

Policy Shift to Impact Renewable Energy Projects in Mexico

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Abstract: Between April and May 2020, the Mexican federal government, through the Ministry of Energy, the Energy Regulatory Commission, and the National Center for Energy Control, issued a new set of regulations that reflect a major change in policy concerning the participation of the private sector in Mexico's electric industry. Contrary to the international trend to accommodate and support renewable sources of electricity, Mexico's current administration's policy is to advance the interests and market share of the state-owned Federal Electricity Commission, whose generation plants are primarily conventional. From indicating that the dispatch of wind and solar electric generation plants in operation could be subordinated to thermoelectric and hydroelectric plants to the unjustified suspension of operational testing of wind and solar electric generation projects, the regulations stand as the latest significant offensive by the current administration against the 2013 Energy Reform. The new policies endanger investments of billions of dollars and the creation of thousands of jobs and may cause additional emissions of thousands of tons of CO² per month. Claiming the new regulations are illegal and constitutionally

void, developers and NGOs have initiated legal actions before federal courts in Mexico. Additional injunction (amparo) trials are expected. Also, developers and investors around the world are discussing potential investment arbitration claims under the more than 20 bilateral investment treaties ratified by Mexico and under multilateral investment treaties including NAFTA – USMCA and the CPTPP. The story is still unfolding.

Recently Enacted Federal Regulations

Between April and May 2020, the Mexican federal government, through the Ministry of Energy (Secretaría de Energía) (SENER), the Energy Regulatory Commission (Comisión Reguladora de Energía) (CRE) and the National Center for Energy Control (Centro Nacional de Control de Energía) (CENACE), issued the following regulations:

- “Regulations to guaranty the efficiency, Quality, Reliability and Safety of the National Electric System” (CENACE Measures), issued by CENACE on April 28;¹
- “Policy for the Reliability, Safety, Continuity and Quality of the National Electric System” (SENER

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- Policy), issued by SENER on May 15, 2020;² and
- “CRE Tariffs Resolution” (CRE Resolution), issued by CRE on May 28, 2020.³

This new set of regulations (the “New Federal Regulations”) reflect a major change in policy concerning the participation of the private sector in Mexico’s electric industry through the construction and operation of renewable power generation projects and the sale of associated energy.

Contrary to most other countries that have issued regulations to accommodate and support renewable sources of electricity in their interconnected systems, Mexico’s current administration has advanced policies to support the state-owned Federal Electricity Commission (*Comisión Federal de Electricidad*) (CFE). Almost all wind and solar electric generation plants and projects in Mexico are owned by private sector companies.

The New Federal Regulations are intended to restrict the participation of the private sector in Mexico’s electric industry, principally through solar and wind power generation, and to at least preserve CFE’s market share of generation capacity and energy sales. In President López Obrador’s own words, his intention is to give CFE “a fair treatment”⁴ regarding the dispatch of energy and to eliminate the “preferential treatment for private parties.”⁵

Background – 2013 Energy Reform

PURPOSE OF THE ENERGY REFORM

Until the 2013 Energy Reform, the generation, transmission, distribution and marketing of electricity was exclusively reserved to CFE, a vertical monopoly owned and administered by the federal government. Participation from private parties was only allowed in the generation and sale of electricity under certain conditions (regulated by six different types of permit). As a result of the 2013 Energy Reform, the electric industry is subject to an entirely new legal regime open to private participation, no foreign investment limitations and, therefore, competition, where CENACE is obliged to dispatch generation units based on a cost-of-operation model that is intended to minimize the cost of electricity to the end user.

Although the 2013 Energy Reform comprised a constitutional reform, amendments to 12 existing

laws and the enactment of 9 new laws, no new laws were enacted to specifically regulate renewable energy generation. However, in December 2015, the Energy Transition Law (*Ley de Transición Energética*) (LTE) was enacted to promote the diversification of the electricity generation matrix and reduce greenhouse gas emissions through the incorporation of renewable generation and the reduced use of fossil fuels. Following the Climate Change Law (*Ley de Cambio Climático*) issued in 2012 prior to the 2013 Energy Reform, the transitory articles of the LTE established an ambitious clean energy generation target of 30% for 2021 and 35% for 2024.

WHOLESALE ELECTRICITY MARKET

Following the 2013 Energy Reform, specifically the issuance of the 2014 Electric Industry Law (*Ley de la Industria Eléctrica*) (LIE), the generation and wholesale of electricity in Mexico are subject to a regime of free enterprise and open competition. The state-owned CFE, through its subsidiaries and affiliates, became just one competitor in this new market.

Under the LIE framework, the Wholesale Electricity Market (*Mercado Eléctrico Mayorista*) (MEM) was created as a spot market operated by the CENACE where generators, power marketing companies and qualified purchasers gather to sell and buy electricity under a real-time system at marginal costs. These transactions serve to settle contracts for the purchase and sale of capacity, energy, CELs and various ancillary services. The CENACE is required to dispatch the system’s power plants based on a merit order of ascending operating costs, under which the lowest operating cost power plant satisfies system energy demand before the next lowest operating cost plant is dispatched.

CLEAN ENERGY INCENTIVES

Under the LIE, one of the main mechanisms to promote clean energies is the issuance of Clean Energy Certificates (*Certificados de Energía Limpia*) (CELs) to renewable power generators and the requirement imposed on qualified offtakers participating in the MEM to acquire CELs representing a percentage of their electricity consumption (as determined by the SENER). The CELs obligation applicable for 2020 is 7.4%.

Further, the three auctions carried out by CENACE during the prior administration to award contracts for

the sale of electric energy, capacity and CELs were exclusively directed to clean-energy generators, as a mechanism to both promote the development of clean energy projects and ensure the issuance of sufficient CELs to permit qualified offtakers and load-serving entities to comply with their clean energy obligations. In addition to the above, the law provides for several tax incentives applicable to renewables (among others, 100% tax expensing of the cost to purchase machinery and equipment).⁶

Based on the results of such auctions, 65 new clean energy power projects were awarded supply contracts (40 photovoltaic plants and 25 wind farms; around half of them already in commercial operation as of this writing), which represent an investment of approximately USD \$8.6 billion. The average price achieved in the third auction in 2017 was USD \$20.57 per megawatt-hour, which is very low under international standards. This policy also brought benefits from reductions in greenhouse gas emissions and helped Mexico get closer to complying with its commitment under the Paris Agreement.

In addition to the CENACE auctions, which represent 7,451 MW of new clean energy and roughly 11% of the total installed capacity in the country, private companies have built numerous renewable energy generation projects supported by power sales agreements negotiated on a bilateral basis with qualified purchasers.

Context – Current Administration Measures That Impact the 2013 Energy Reform

The New Federal Regulations stand as the most significant offensive by the current administration against the 2013 Energy Reform concerning the electric industry. They follow three measures taken in 2019. The first measure occurred at the beginning of 2019, when the government cancelled the fourth electricity auction after several delays, precluding wind and solar companies from entering or expanding their participation in the MEM.

The second measure was reflected in reports by several grandfathered electricity generators⁷ that the CRE had withheld requests to change their self-supply generation permits to include

additional partner-consumers or change existing partner-consumers, precluding the generators from delivering energy to the load points of such new partner-consumers. The Electric Industry Law does not give discretion to the CRE to withhold approval of such requests.

The third measure occurred in October 2019, when SENER announced a change to the eligibility criteria for the issuance of CELs, including the output from CFE's old hydro plants and the Laguna Verde nuclear plant as CEL-eligible generators. The purpose of this measure was to strengthen CFE's position, on one hand, by allowing CFE as generator to sell CELs, and on the other, by decreasing the market value of the CELs required to be acquired by CFE as a load serving entity. A further effect was to reduce the economic value of the CELs for wind and solar generators. In any case, court rulings in November and December of that year halted the government's proposed change to the eligibility criteria; however, final resolution has yet to be issued.

New Federal Regulations

CENACE MEASURES

General Considerations

While arguably addressing issues concerning the efficiency, quality, reliability, continuity and safety of the Mexican National Electric System (*Sistema Eléctrico Nacional*) (SEN) during the COVID-19 pandemic, on April 29, 2020, the CENACE (the SEN operator) issued the CENACE Measures,⁸ which contain certain actions adversely impacting wind and solar electric generation projects in the country.

Maximum Capacity of Renewable Energy

The CENACE Measures provide that the main transmission lines will operate at determined loads without depending on Remedial Action Schemes (*Esquemas de Acción Remedial*) (EAR). An EAR is a set of controls that, if emergency conditions arise, performs the automatic disconnection of certain elements of the electric system to preserve its integrity (including the disconnection of generation units, interruption of load points and topology change).

The above means that the operation of the main transmission systems shall be carried out without affecting the continued output of thermoelectric

and hydroelectric plants and eliminating operating safeguards designed to support the participation of renewable sources of energy.

Increase of Must-Run Power Plants

The CENACE Measures also provide that, to maintain control of the voltage regulation, certain must-run power plants will be designated (that is, those that can be quickly switched on and off to reduce intermittency). However, the criteria under which such power plants will be assigned and dispatched is not clearly defined in the CENACE Measures.

The CENACE Measures seem to indicate that the design of the wholesale power market will not be followed, but that CENACE instead shall have discretionary power in the dispatch of power plants. Accordingly, under the guise of improving system reliability, the dispatch of wind and solar electric generation plants may be subordinated to CFE's thermoelectric and hydroelectric plants. Also, it is unclear when and how these newly designated must-run power plants will begin being dispatched before renewable plants. As further described below, the Mexican Antitrust Commission (*Comisión Federal de Competencia Económica*) (COFECE) has stated that there is no technical basis for these dispatch provisions, which could result in an unjustified bias in favor of CFE.

Suspension of Pre-Operational Tests

In the context of mitigating the impact of the COVID-19 pandemic, the CENACE Measures also suspend ongoing pre-operational testing of renewable electric generation projects, and provide that future operational testing of upcoming projects will not be authorized. Such measures, rather than related to the COVID-19 pandemic, seem intended to implement one of the points contained in the CFE Request (*Pleigo Petitorio*) leaked in October 2019, which provides that CRE and CENACE "shall determine the maximum capacity of intermittent renewable energy that may be interconnected to the SEN in order to guarantee the optimal operation and reliability of the SEN."

Such provisions are unclear and require an explanation regarding the scope of the suspension and cancellation, further describing the tests and the applicable period. Understanding the measure is

relevant as it may cause a delay in the commercial operation of wind and solar power plants and, therefore, possible performance failures under the respective generation permit, interconnection contract, power purchase agreement and financing documents, among others.

Further Actions in Electrically Isolated Interconnected Systems

The CENACE Measures provide that in electrically isolated systems that have wind and solar power plants (i.e., Baja California, Mulegé and Baja California Sur), certain operational actions and strategies will be applied in order to strengthen the sufficiency, quality and continuity of the electric system.

Note that the criteria that will be followed to strengthen the sufficiency, quality and continuity of the electric system is not established by the CENACE Measures. Again, the measure seems to be an attempt to empower CENACE to act with discretion to favor the CFE and not in accordance with the Electric Market Rules (*Reglas del Mercado Eléctrico*) (the "Market Rules").

Further Analysis for Granting Licenses

Finally, the CENACE Measures provide that the applications for licenses (authorizations granted by CENACE to market participants, transporters or distributors to carry out tests, maintenance, repairs, and reconfigurations, among others) in the National Transmission Network (*Red Nacional de Transmisión*) (RNT) will be studied and analyzed to determine their feasibility, dates and times, so that the reliability of the SEN is maintained, without the dependence of EAR.

Such license feasibility study could affect, among others, the scheduled outages, thus impacting the maintenance programs of the power plants in operation. Again, it is not specified if CENACE will follow the Market Rules or if it will act discretionally in the aforementioned study.

Further Considerations

Temporality

The time frame of the CENACE Measures is uncertain. Although it was published based on and in the context of the COVID-19 pandemic (so it *should* be understood as limited to the duration of the

contingency measures),⁹ the specific time frame of the measures is not provided by the CENACE Measures.¹⁰

If the CENACE Measures are temporary (as is the lockdown due to the COVID-19 pandemic), some of its measures could be classified as emergency measures.¹¹ However, if they are intended to have indefinite effects, then CENACE could be exceeding its authority, modifying the dispatch rules approved by CRE and unduly discriminating against renewable power plants.¹² In any case, note that some of the provisions of the CENACE Measures have been further confirmed by the SENER Policy discussed below, which is intended to be permanent.

As with the recent amendment to the rules applicable to CELs, the amendment of the dispatch rules would also require a regulatory impact analysis (otherwise, the measures could be deemed to be illegal).

CRE and CENACE Powers and Authority

Three governmental agencies have primary responsibility for the regulation of the electric sector. SENER is responsible for the development of policy, CRE is responsible for the regulation, and CENACE manages the power grid and the MEM, to function under principles of free market competition and of open and non-discriminatory access to the transmission and distribution infrastructure. Accordingly, despite CRE being the regulatory agency and competent body to issue regulations with regard to the reliability and dispatch of generation units of the SEN, it has not issued any opinion with respect to the CENACE Measures.

It is possible to consider that CENACE, by using a CFE-centric approach to further the quality, reliability, continuity and safety of the SEN, has failed to comply with its obligation to guarantee open and not unduly discriminatory access to the RNT and the General Distribution Networks (RGD).¹³ Also, CENACE might be leaving aside the principles of transparency, objectivity, efficiency and sustainability that should guide its operations, thus affecting the final consumers.¹⁴

SENER POLICY

General Considerations

Restrictions for the Issuance of Generation Permits

In order to grant a new generation permit, the CRE may now request an interconnection validation study.¹⁵ Being a new requirement for obtaining generation permits, it is not clear what it would entail.

Early Termination Clauses

“New and amended” generation permits and the corresponding interconnection agreements “to be entered into or amended” must include provisions regarding their early termination in the event interconnection and operations are not achieved within the specified timeframe.¹⁶ This could represent a high risk for projects in construction (especially those that have already suffered delays due to causes such as COVID-19).

In any case, it is unclear what the purpose of the change is since generation permits and the corresponding interconnection agreements already include early termination provisions in case the commercial operation date is not reached on the deadline established for such purpose. Until recently, the CRE has granted extension requests to the commercial operation date deadline under generation permits, provided that the permit holder presents a request and justifies the extension. CFE Transmisión (CFE Transmisión) has normally followed the CRE determinations in this regard with respect to the interconnection agreements.

Conditions for the Granting of Interconnection Agreements

CENACE is obligated to evaluate the interconnection studies and requests based on the local demand and consumption of electricity,¹⁷ the availability of solar and wind resources,¹⁸ and the effect on reliability caused by the new generation project, among other factors.¹⁹ All of these new conditions were not provided previously.

New Criteria for the Dispatch of Solar and Wind Plants

The SENER Policy makes a determination that renewables are per-se and irremediable detrimental to system reliability, and expressly prioritizes reliability (provided by CFE’s thermal plants) over economic

efficiency.²⁰ By dispatching with priority higher-cost CFE-owned facilities over lower-cost privately owned renewables plants, the new policy will increase the marginal cost of generation in Mexico. It will also shift revenues from private generating facilities to CFE.

Further Considerations

Controversial Enactment

According to public information, on May 11, 2020, SENER requested urgent authorization for the publication of the SENER Policy from the Ministry of the Interior's department in charge of the Federal Official Gazette.²¹ Nevertheless, on May 12, the Ministry of the Interior rejected the publication on the grounds that, according to the National Commission for Regulatory Improvement (*Comisión Nacional de Mejora Regulatoria*, "CONAMER"), the SENER Policy's regulatory impact and costs should be subject to analysis and public comment prior to the policy's enactment.²²

The purpose of the regulatory analysis set forth in the Regulatory Improvement Law (*Ley General de Mejora Regulatoria*) is to identify the costs and benefits of proposed regulation.²³ Public entities are required to submit regulatory proposals to CONAMER at least 30 days in advance of their enactment or issuance, provided that if the proposed regulation entails no compliance costs (as confirmed by CONAMER within five days from the corresponding request), the relevant regulation will be exempt from the corresponding analysis.²⁴

On Friday, May 15, SENER uploaded the SENER Policy to CONAMER's website, along with a request to exempt the policy from the mandatory regulatory impact analysis. On the same date, the head of CONAMER suddenly resigned, and CONAMER issued an official communication to SENER stating that the SENER Policy was not a set of administrative regulations and could not be subject to regulatory analysis (effectively contradicting itself and its prior communications to the Ministry of the Interior).²⁵ On that same day, the SENER Policy was published in the evening edition of the Federal Official Gazette.

Economic Impacts

The new rules of the Wholesale Power Market pursuant to the SENER Policy will recognize no value for the capacity of the solar and wind plants. Under

the pre-existing framework, wind and solar power generators may commercialize energy and capacity. Under the new rules, solar and wind generators will be able to sell only energy, and load serving entities may no longer acquire capacity from such projects.²⁶ Reference is made to the MEM only, but if the SENER Policy is intended to apply to the grandfathered or legacy self-supply projects (*proyectos legados o de autobastecimiento*), this could result in a clear contradiction with the transitional provisions set forth in the LIE.

The new rules in the SENER Policy also allocate to wind and solar generators virtually all costs related to ancillary services and infrastructure improvements to accommodate increasing energy from renewable sources.²⁷ The SENER Policy provides that clean power projects shall carry the costs associated with their incorporation into the National Electric System.

Other Relevant Issues

- The CRE is expected to "update, issue and apply" regulations following the guidelines and policy set forth by the SENER Policy.²⁸ CENACE is also expected to "update, issue and apply" reliability criteria for the National Electric System's expansion plans and operation, with the approval of SENER.²⁹ The powers of each of CRE and CENACE may be limited by the SENER Policy and subordinate to those of SENER, although the existing institutional design provides for technical independence of the regulators.
- CFE will have a "proactive" role in the design and regulation of the National Electric System expansion plans and operation.³⁰ According to the LIE, CENACE and the distributing companies (including CFE Distribution (*CFE Distribución*)) may present expansion and modernization requests with regards to the transmission and distribution system, but the wording of the SENER Policy provides for a broader role of all CFE companies in these ventures, although details are unclear.
- When the CRE authorizes the assignment, transfer or lien on the rights under a Generation Permit, the terms set forth in the original version of the Generation Permit shall not be amended.³¹ This restriction is not provided for in the applicable law.
- The SENER Policy provides that CENACE will consider the "distance" (*espaciamiento*) between

renewable power generation projects in their interconnection studies and with respect to the National Transmission Grid and the RGD expansion studies.³² This could advance discretionary actions by CENACE and restrict the development and construction of new renewable generation projects depending on their location.

- SENER will have the right to categorize certain projects (expected to be CFEs) as fundamental for the development of its policy, and thus interconnection of such projects will have a preferential status.³³

CRE RESOLUTION

General Considerations

Self-Supply Scheme

Under the self-supply scheme (*autoabastecimiento*), which dates back to the 1992 reform to the Public Electric Service Law (*Ley del Servicio Público de Energía Eléctrica*), private generation plants may supply power to the holder of the relevant self-supply power generation permit and its shareholders or partners (*socios consumidores*). Such scheme was widely used from the late 1990s until the effective date of the LIE by large commercial and industrial consumers, which bought at least one share of the generating company as a way to qualify as an off-taker and decrease the overall cost of power supply.

In 2009, the CRE designed a transmission fee model where renewable projects under the self-supply scheme would pay only “postage stamp” fees for transmission, considering the government’s interest in increasing investments in renewables, at a time when renewable technology was still expensive. Self-supply generators that used renewable sources were not charged transmission fees per kilometre; instead, they were charged a fixed fee per kilowatt hour depending on the voltage tension (to be updated annually by CRE according to inflation) regardless of distance.

The LIE terminated this scheme in 2014 and established an arrangement where existing self-supply projects would be gradually phased out to eventually join the MEM. Nevertheless, as provided in Transitory Article Thirteenth of the LIE, projects with self-supply permits kept the same transmission fees regime then in effect.

Rates Increase

On May 28, 2020, through the CRE Resolution, CRE discussed and approved an increase to the electricity transmission rates for the legacy self-supply projects consisting in renewable and high-efficiency combined cycle plants. Such increase may rise transmission costs for self-supplying generators by 5x-10x, and translate into a 25% increase in total electricity costs for the supplied companies (exact information pending until the CRE Resolution is published in the Federal Official Gazette).

The transmission rates increase will affect roughly 100 generation plants that use renewable sources such as wind (37%) and solar (15%), as well as natural gas via efficient co-generation processes (48%). These plants supply companies in various sectors including automotive, retail, cement, steel, and health services, and represent around 14% of Mexico’s GDP. Accordingly, just as with the CENACE Measures and the SENER Policy, it is foreseeable that the generators and off-takers affected by the CRE Resolution will seek legal protection by filing *amparo* proceedings, and possibly in the future, seek redress pursuant to state-investor arbitration proceedings.

Further Considerations

Operating at a Disadvantage

According to the Business Council (*Consejo Coordinador Empresarial*) (CCE) and the Confederation of Industrial Chambers (*Confederación de Cámaras Industriales*) (CONCAMIN), while highly integrated with the United States supply chain, Mexican companies operate at a big disadvantage when it comes to energy prices: large corporates in Mexico have electricity costs that are 20% to 25% higher than their northern competitors, while medium-sized companies have electricity costs that are up to 50% higher.

Possible Bankruptcies

According with the Mexican Eolic Energy Association (*Asociación Mexicana de Energía Eólica*) (AMDE), the above-described measures in the CRE Resolution could provoke bankruptcies, as many of the stakeholders in the self-generators produce commodities such as cement, steel, and other

metals with thin margins and are unable to transfer a 20% or 30% increase in electricity prices to customers (forcing them to absorb the higher costs).

Insufficient Technical Explanation

RENEWABLE INDUSTRY BASICS

Fostered by the 2013 Energy Reform and growing demand for electricity, Mexico has seen a substantial increase in renewable generation. Such growth has accelerated given the falling cost of renewables and the policies to decarbonize the energy sector as provided, among others, in the LTE and the Paris Agreement.³⁴

Challenges

The incorporation of renewables to the Mexican energy matrix is, nevertheless, not without challenges. As the grid has very little storage capacity, the balance between electricity supply and demand must always be maintained to avoid a blackout or other cascading problem. Critics argue that technologies like wind and solar generation are inherently unreliable because they only produce energy when the wind is blowing or the sun is shining, so that maintaining the referred balance becomes complex. This is the logic that has been used to sustain the issuance of the CENACE Measures and the SENER Policy.

However, while intermittent renewables as wind and solar are challenging because they disrupt the conventional methods for planning the daily operation of the electric grid (designed around the concept of large and controllable electric generators), the problems associated with their intermittent nature have been exaggerated and can be solved through widely explored and proved techniques.

Opportunities

Even though renewables inject intermittency and reduce reliability of the grid (disrupting the traditional operation), it is possible to mitigate and overcome these as follows:³⁵

Prediction

While adding too much renewables could be seen as grid unbalancing, renewable energy actually becomes more predictable as the number of renewable generation units connected to the grid

increases because of the effect of geographic diversity and the Law of Large Numbers (the aggregate result of a large number of uncertain processes becomes more predictable as the total number of processes increases).

In consequence, as more renewables are added to the Mexican grid, it will get easier to effectively model and predict the aggregate renewable available power at a certain date and time. Accordingly, while the CENACE Measures and the SENER Policy seem to indicate that the incorporation of renewables has reached its limit, it would actually have a beneficial effect to further expand their presence.

Planning

The above power to predict finds its complement in the possibility to plan: considering that it is possible to predict solar and wind energy generation with reasonable accuracy, the energy policy of the SENER should instead incentivize electricity generation at the right time and place, the expansion of the RNT and RGD as required, and the use of the varied tools available to CENACE to counteract any undesirable effects caused by the incorporation of renewables to the energy matrix.

MEXICO'S LEGAL FRAMEWORK

SEN Interconnection

As a starting point, under the LIE the CENACE, as the independent operator of the grid, is in charge of ensuring open access to the SEN. The technical requirements to permit the interconnection of generation facilities to the SEN are issued by CENACE and approved by the CRE, who is also the authority in charge of approving the model interconnection agreements to be executed with the transporters and distributors (currently *CFE Transmisión*).

Following the interconnection study that determines that the interconnection is technically feasible, CENACE instructs the relevant transporter or distributor to enter into the interconnection agreement. Any required additional infrastructure shall be determined by CENACE in accordance with the Market Rules.

If any additional infrastructure is required, the generator has two options:

- a. Construct the required infrastructure or contribute the necessary funds for such purpose, case

in which it will acquire the corresponding financial transmission rights (which might be traded or sold in the MEM pursuant to the Market Rules); or

- b. If such infrastructure brings specific benefits to the SEN, request CENACE, the transporter or the distributor to include it in the expansion and modernization programs of the RNT and the RGD. In this case, the owners of the RNT and the RGD are compensated by regulated tariffs payable pursuant to the Market Rules and the generator shall guarantee the development of the proposed generation project.

Given the above, CENACE has tools to assess and determine the incorporation of renewable generators to the grid; *in the understanding* that if such incorporation introduces reliability or other operational issues, it has the power to determine the additional infrastructure to be developed and constructed, and the ancillary services to be provided, by certain market participants to make the interconnection possible.

SEN Expansion

Prior to the 2013 Energy Reform, no incentives to encourage the expansion of the transmission grid were provided by law. Nevertheless, some important efforts were made through open-season procedures organized by the CRE for the reservation of transmission capacity in the states of Oaxaca, Puebla, Tamaulipas and Baja California, where participants that guaranteed their commitments to develop and construct self-supply projects were allocated reserved transmission capacity.

Under the new LIE regime, there are new alternatives and incentives, such as the development, construction, financing, expansion and operation of the RND and the RGD by private parties through private-public contracts with the respective subsidiary of CFE. The cancelled Istmo and Baja transmission lines were going to be the first two projects developed under this new scheme.

Note that the Development Programme of the National Electric System (PRODESEN), which is prepared by SENER, includes the SEN development strategy. As part of it, CENACE prepares the RNT and RGD Expansion and Modernization Program,

which identifies the projects that shall be developed by transporters, distributors and the federal government during the next 14 years (note that the PRODESEN is updated annually). This translates into the possibility of SENER and CENACE to jointly promote the orderly expansion of the grid in order to be able to accommodate renewables.

SEN Operation and Planning

In order to guarantee the reliability of the SEN, CENACE is obliged to apply the provisions contained in the Market Rules issued by CRE (among others, the Transmission Code (*Código de Red*)). Market participants must abide by the instructions issued by CENACE to maintain such reliability; in the understanding that, as a guiding principle, CENACE shall avoid any interventions to the dispatch that are not strictly necessary to comply with the efficiency requirements of the Market Rules (except in situations of “relevant magnitude” – i.e., the COVID-19 pandemic).

While planning the operation of the SEN, CENACE shall consider hydrological, environmental and fuel supply conditions, the exit and entry schedules of generation units, and the use of controllable demand, among others. Market participants, transporters and distributors are obliged to provide CENACE with the necessary information to carry out such planning.

The above means that, while CENACE is legally obliged to ensure the reliability of the grid, it shall do so according to the Market Rules, which provide for a dispatch based on efficiency considerations. CENACE is required to avoid any deviation unless there are no alternative tools to ensure the system’s reliability. As explained below, the current legal and regulatory regime has provided CENACE with varied alternatives to achieve such purpose. The SENER Policy aims at overriding this regime in favor of the CFE-centric approach.

SEN Associated Services

In order to guarantee the reliability of the SEN, CENACE may acquire, among others, the following ancillary services (*servicios conexos*) under the terms of the Transmission Code and its operational provisions issued by CRE:

- operating reserves;

- spinning reserves;
- frequency regulation;
- voltage and reactive power regulation;
- emergency start;
- island operation; and
- dead bus synchronization.

While frequency regulation, operating reserves and spinning reserves are products that are acquired in the short-term MEM, the absorption, contribution and reserve of reactive power for voltage control, emergency start, island operation and dead bus synchronization are products not included in the MEM (so they are acquired outside the MEM subject to regulated rates determined by CRE). The costs of ancillary services are charged through regulated tariffs to qualified users and suppliers (both qualified and basic) in proportion to the energy consumed by their load points.

The Market Rules provide that CENACE must calculate the total requirements of ancillary services taking into account: (i) the risk of generation plant trips, (ii) the unplanned exits of the transmission, and (iii) the variability and errors of the intermittent generation and load forecast.

Incorporation and Dispatch of SEN Renewables

Considering the above, SENER (providing the transmission and distribution infrastructure policy), CRE (developing and surveilling the reliability legal framework), and CENACE (controlling the SEN and dispatching electricity pursuant to the Market Rules and the Transmission Code with the help of ancillary services) have the obligation and the tools to effectively model and predict the aggregate renewable power available to the grid, while at the same time plan and deploy the transmission and distribution infrastructure necessary to conduct it, using varied tools to correct any imbalances.

Accordingly, the reasons quoted by the above entities, particularly through the CENACE Measures and the SENER Policy, to subordinate renewables to more traditional forms of electric generation are without any technical basis.

LATIN AMERICAN EXPERIENCE – CHILEAN CASE **Common Issue: Intermittency**

In Chile, a 20% electricity generation with non-conventional renewable energy goal entered into force in 2013.³⁶ It is expected that a significant part of the energy contribution will be made through the incorporation of intermittent generation sources into the national electrical systems (mainly wind and solar).

As in Mexico, the incorporation of intermittent electricity generation sources in Chile has led to reliability concerns of the electrical system. This has created the need to increase the availability of plants that can generate permanently, and thus, have reserve capacity at those times when renewable plants are not available. In turn, this has fostered the need to increase the transmission system capacity.

Common Solution: Complementary Services³⁷

In order to minimize the system backup costs caused by the incorporation of intermittent power generation units, Chile has created a market for complementary and ancillary services (*servicios complementarios*). These services allow to carry out an adequate frequency control, voltage regulation and service recovery plan, both under normal operating conditions and in the event of contingencies.

All owners of electrical facilities part of an interconnected system, whether they are companies generating, transmitting, distributing or clients not subject to price regulation, are required to provide the respective electrical system with the already available complementary and ancillary services.

Furthermore, the system operator must analyze the existing market conditions and, where appropriate, instruct the deployment of additional mechanisms. Investments associated with new infrastructure, including its annual efficient maintenance costs (to be included in the complementary services report prepared by the system operator), shall be covered by the end-users through a complementary services charge to be incorporated into the transmission and distribution tariffs.

In accordance with the foregoing, the system operator defines, manages and operates the complementary and ancillary services necessary to guarantee the reliability of the system, subject to the safety and quality of service requirements

established in current regulations and while minimizing the cost of system operation.

Potential Implications

NEGATIVE EFFECT ON COMPETITIVENESS

Considering the lack of clarity and substantiation of the CENACE Measures described above, as well as the potential adverse impacts over economic competition, on May 7, 2020, the Antitrust Commission COFECE issued an opinion³⁸ providing that the CENACE Measures include restrictions that may have negative consequences over the competitiveness of the MEM, and therefore, issued the following recommendations:

1. Any measures implemented by CENACE with respect to renewable power plants should be based on strict technical criteria, which shall be duly publicized;
2. CENACE should not unduly discriminate against renewable power plants and should guarantee the economical dispatch, always considering the SEN reliability;
3. CENACE should publish the criteria under which the effects of the CENACE Measures will be terminated, including the term for the resumption of pre-operational tests. Such criteria shall be clear, transparent and measurable by third parties;
4. CENACE should limit the implementation of the measures provided by the CENACE Measures to those that are strictly necessary to guarantee the SEN reliability and only if there are no other alternatives that are less restrictive to competition; and
5. Together with market participants, CENACE should begin the analysis of actions and regulations required to solve the issues affecting the SEN and, in the medium term, create a system consistent with Mexico's power supply and demand, reducing the social costs (economic and environmental) of power generation.

While being directed only to the CENACE Measures, the above considerations by COFECE are also deemed applicable to the SENER Policy. On June 22, 2020, COFECE filed a constitutional claim against the SENER policy claiming that it violates the fundamental principles of competition ordered by the Mexican constitution.³⁹

ECONOMIC AND ENVIRONMENTAL IMPLICATIONS

Putting things into perspective, according to last year's PRODESEN power sector development plan published by SENER, wind accounted for 18.9% and photovoltaic solar for 29.4% of the 70,313 MW power projects planned for the 14-year period starting in 2019. Gas-fired combined-cycle plants accounted for 41.6% of this figure.

According to the Mexican Association of Solar Energy (*Asociación Mexicana de Energía Solar*) (ASOLMEX), the suspension of pre-operation tests by CENACE could affect 28 solar and wind plants that are ready to enter commercial operation with a generation capacity of 3.27GW, in addition to 16 projects representing almost 2.07GW that are being built and would not be allowed to connect to the grid. This would endanger investments over nearly USD \$6.43bn and the creation of more than 30,000 jobs, and cause additional emissions of 700,000t of CO² per month.

POLITICAL PRESSURE

Foreign governments (including Canada and the member states of the European Union), chambers of commerce (including the ASOLMEX, the *Consejo Coordinador Empresarial* and the *Confederación de Cámaras Industriales de los Estados Unidos Mexicanos*) and professional associations (including the *Barra Mexicana de Abogados* and the *Asociación Nacional de Abogados de Empresa*) have expressed their concerns with respect to the New Federal Regulations, their legality and the uncertainty they have caused to renewables companies and to their lenders and consumers across all industries. Political pressure and lobbying is expected to grow and toughen.

PRIVATE ENERGY MARKET

Mexico's first private-sector energy auction, organized by Bravos Energía, was scheduled for May 27, 2020. By March, 19 sellers and 9 buyers had signed up for the auction. Now, in light of the New Federal Regulations, the process faces uncertainty and might be rescheduled. London-based energy firm Vitol also has a private energy auction in the works, the process of which is open and can be reviewed in www.mexicoelectrico.com.

Upcoming Disputes

AMPARO LAWSUITS

Over the past few weeks, many holding companies and private generators have initiated *amparo* proceedings before federal courts to challenge the legality and constitutional validity of the CENACE Measures. Since May 18, 2020, District Court No. 1, which specializes in Antitrust and Telecom Procedures, as well as other District Courts have issued 23 temporary injunction orders (*suspensiones provisionales*) and 13 definitive injunction orders (*suspensiones definitivas*), granting protection against the effects of the CENACE Measures. CENACE has ordered interconnection tests to resume with regard to those projects which received a temporary injunction order.⁴⁰

Similar to what happened with the CENACE Measures, lawsuits (foreseeably, *amparo* proceedings) challenging the SENER Policy and the CRE Resolution are expected. Among the bases for challenge, the validity of the SENER Policy is expected to be disputed on the basis of its conflicts with the Electric Industry Law, the LTE, the Network Rules (*Código de Red*)⁴¹ and those laws that establish the power and authority of CENACE and the CRE. Also, failure to observe the provisions of the Regulatory Improvement Law and antitrust arguments are expected to be advanced. Furthermore, the SENER Policy may be disputed in light of Mexico's commitments related to climate change, including the Paris Agreement.

INVESTMENT ARBITRATIONS

A number of foreign companies have invested substantial amounts to develop renewable projects based on a valid regulatory system that established certain conditions. The change of such conditions could be considered discriminatory and potentially result in the reduction in value of the investment or the impossibility to pursue the project. This could trigger investment arbitration claims under the more than 20 bilateral investment treaties ratified by Mexico and also under multilateral investment treaties including NAFTA – USMCA or the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

Endnotes

- ¹ "Acuerdo para garantizar la eficiencia, Calidad, Confiabilidad, Continuidad y seguridad del Sistema Eléctrico Nacional, con motivo del reconocimiento de la epidemia de enfermedad por el virus SARS-Cov2," published on April 29, 2020.
- ² "Política de Confiabilidad, Seguridad, Continuidad y Calidad del Sistema Eléctrico Nacional," published on May 15, 2020.
- ³ Publication pending.
- ⁴ Presidencia de la República, *Conferencia de Prensa*, May 6, 2020.
- ⁵ Presidencia de la República, *Conferencia de Prensa*, May 18, 2020.
- ⁶ Article 34 XIII, Income Tax Law.
- ⁷ Grandfathered or legacy (*legados*) electricity generators are those that obtained their power generation permits for their projects before the new legal regime came into effect and, consequently, kept certain benefits of the then-existing legal regime.
- ⁸ See original document at <https://www.cenace.gob.mx/Docs/MarcoRegulatorio/AcuerdosCENACE/Acuerdo%20para%20garantizar%20la%20eficiencia,%20Calidad,%20Confiabilidad,%20Continuidad%20y%20seguridad%20del%20SEN%202020%2005%2001.pdf>
- ⁹ *Acuerdo por el que se modifica el diverso por el que se establece una estrategia para la reapertura de las actividades sociales, educativas y económicas, así como un sistema de semáforo por regiones para evaluar semanalmente el riesgo epidemiológico relacionado con la reapertura de actividades en cada entidad federativa, así como se establecen acciones extraordinarias, publicado el 14 de mayo de 2020*, published on May 15, 2020.
- ¹⁰ Article 3 II, Federal Administrative Procedure Law.
- ¹¹ Article 12 XXXIII, XXXIV, XXXVII, Electric Industry Law.
- ¹² Article 8, Electric Industry Law.
- ¹³ Article 107, Electric Industry Law.
- ¹⁴ Article 109, Electric Industry Law.
- ¹⁵ Section 5.7 of the SENER Policy.
- ¹⁶ *Ibid.* Section 5.6.
- ¹⁷ *Ibid.* Section 5.12.1.
- ¹⁸ *Ibid.* Section 5.12.3.
- ¹⁹ *Ibid.* Section 5.12.8.
- ²⁰ *Ibid.* Sections 5.3 and 7.1.
- ²¹ *Unidad de Asuntos Jurídicos, Secretaría de Energía*. Oficio 120/UAJ/1080/2010, May 11, 2020.
- ²² *Dirección General Adjunta del Diario Oficial de la Federación, Subsecretaría de Gobernación*. Oficio DGADOF/211/240/2020, May 12, 2020.
- ²³ Article 66 of the Regulatory Improvement Law (*Ley General de Mejora Regulatoria*).
- ²⁴ *Ibid.* Article 71.
- ²⁵ *Dirección de Manifestaciones de Impacto Regulatorio*, CONAMER. Oficio CONAMER/20/2079, May 15, 2020.
- ²⁶ *Ibid.* Section 10.8.
- ²⁷ *Ibid.* Section 10.4.8 and 8.10.
- ²⁸ *Ibid.* Section 3.1.
- ²⁹ *Ibid.* Section 3.3.
- ³⁰ *Ibid.* Section 3.8.
- ³¹ *Ibid.* Section 5.8.
- ³² *Ibid.* Sections 5.12.3, 5.12.6 and 10.4.5.
- ³³ *Ibid.* Section 5.23.
- ³⁴ <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- ³⁵ *Renewable Energy Intermittency Explained: Challenges, Solutions, and Opportunities*, by Robert Fares on March 11, 2015, accessible at <https://blogs.scientificamerican.com/plugged-in/renewable-energy-intermittency-explained-challenges-solutions-and-opportunities/>
- ³⁶ Law 20.698 that modifies the Electric Services Law (*Ley de Servicios Eléctricos*).
- ³⁷ Article 72°-7 (Complementary Services) of the Electric Services Law (*Ley de Servicios Eléctricos*).
- ³⁸ OPN-006-2020, issued by COFECE. See original document at: <https://www.cofece.mx/CFCResoluciones/docs/Opiniones/V132/28/5125826.pdf>
- ³⁹ <https://www.cofece.mx/cofece-interpone-controversia-constitucional-contra-la-emision-de-la-politica-de-confiabilidad-seguridad-continuidad-y-calidad-en-el-sistema-electrico-nacional/>
- ⁴⁰ Press Release dated May 20, 2020. Available at: <https://www.gob.mx/cenace/es/articulos/nota-informativa-para-los-integrantes-de-la-industria-electrica-243416>
- ⁴¹ *Disposiciones Administrativas de carácter general que contienen los criterios de eficiencia, calidad, confiabilidad, continuidad, seguridad y sustentabilidad del Sistema Eléctrico Nacional: Código de Red*.

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