affect the incentives for generating power through renewable sources, such as cancelling the long-term and mid-term power auctions, modifying the rules for granting Clean Energy Certificates, delaying the process of granting and modifying generation permits, among others.

11. Are there any government incentive schemes promoting renewable energy (direct or indirect)? For example, are there any special tax deductions or subsidies offered? Equally, are there any disincentives?

Yes, there are incentives to promote renewable generation. The main incentive is the Clean Energy Certificates. The Energy Regulatory Commission grants one Clean Energy Certificate for each MW/h produced without using fossil fuels, for a period of up to 20 years. Clean generators can trade such Clean Energy Certificates in the market to obtain additional incomes.

In addition, there are other incentives to promote renewable energy, such as: (i) exemptions to pay fees for the obtainment and modification of generation permits; (ii) the possibility to register in preferential schemes for the importation of generation equipment (Programa de Promoción Sectorial or PROSEC); and (iii) preferential dispatch within the wholesale electricity market, due to low production costs.

The main disincentives do not proceed from the regulation nor the law but from political decisions of the government. As an example, it is reasonable to expect

considerable delays in the process of obtaining or modifying authorizations from authorities such as the Energy Regulatory Commission, the Ministry of Energy, the Ministry of Environment and other governmental offices.

12. Has your Government had to help with the basic cost of energy over the last year and has that led to any discussion about de-linking the gas price and renewables prices?

Yes. In Mexico, the tariffs of the power in the basic supply modality (power supply for homes and small businesses) are subsidized. According to the Mexican Institute for Competitiveness, Mexico destined more than USD\$3,500,000,000 during 2021 to subsidize power tariffs.

However, the government has not announced any plan for de-linking the gas price nor to reduce the use of fossil fuels in renewable generation. To the contrary, Mexico uses natural gas as base fuel for power generation and has increased the consumption of fuel oil produced in PEMEX oil refineries for the same purpose.

13. If there was one emerging example of how businesses are engaging in renewable energy, what would that be? For example, purchasing green power from a supplier, direct corporate PPAs or use of assets like roofs to generate solar or wind?

There are two main emerging schemes for engaging in renewable energy. The businesses that require major amounts of power (demand greater than 1 MW) may receive the power supply from qualified suppliers through the execution of power purchase agreements, requiring those suppliers the acquisition of the power from clean generators.

The second scheme is distributed generation, which may be convenient for businesses that require minor amounts of power (less than 500 kW). Those businesses may install solar panels on their rooftops or in their yards to produce clean power to be consumed in their own businesses. This scheme benefits the environment by producing clean energy and the businesses owners by reducing their power bills. Choosing qualified supply or distributed generation depend on the power requirement of the businesses rather than the easiness to implement one scheme or the other.

14. What are the significant barriers that impede both the renewables industry and businesses' access to renewable energy? For example, permitting, grid delays, credit worthiness of counterparties, restrictions on foreign investment.

The more significant barriers are permitting and grid delays. When developing renewable generation projects, it may be reasonable to expect in the administrative procedures of granting and modifying permits and licenses, and the authorities usually request excessive requirements for purposes of the foregoing.

The second barrier is grid constraints. The transmission and distribution of power is considered a public service in charge of the state-owned utility Federal Electricity Commission exclusively. However, there have not been major investments in new transmission lines nor in modernizing the current ones. Due to that, transmission constraints and congestions are common.

15. What are the key contracts you typically expect to see in a new-build renewable energy project?

The key contracts related to a new-build renewable project are the following:

- i. Financing Agreements. In Mexico, it is common the development of renewable energy projects through project finance schemes. In these schemes, part of the proceeds required for the design, construction, commissioning and operation of the renewable project plant are obtained from commercial and development banks. Such proceeds are paid with incomes from the sale of energy, capacity (Potencia) and Clean Energy Certificates produced by the power plant, either in the spot market or through electricity hedging agreements. In project finance schemes, the loan agreement and the security documents (trust and pledge agreements) are key for the development of the project.
- ii. Offtaker Agreements. As we mentioned above, renewable generation projects may be developed for the satisfaction of the consumption needs of certain companies. If that is the case, then an electricity hedging agreement (or a power purchase agreement, if related to a legacy project) has to be executed in order to set forth the terms and

conditions for the generation and delivery of energy by the generator, in exchange of a consideration payable by the offtaker.

- iii. (EPC Agreements. Certain developers of renewable energy projects decide to hire recognized experts for the development of a new-build renewable project. The EPC agreements (Engineering, procurement and construction) set forth the terms and conditions for the design and construction of the power plant by the contractor, in exchange of a consideration payable by the owner.
- iv. Interconnection Agreements. An interconnection agreement between the generator and the owner of the transmission and distribution grid (i.e., Comisión Federal de Electricidad) must be executed in order to allow the physical interconnection of the power plant to the grid. Prior to the execution of the interconnection agreement, certain interconnection studies must be performed by the National Center of the Energy Control (Centro Nacional de Control de Energía) to assess the interconnection infrastructure that generator must develop in order to interconnect the power plant to the grid in compliance with the regulation, including technical regulation about the efficiency, quality, reliability, continuity, safety and sustainability of the electric grid.
- v. Market Participant Agreements. Power plants interconnected to the electric grid require the representation of a generator in the wholesale electricity market. For that purpose, the developer of the renewable power plant could either: (a) become a market participant in the modality of generator, executing the relevant market participant agreement with the National Center of the Energy Control; or (b) hire a market participant in the modality of generators for the representation of the power plant, executing the relevant representation agreement.
- vi. Land Agreements (RoW). Lastly, it is important to consider the agreements for the obtainment of the land required to install the power plant, build the substation and the rights of way required for the construction of the transmission line. Those agreements are not regulated, except for those related to geothermal and hydropower projects.

16. Are there any restrictions on the export

of renewable energy, local content obligations or domestic supply obligations?

No, there are no restrictions on the export of renewable energy, local content obligations or domestic supply obligations. Regarding exportation of renewable energy, market participants are allowed to export power through the international interconnections with the electrical systems of the United States, Guatemala and Belize; provided that such market participants and the import/export operation itself must comply with the wholesale electricity market rules and the regulation regarding customs and foreign trade.

17. Has deployment of renewables been impacted in the last year by any non-country specific factors: For example, financing costs, supply chain or Covid 19?

Yes. The Covid-19 pandemic caused two main affectations to the renewables industry. First, the interruption of supply chains, which delayed the construction and commissioning of power plants under development. Due to such delays, developers required the amendment of the construction timelines established in generation permits, interconnection agreements and other governmental authorizations. In addition, the pandemic triggered force majeure clauses of EPC agreements, power purchase agreements, electricity hedging-agreements and other major agreements of the projects.

Secondly, due to the Covid-19 pandemic, the Energy Regulatory Commission, the Ministry of Energy, the Ministry of Environment, and other governmental offices suspended the terms of all procedures carried out before said offices. Therefore, most of the procedures to obtain or modify governmental authorizations before such governmental dependencies have been delayed.

18. Could you provide a brief overview of the major projects that are currently happening in your jurisdiction?

Nowadays, the development of renewable projects in Mexico has decreased in comparison with previous years. During 2019, 2020 and 2021, several renewable projects awarded in the Mid-Term and Long-Term Auctions (Subastas de Mediano y Largo Plazo) conducted by the National Center of Energy Control in 2015, 2016

and 2017, were developed. According to the Federal Electricity Commission, the 2015 Long-Term Auction awarded agreements related to 17 renewable power plants; the 2016 Long-Term Auction awarded agreements related to 43 power plants and the 2017 Long-Term Auction awarded agreements related to 16 power plants. Most of said power plants were developed by private investors.

Nevertheless, the Mid-Term and Long-Term Auctions were cancelled in 2018. Since then, the development of renewable projects has decreased. The major project being developed nowadays is the Puerto Peñasco Power Plant, a photovoltaic power plant with a generation capacity (once fully constructed) of over 1000 MW, located in the desert of the State of Sonora. The Puerto Peñasco Power Plant is being developed by the state-owned utility Federal Electricity Commission (Comisión Federal de Electricidad).

19. How confident are you that your jurisdiction can become a leader in newer areas like offshore wind or hydrogen?

Mexico has potential to become a leader in offshore wind, hydrogen and other renewable generation technologies.

Mexico has a coastline of more than 11,000 kilometers distributed in the Pacific and the Atlantic oceans. Some studies show that Mexico has some areas with the highest potential for offshore wind generation worldwide. In addition, Mexico is one of the countries with more solar irradiation in the world, receiving solar irradiation in most of the territory. Mexico also has lithium reserves that may be used for promoting energy storage.

20. How are renewables projects commonly financed in your jurisdiction?

The most common financing scheme used for the construction of renewable power plants is "project finance." In these schemes, part of the funding required for the design, construction, commissioning, and operation of the renewable project plant is obtained from commercial and development banks. In project finance schemes, the loan agreement, and the security documents (trust and pledge agreements) are key for the development of the project. In addition, new renewable generation projects are financed with corporate funds.

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