Proposals for strengthening the electricity sector in Mexico's new energy regime

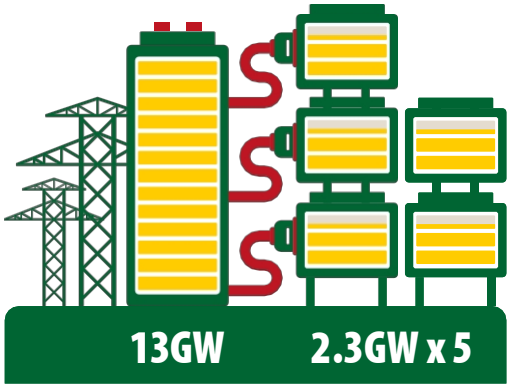
Verónica Irastorza
John McNeece

This chapter brings together proposals for strengthening the electricity sector under Mexico's new energy regime, in which both the predominant role of the state—through the CFE—and the participation of private initiative—as support—are fundamental. In the following sections, we focus on the incorporation of new generation, as well as on the planning processes of the electricity sector and the MEM, including the integration of synergies between the public and private sectors.

Financing needs

According to the 2025-2030 National Electricity System Strengthening and Expansion Plan, Mexico needs 29.1 gigawatts (GW) of additional generation capacity to meet projected electricity demand for 2030.6 Of the total required, the CFE will contribute around 22.7 GW of additional generation capacity: 13 GW will correspond to new generation and battery projects; 2.4 GW from cogeneration projects to be carried out with Pemex; and 7.2 GW from generation projects under construction managed by the previous administration.7 For its part, the private sector will contribute another 6.4 GW of new generation, mostly from clean energy.8

> The figures are aggressive. Just to develop the **13 GW** of new generation and battery projects on its own during this six-year term, the CFE will need to build more than five times the new net capacity added in the previous six-year term (2018-2024), equivalent to 2**.3 GW.9**



6 CFE (February 5, 2025). *Plan for Strengthening and Expanding the National Electric System.*

7 Ibid., slide 7.

8 Loc. cit. See also: Presidency of the Republic (February 5, 2025). "President presents 51 electricity projects from the Plan to Strengthen and Expand the National Electricity System 2025-2030" in *Government of Mexico*. https://www.gob.mx/presidencia/prensa/presidenta-presenta-51-proyectos-de-electricidad-del-plan-de-fortalecimiento-y-expansion-del-sistema-electrico-nacional-2025-2030

9 CFE (December 31, 2024). *2024 Annual Report*. https://www.cfe.gob.mx/finanzas/reportes-financieros/Reportes%20Anuales%20Documentos/Reporte%20Anual%202024.pdf. According to Table 9, "Installed Capacity and Generation," CFE's installed generation capacity was 42.8 GW in 2019 and grew to 45.1 GW in 2024, for an increase of 2.3 GW.

Huge investments will be needed to build the planned new generation capacity. Conservatively,[10] the Strengthening and Expansion Plan projects that the investment required to add:

22.7 GW
OF CAPACITY BY THE CFE

IN TURN, THE
6.4 GW
DEVELOPED BY THE PRIVATE SECTOR

WILL BE
22.4
MILLION DOLLARS IN SIX YEARS

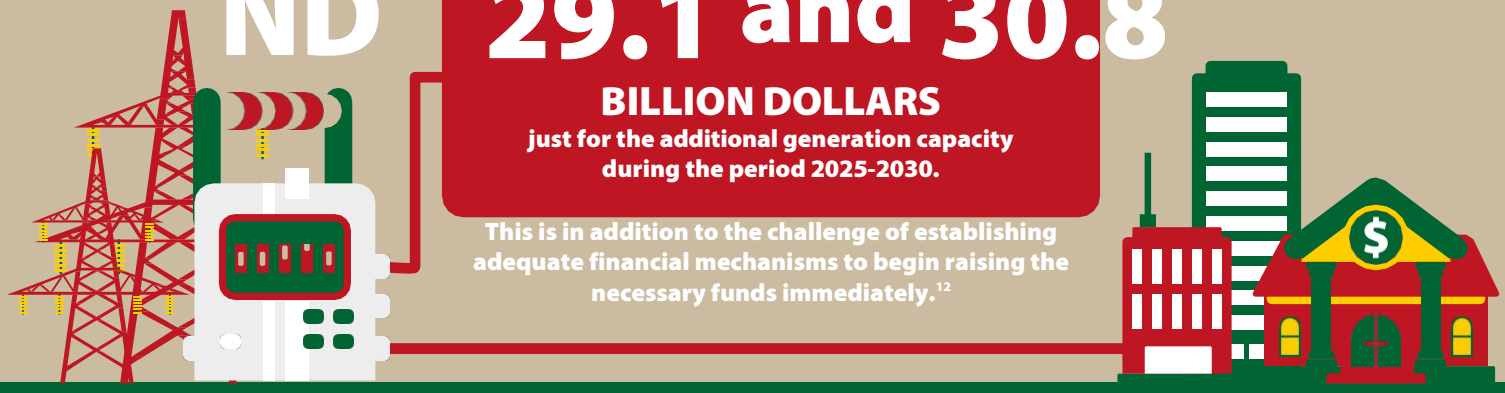
WILL COST BETWEEN
6.7 and
BILLION DOLLARS
depending on the types of projects that are built. [11]

THOUSA ND 8.4

ADDING THESE FIGURES TOGETHER, A TOTAL OF BETWEEN

29.1 and 30.8
BILLION DOLLARS
just for the additional generation capacity during the period 2025-2030.

This is in addition to the challenge of establishing adequate financial mechanisms to begin raising the necessary funds immediately.[12]



10 The Plan used an average cost of $0.78 million per MW for combined cycles, while costs observed in other sources range from $1.2 to $1.6 million per MW. For wind farms, the cost considered is $1.32 million per MW, while other sources consider costs of between $1.9 and $2.3 million per MW for new plants. In the case of solar power plants, the Plan considers costs of $1.05 million per MW, while other sources consider costs per MW of between $1.15 and $1.6 million. See: Lazard (June 2025). ***Levelized Cost Of Energy +,*** pp. 34-37. https://www.lazard.com/media/eijnqja3/lazards-lcoeplus-june-2025.pdf

11 This assumes that the private sector will build only clean energy projects and is based on the cost figures implied in the Strengthening and Expansion Plan, Table 9, where wind energy costs $1.32 million per MW of new generation capacity; and where solar photovoltaics and batteries cost $1.05 million per MW.

12 These total investment figures for new generation are probably low. They are based on conservative cost estimates. Official estimates use around $1 million per MW for new generation, while current figures exceed $1.5 million per MW.

The investment challenge facing the Federal Electricity Commission and its financing tools

The investment that the CFE needs to make is a monumental challenge. For the period 2025-2030, in addition to the $22.4 billion needed for new generation, the Strengthening and Expansion Plan contemplates CFE investments in the order of $9.1 billion for the transmission and distribution segments: $5.5 billion for transmission and $3.6 billion to modernize the national distribution networks.13 The sum of these amounts results in a CFE investment requirement of $31.5 billion for the period 2025-2030.

To finance these investments, the CFE will have:

- Budgetary resources authorized by the Federal Expenditure Budget for each fiscal year.
- Debt authorized by the Revenue Law for each fiscal year.
- Special infrastructure trusts, whose financial obligations are independent of the CFE's debts, although they are included for informational purposes.
- Financing through the Energy and Infrastructure Investment Trust (Fibra E), a figure that consists of the issuance of capital instruments based on the revenue flows of the CFE's operating infrastructure,15 which will allow it to finance the construction of new assets using the financial flows of existing ones, without incurring debt.

13 Mariano, E. (April 9, 2025). "CFE announces investment of $31.528 billion for 2025-2030 Expansion Plan" in *Energy & Commerce*. https://energyandcommerce.com.mx/cfe-anuncia-inversion-de-31528-mdd-para-plan-de-expansion-2025-2030/

14 This includes a Master Investment Trust and its sub-trusts: the Conventional Generation Projects Trust 10673 and the Clean Energy Projects Trust 10670. See: CFE (December 31, 2024). *2024 Annual Report*, pp. 141-43. https://www.cfe.gob.mx/finanzas/reportes-financieros/Reportes%20Anuales%20Documentos/Reporte%20Anual%202024.pdf

15 See: CFE (n.d.). "How does CFE's Fibra E work?" in *CFE Capital*. https://cfecapital.com.mx/en/fiber-e/como-funciona-la-cfe-fibrae

These sources of financing have limits. For fiscal year 2025, the Federal Expenditure Budget authorizes investments of 48.18 billion pesos,16 or approximately US$2.5 billion. With regard to indebtedness, for fiscal year 2025, the net internal debt of the CFE and its subsidiaries must not exceed 10.027 billion pesos—around 527 million dollars—and the net external debt must not exceed 991 million dollars.Special infrastructure trusts require capitalization from the CFE or its subsidiaries, and such capitalization must be budgeted. Fibra E depends on cash flows from its existing or acquired operating assets, so a rapid increase in new investments—the Plan envisages a 25% increase in Mexico's generation capacity in the period 2025-2030—18 may test the funding capacity of existing assets.

On the other hand, for fiscal year 2025, the CFE will no longer be able to finance new infrastructure through Deferred Investment Projects in Public Expenditure (Pidiregas). This mechanism involved private sector investment in productive infrastructure that was acquired by the CFE at a specific time (direct investment) or upon fulfillment of certain conditions (conditional investment). This is a significant change, as the CFE previously had Pidiregas authorizations for approved projects totaling 812 billion pesos — approximately US$42.7 billion — of which 565 billion pesos — or more than US$29.6 billion — were for direct investment.20 It is possible that part of the 7.2 GW of generation projects managed by the previous administration, reflected in the Plan, were financed under the Pidiregas scheme in previous fiscal years.

In addition to CFE's sources of financing, the Mexican government has other tools to acquire energy assets to be operated by CFE:

- Financing through special purpose vehicles in which Mexico's National Infrastructure Fund (Fonadin) invests. One example is the Fund for Investments in Energy Capital Certificates (FIECK)—sponsored by Mexico Investment Partners (MIP)—which acquired assets that belonged to Iberdrola.

16 Ministry of Finance and Public Credit (SHCP) (2025). *Federal Expenditure Budget 2025. Programmatic Strategy. Entity: TVV CFE Consolidated.* https://www.pef.hacienda.gob.mx/work/models/G0pef25P/PEF2025/Loungbqw/docs/53/r53_tvv_ep.pdf. See also: SHCP (2025). *Federal Expenditure Budget. Functional Programmatic Economic Analysis (Cash). Entity: TVV CFE Consolidated.* https://www.pef.hacienda.gob.mx/work/models/G0pef25P/PEF2025/Loungbqw/docs/53/r53_tvv_afpefe.pdf

17 Federal Revenue Law for Fiscal Year 2025 (December 19, 2024). *Official Gazette of the Federation*. Art. 2, paragraph 14.

18 Mentado, P. (February 6, 2025). "National Electricity System Plan 2025-2030 forecasts investments of US$22.377 billion" in *Factor Energético*. https://factorenergetico.mx/plan-del-sistema-electrico-nacional-2025-2030-preve-inversiones-de-22377-mdd/

19 Federal Revenue Law for Fiscal Year 2025 (December 19, 2024). *Official Gazette of the Federation*. Art. 5. See also: SHCP (2025). *Federal Expenditure Budget for Fiscal Year 2025*. Art. 25.

20 SHCP (January 2025). *Federal Expenditure Budget 2025. Pidiregas Universe: List of Directly and Conditionally Financed Investment Projects.* https://www.pef.hacienda.gob.mx/work/models/G0pef25P/PEF2025/Loungbqw/docs/53/r53_tvv_iv01.pdf

21 SHCP (February 27, 2024). "With the acquisition of the 13 power plants, the Mexican State regains its presence in areas that are strategic for the country, says Ramírez de la O," press release no. 11. https://www.gob.mx/cms/uploads/attachment/file/895396/Comunicado_No._11_With_the_acquisition_of_the_13_power_plants_the_Mexican_government_regains_its_presence_in_strategic_areas_for_the_country_says_Ramirez_de_la_O.pdf. See also: MIP (March 25, 2024). "Acquisition of a portfolio of electricity generation assets." Mexico Infra.

• Fibra E, through which special purpose investment fund assets can be acquired. One example is the acquisition of the assets of Fonadin-FIECK—formerly owned by Iberdrola—by the Fideicomiso de Inversion en Energia Mexico (Fiemex); This was a Fibra E established by MIP22 that gave Fonadin additional funds to invest23 and allowed holders of trust securities known as capital development certificates (CKD)—issued by FIECK—to acquire negotiable certificates issued by Fibra E representing a portion of the cash flow from those assets.24

The role of the Federal Electricity Commission in the electricity sector

Although the current regime in Mexico gives the CFE a dominant role, the state-owned company does not have unlimited resources to meet all the investment needs of the country's electricity sector. The state needs support from the private sector for infrastructure development. This must be carried out within the hybrid system implemented in Mexico, where planning determines the generation needs of the electricity system, and the MEM is responsible for managing the electricity generated by the installed capacity.

Planning and the MEM have different functions. Planning facilitates competition for the long-term market. As it is binding, it must comply with the new mandate that the State will retain at least **54%** of the electricity injected into the grid on average over the course of a year. For its part, the MEM maintains competition in the short-term market in an equitable manner among all participants—including CFE plants—to ensure optimal use of resources.

Planning around competition for the long-term market involves defining generation capacity acquisition goals through a process of evaluating system needs. Based on this analysis, decisions are made on how to achieve the new generation objectives.

22 Celis, D. (June 16, 2025). "Fiemex, the Fibra E of the plants sold by Iberdrola, makes its debut" in *Heraldo de México*. https://heraldodemexico.com.mx/opinion/2025/6/16/debuta-fiemex-el-fibra-de-las-plantas-que-vendio-iberdrola-707514.html

23 Loc cit.

24 This is reflected in the approvals of CKD holders in the FIECK fund to carry out the transfer to Fibra E, in exchange for which the holders receive certificates issued by Fibra E after a final distribution of the FIECK fund. For more information on the approval of a class of holders and the holders of FIECK 24D, see: BMV Group (May 15, 2025). *Holder assembly agreements*. https://www.bmv.com.mx/docs-pub/acuerdot/acuerdot_1465501_1.pdf

25 Electricity Sector Law (March 18, 2025). *Official Gazette of the Federation*. Art. 12, second paragraph.

26 Ibid., Art. 12, section VI.

Proposal 1. Once the planning process determines how electricity demand will grow and what generation will be needed to meet that demand, the CFE should be the first to propose its contribution to meeting the planned generation targets, based on its ability to finance the assets required to meet basic supply demand. To the extent that the CFE's financing constraints require private sector support, there should be a procurement process through tenders offering multi-year contracts or other market-based mechanisms centered on the CFE. In this way, tenders stimulate competition and efficiency in investments, while long-term contracting reduces project risk and financing costs.

If it continues to function properly, the short-term market will provide price signals for planning and investment, as it will show where and/or when energy is needed. Planning should be the basis for requirements established around renewable sources, which will require clean energy certificates.

Wholesale electricity markets achieve short-term efficiency, given security constraints. In other words, based on existing installed capacity, the market results in the cheapest energy for the entire system, while operating safely.

Proposal 2. The CFE will be the primary source of energy for the MEM and must be subject to market discipline, in accordance with the rules of economic dispatch. The **54%** state generation mandate should be considered for planning purposes, but should not affect the wholesale market. The market will not function and will not give correct price signals if economic dispatch is altered to give preferential treatment to the CFE. The state-owned company must offer the generation of each plant at marginal cost.

Private sector participants selling on the MEM—who have been granted this right through a competitive bidding process—must also be subject to economic dispatch. Combining the latter with multi-year contracts is achieved through contracts for differences, as is the case with existing hedging contracts in Mexico.

Other forms of competition can also be promoted. One example is bilateral negotiations or bidding processes between qualified users and qualified suppliers. Similarly, there can be energy trading agreements with different terms and market platforms, as long as the efficient operation of the system is monitored.

27 Contracts for differences can be between an electricity generator and a public entity, setting an agreed price, and are usually the result of a competitive process, such as an auction. The generator sells the electricity on the market but then settles the difference between the market price and the contracted price with the public entity. Thus, the generator receives stable income for the electricity it produces and, at the same time, has income limited to its contract when market prices are high. In this type of contract, if the market price is lower than the contracted price, the generator receives the difference; if it is higher, the generator returns the difference.

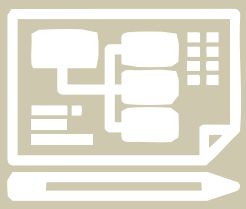
Through the hybrid model, the Mexican energy sector can benefit from both competition for the market and competition in the market, leading to a more efficient allocation of resources and a more sustainable energy future. The key to this is competition and allowing the electricity market to function fairly between public and private participants.

Binding planning and generation

In recent years, decarbonization policies and the need to secure supply have led to a wave of reforms around generation planning around the world. Governments are increasingly using long-term planning to trigger structural changes—such as investment and the retirement of obsolete generation—and are relying more on long-term contracts to meet the resource needs identified during planning.28 Examples of this include renewable energy purchase mandates.

Sener must develop the Electricity Sector Development Plan with the support of the Energy Planning Council, in accordance with the Electricity Sector Law (LSE) and the Energy Planning and Transition Law. According to Article 12 of the LSE, in developing the Plan, Sener must consider key principles such as:
(i) electricity at the lowest possible price; (ii) transition to clean energy and electrification of end uses; (iii) decarbonization of the electricity sector; (iv) climate change mitigation and adaptation; (v) installation of sufficient infrastructure to meet system demand; and (vi) the non-prevalence of private interests over the State in the sector.

Binding planning must cover the entire SEN, which is why it differs from CFE planning, which has its own business imperatives. Although the CFE contributes key data and analysis to the planning process, Cenace, private generators, suppliers, and consumers can also contribute an important perspective by highlighting their own needs, reviewing the modeling process, and demanding the application of the aforementioned principles.



Proposal 3. Sener should establish a collaborative planning framework that allows for the participation of relevant actors such as Cenace, private generators and developers, suppliers, and consumers.

The LSE establishes that SEN planning, including generation, will be binding,30 making transparency and a clear multi-criteria evaluation system essential. So far, there is insufficient information to determine the scope of binding planning or whether it will have broad or detailed guidelines and objectives per project. A plan with individual projects could limit the growth and implementation of new technologies, especially if it becomes inflexible and overly prescriptive. In turn, this would undermine the merit-based entry of efficient projects and market discipline. To avoid this, it will be necessary to provide clear and broad directions that allow for flexibility and adaptability.

28 Roques, F. (June 2017). "Adapting electricity markets to decarbonization and security of supply objectives: toward a hybrid regime?" in *Energy Policy* 105, pp. 584-596.

29 In accordance with Articles 16 and 36 of the new LSE, power plants may be developed by the State, by the private sector, or through mixed development schemes. Transmission and distribution remain a state monopoly.

30 Electricity Sector Law (March 18, 2025). *Official Gazette of the Federation*. Art. 12, second paragraph.

The inclusion of specific projects in the Plan raises other problems. If investors in generation need specific initiatives to be included in the Plan in order to move forward, they would be subject to a bureaucratic process and would not be responding to market risk or prices.

At present, it is unclear how private generators will get their projects included in the binding planning process. Sener could exercise full discretion over which private sector projects are approved without a merit-based selection process, which could encourage corruption and political pressure, jeopardizing the integrity of participants. Similarly, if decisions are made on a first-come, first-served basis, there could be speculation and corruption among generators seeking to be first in line.

Proposal 4. The Electricity Sector Development Plan should establish general targets for total MW in large regions and for clean energy, without specifying particular locations, projects, or technologies. Such objectives will encourage innovation and cost reduction. This would be consistent with Article 12 of the LSE, which establishes that Sener "must issue binding planning programs, among other things, for the installation and removal of power plants, the relevant aspects of which are incorporated into the Electricity Sector Development Plan."

Globally, many plans have set long-term decarbonization and supply security targets. Such plans are often indicative and open-ended, even with scenarios. Few countries have mandatory plans, and those that do do not list individual projects. Vietnam's National Energy Development Plan sets national targets, allocates capacity by region, and quantifies investment, transmission, and land without identifying specific projects.

In the United States, integrated resource planning has become a key tool. In Mexico, Sener could apply it by region, following the methodology of researchers at Synapse Energy Economics and Lawrence Berkeley National Laboratory, where President Sheinbaum conducted energy research. The authors also recommend setting broad targets and scenarios, rather than including specific projects.

The application and implementation of the Plan poses other problems. As the dominant player in the market, the CFE should be the first to meet the identified needs, but what happens if the CFE fails to meet its commitments? Its recent track record has not been remarkable, as many of the large projects that were to be completed in 2024 have experienced significant delays. In this regard, the 2025-2030 National Electricity System Strengthening and Expansion Plan includes at least 26 power generation projects developed during the previous administration. Ten of these are combined-cycle gas plants, and more than a third (2.3 GW) are behind schedule.

31 PWC (n.d.). "Vietnam's Eighth National Power Development Plan (PDP VIII) Insights and key considerations for investors" in *PWC*. https://www.pwc.com/vn/en/publications/vietnam-publications/pdp8-insights.html

32 Biewald, B., et al. (November 2024). *Best Practices in Integrated Resource Planning*. https://eta-publications.lbl.gov/sites/default/files/2024-12/irp_best_practices_2024_synapse_lbnl_24-061_0.pdf

33 CFE (February 5, 2025). *Plan for Strengthening and Expanding the National Electric System*, pp. 4-7. https://www.proyectosmexico.gob.mx/wp-content/uploads/2025/02/Plan-Fortalecimiento-y-Expansion-Sistema-Electrico-Nacional.pdf

When the CFE commits to developing generation capacity to meet the needs identified in the Plan, it should be required to demonstrate that it can fulfill that commitment, including a financing plan and a schedule for project construction and start of operations. If the CFE fails to meet certain key initial dates in the schedule—for example, for a financial close confirming external financing—the project should be reopened to invite the private sector to participate through a bidding process.

The Role of the Wholesale Electricity Market

The MEM can ensure the efficient use of resources, and we support the government's decision to maintain the market along with economic dispatch, by order of merit, with security restrictions.

Any change in the order of merit increases costs. On this basis, the long-term goal should be to use markets and competition to build a stronger and more efficient energy sector that is increasingly self-sufficient. This means that subsidies should be targeted at end users who need them and that there should be no cross-subsidies for the CFE or the private sector.

Competitive wholesale markets generally require a clear separation of activities to ensure competition, where transmission and distribution offer open access to participants without prioritizing their own generation. The 2025 reform reunites the CFE, but maintains the system and market operator—Cenace—as an independent entity. Therefore, the rules must, at a minimum, determine tariffs by segment in a transparent manner. Having rates set by CNE will allow participants to pay for the services they use, without cross-subsidies. In addition, subsidies should be direct and not hidden in rates. Rates send price signals to consumers and can lead to waste if they are too low, especially when the system has a low reserve margin, as is currently the case.

Well-functioning markets also require an independent monitor to maintain fair competition and transparency, while protecting consumers and promoting efficiency and innovation. Although the independent monitor was suspended in Mexico a few years ago, we believe it would be even more relevant now that the CFE is no longer covered by competition law.

The Mexican market uses nodal prices, which are the international gold standard. They convey important and transparent information about the situation and operations, which is essential for managing congestion, determining transmission needs, identifying the best place to increase generation, and the most convenient sites for loads. In the United Kingdom, for example, switching from zonal to nodal prices would yield consumer benefits of around $25 billion over fifteen years.34

34 Mann, J., et al. (November 3, 2023). "Assessment of Locational Wholesale Electricity Market Design Options in GB" in *FTI Consulting*. https://www.fticonsulting.com/insights/videos-and-podcasts/assessment-locational-wholesale-electricity-market-design-options

In our opinion, the market should maintain nodal prices and the obligation to bid at variable cost—as it works today—while advancing in its sophistication. Rates per segment should be regulated and based on costs, without cross-subsidies. Subsidies can be a separate line item allocated by the government for specific regions or groups, such as low-income households. The current market can continue to strengthen as needs evolve, but changes to its rules must be subject to a transparent consultation process.

The private sector in a state-centered electricity system

The limits of the CFE's and the state's sources of financing require the participation of the private sector, for which there are some challenges. The new Mexican energy regime emphasizes the prevalence of the state in the electricity sector,35 since, among other things, the state must provide 54% of the electricity injected into the grid.36 As explained below, the LSE provides for specific ways in which private initiative can participate in the electricity sector, including long-term contracts and mixed investments. The law does not prohibit purely bilateral agreements between private entities, but it is unclear how they would function under the new paradigm.

The new framework will take time to develop and be understood by all participants. In addition, not only the law is changing, but also the institutions, as described in chapter 2 of this study. Any measures taken by the government to facilitate the process and provide certainty will be a step toward achieving President Sheinbaum's objectives.

Investors need a predictable regulatory environment to assess risks and ensure that the return on their investments is not compromised. Energy projects—power plants, grids, and renewables—require significant capital and are developed over the long term. Uncertainty around tariffs, licensing, and environmental regulation can deter investment. As conditions change, it is essential to have a transition plan and work with stakeholders to provide certainty.

35 Political Constitution of the United Mexican States (February 5, 1917). *Official Gazette of the Federation*, art. 27, sixth paragraph. See also: Electricity Sector Law (March 18, 2025). *Official Gazette of the Federation*, art. 1, section II; art. 4; art. 12, section VI; and art. 14, section I.

36 Electricity Sector Law (March 18, 2025). *Official Gazette of the Federation*, Art. 12, section VI.

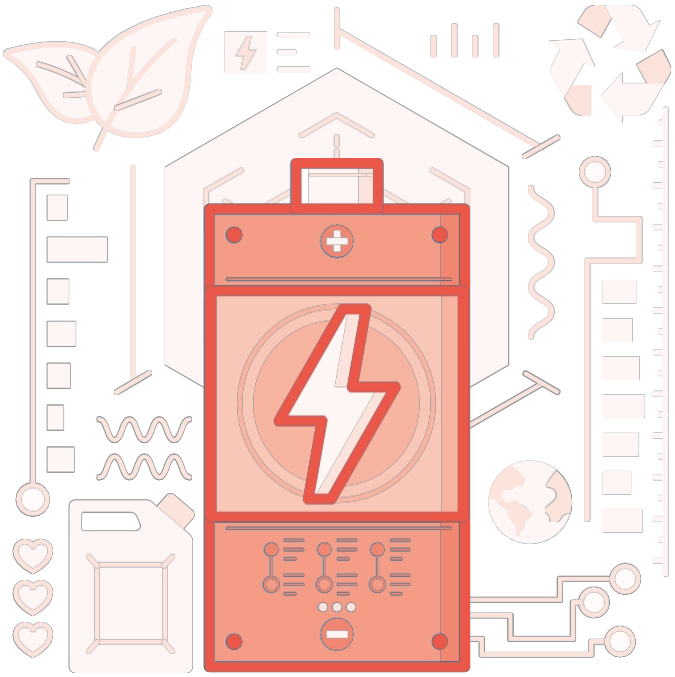
The private sector, the State, and the new Electricity Sector Law: the way forward

In the new paradigm, there are two main options for private investment under the LSE:

- Long-term contracts (Art. 39): internationally, these are known as contracts with independent power producers (IPPs). Mexico has extensive experience in both developing bidding processes and designing contracts for IPPs, which can help to quickly secure investments to achieve the new generation target.

- Joint investments (Art. 40): The private sector can invest jointly with the CFE, as long as the CFE maintains a direct or indirect stake of at least 54% in the projects. This scheme may be particularly suitable for modernizing or expanding the CFE's existing assets, as the CFE could place those assets in a joint development scheme as its contribution to obtain at least a 54% stake in the project, without the need to contribute additional capital, while the private sector contributes financing for the modernization or expansion of such assets as its contribution in exchange for no more than a 46% stake. The scheme could be suitable for new projects when the state can contribute capital. Seeking to maintain 54% of a project where the corresponding contributions are not made with an objective evaluation would result in higher energy costs for these projects. The private sector will need to charge more to recover its investment (including the necessary capital not invested by the state) as it will not receive more than 46% of the dividends.

In both cases, transparency and competitive processes will guarantee the results required by the LSE: low prices, the best available technology, and development within a planning scheme that ensures efficiency, quality, continuity, accessibility, safety, reliability, and sustainability.37 To the extent that projects generate electricity that is not covered by contract, clear price signals will be essential to sell the excess on the market.



37 Ibid., art. 1, section II.

Long-term contracts to meet the objectives of the State and the private sector

According to Article 39 of the LSE, long-term contracts will be entered into with the State, through the CFE. A fundamental requirement is that the CFE has the option to acquire the generation asset at the end of the contract without any additional payment.38 Mexico has a long history of financeable contracts supported by the State, including those for PIE. In order for them to be financeable, i.e., for the private sector to be able to obtain financing based on the contract, the following requirements must be met:

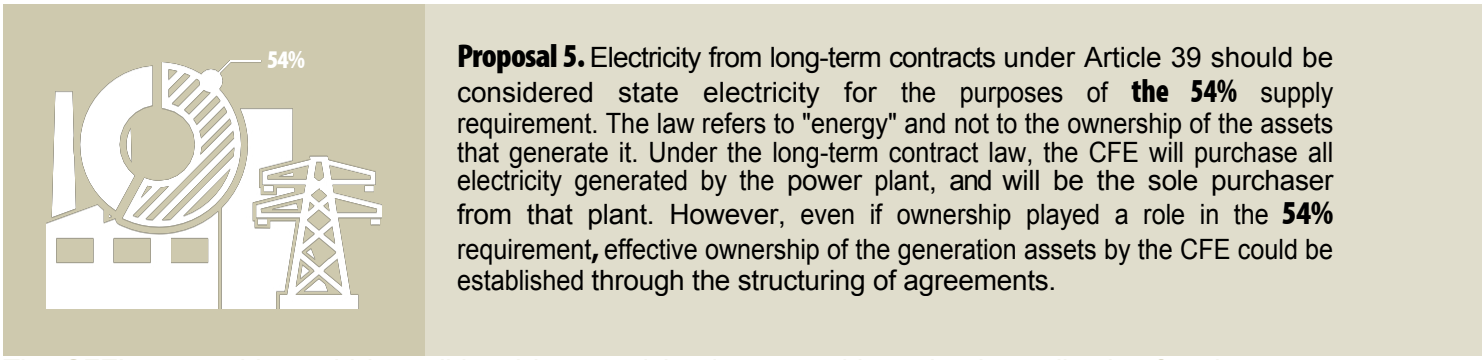
- The term of the contract must be sufficient to repay the loans and provide an adequate return on investment.
- The contract must be irrevocable.
- Compensation must be regular and unconditional and cannot depend on success in the wholesale market auction. Therefore, the contract must provide a fixed capacity payment that acts as minimum compensation.

- Energy contracts can be financial. If the plant is dispatched, the CFE sells the energy and pays the plant owner the price agreed upon in the contract. If the market price is higher than the contracted price, the CFE keeps the difference. This is the concept of a contract for difference.

- Service levels for power plants that determine minimum compensation must be specified.
- For renewable sources, the CFE may require the investor to provide energy storage as part of a project—subject to CFE management—to ensure system reliability, but the payment to the investor for such storage must be fixed and unconditional.
- For conventional generation, fuel costs will be variable. Payments must cover fuel costs in addition to regular and unconditional compensation for the installation of capacity.

38 Ibid., Art. 39, Section VI: "The transfer of assets is optional for the state-owned company at the end of the contract, at no cost to the latter."

The regulatory framework governing the application of Article 39 should include these requirements to ensure that contracts can obtain financing. To obtain the best available price for long-term energy, there should be a bidding process for developers who meet the technical, financial, and project management capabilities. To obtain comparable bids, the bidding terms must clearly specify the terms of the contracts. These terms must meet the requirements for financeability and include a power purchase agreement.



Proposal 5. Electricity from long-term contracts under Article 39 should be considered state electricity for the purposes of **the 54%** supply requirement. The law refers to "energy" and not to the ownership of the assets that generate it. Under the long-term contract law, the CFE will purchase all electricity generated by the power plant, and will be the sole purchaser from that plant. However, even if ownership played a role in the **54%** requirement**,** effective ownership of the generation assets by the CFE could be established through the structuring of agreements.

The CFE's ownership could be validated by exercising its ownership option immediately after the power plant begins operations, with formal transfer of title at the end of the contract term. After exercising the option, CFE would have effective ownership of the generation asset, even though the developer would continue to receive payments under the contract. This could be handled in an owner trust, where the developer maintaining the power plant is the primary beneficiary and CFE is the secondary beneficiary; the CFE is considered the beneficial owner of the assets under the trust upon exercise of the ownership option; the developer retains management—including through the technical committee—and continues to receive payments under the power purchase agreement during the term of the contract; finally, the trustee transfers formal title to the CFE upon dissolution of the trust at the end of the contract term.

The economic aspects of this agreement are identical to those of a direct Pidiregas investment, in which the CFE acquires the asset once construction is complete and Pidiregas' ongoing payments to the developer are based on the income derived from the operation of the power plant. Even if the agreement described above is not treated the same as a direct Pidiregas investment for accounting purposes under International Financial Reporting Standards—to which the CFE is subject—it could be treated as sufficient ownership for the 54% requirement, which is not necessarily governed by those standards.

39 Ibid., Art. 39, Section III: "All energy production and associated products are exclusively for the state-owned public company."

40 Ibid., art. 39, section VII: "Power plants that are subject to contracts entered into under this modality may not obtain another permit, contract under another modality, or trade with third parties any surplus capacity that may arise."

Mixed investments to meet state and private sector objectives

According to Article 40 of the LSE, the requirements for a mixed investment or *joint venture* (JV) focused on the development of generation capacity are as follows: 1) direct or indirect participation by the CFE of at least 54%; 2) giving the CFE preferential rights to purchase the energy and associated products of the project; and 3) the CFE acting as the project's representative before the MEM for the sale of energy and associated products that the state-owned company does not purchase under its preferential rights.

The above requirements present risks for private sector investors. On the one hand, there are termination, financing, and operational risks arising from the lack of control over project management due to minority ownership. On the other hand, there may be risks in terms of return on investment due to uncertainty about what energy and associated products the CFE will be able to purchase—by virtue of its preferential rights—and at what price, as well as the price at which energy and associated products not purchased by the CFE could be sold on the wholesale market. Finally, consideration should be given to the risk that the joint venture may not make timely distributions of available cash to the minority owner if the majority decides to reinvest the available cash, increase reserves, or refuse to make distributions for some other reason.

The CFE must provide contractual guarantees to private sector investors to mitigate the identified risks. This would involve both the contracts establishing the JV project and an agreement between the JV project and the CFE for the sale and purchase of energy and associated products. Joint venture agreements should include:

- JV control provisions. For example, assuming the project is carried out through a special purpose vehicle, the private investor could have the right to appoint the CEO. If the vehicle takes the form of a trust, the private investor could have specific control rights with respect to the technical committee. Such rights could include a majority position on the technical committee during the construction phase and/or a veto right on key issues to be presented to the technical committee. The agreements should also be clear regarding distributions, and the private investor should have veto power over any changes to the contractual provisions regarding distributions.
- A construction contract that sets out clear terms for the development and completion of the project within a specified time frame and in accordance with an established budget.
- Financing terms, subject to final negotiations with financing sources, to ensure that the joint venture will have sufficient resources to complete the project.
- A project management and maintenance contract.

41 Ibid., Art. 40, Section I: "The state-owned public company must have a direct or indirect stake in the project of at least fifty-four percent."

42 Ibid., Art. 40, Section II: "The state-owned public company may acquire the energy and associated products produced, preferably."

43 Ibid., Art. 40, Section III: "Power plants that are the subject of contracts entered into under this modality may market the energy and associated products not used by the state-owned public company through the latter as its representative in the Wholesale Electricity Market, subject to the provisions of the corresponding contracts and, where applicable, the general provisions issued by the Secretariat in this regard."

- The establishment of compensation for the investor, in the event that it provides services, guarantees, or endorsements under any of these contracts, in addition to its right to distributions as a minority participant in the JV.

- The terms for the exercise of the right of first refusal by the CFE. Such contract must specify the amount of energy and associated products that the CFE would purchase during the term of the contract, as well as the corresponding price.

In summary, agreements involving the private investor and the CFE must provide:

1) adequate guarantees regarding the development, financing, and operation of the project, the sale of the energy generated, and the distribution of revenues; and 2) an adequate return on the private investor's investment. This will mitigate and compensate for the risks associated with the private investor's lack of control over the project due to its minority participation.

As noted above, mixed development joint ventures can modernize or expand the CFE's existing assets, as the state-owned company could place those assets in a mixed development scheme as its contribution to justify at least a **54%** stake, without the need to contribute additional capital. In such a case, the private sector can anticipate less termination or operational risk than in a new *greenfield* generation project, i.e., the construction of an asset on land that has not been used for this purpose before. In addition, less financing may be required than for a new generation plant, and a better estimate of the expected revenues from the modernized or expanded project can be made by extrapolating the historical record of the existing project. With the addition of the contractual guarantees noted above, private investors may find modernization or expansion projects more attractive than new generation projects for joint investments.

Proposal 6. To the extent that the CFE does not exercise its preemptive right over the energy and related services provided by a joint venture project (LSE, Article 40), it will act on behalf of the JV to sell them on the wholesale market. With such control, the CFE should have the option to enter into long-term joint investment contracts to purchase all the electricity, power, and associated products generated by a power plant. If the CFE is willing to proceed in this manner, the private sector, with a financeable long-term contract and the aforementioned contractual guarantees, will be in a better position to obtain financing to build new generation capacity.

Without a long-term contract for the CFE to purchase all the electricity and associated products from a power plant, there would be too much risk involved to attract private investment to build new generation capacity. Between the CFE's right of first refusal and the sale of excess energy on the MEM, the cash flow is too uncertain. Therefore, if the CFE seeks to use Article 40 of the LSE for new generation capacity, establishing cash flow certainty would require that the proposed power purchase agreement for the JV have the same "bankability" attributes that were discussed for Article 39.

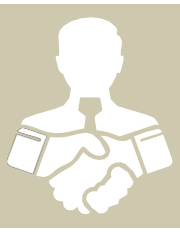
Various factors must be considered when structuring a joint investment with a long-term contract:

- The CFE will have to put up 54% of the capital. It can contribute land and intangibles, but they must have a fair market value equal to **54%** of the total capital. We suggest that an independent appraiser perform a valuation to determine the fair market value of the contributed assets.
- If the CFE does not contribute a true **54%** of the total capital required, the private investor may not recover its capital—including compensation for the CFE's deficit—and would not obtain an adequate return on investment during the life of the contract, as it would not be entitled to more than **46%** of the distributions.
- If there is a successful development with a long-term contract, the CFE could claim 100% of the energy generated—against its **54%** supply requirement—based on the justification discussed for Article 39 of the LSE.

Legal system and dispute resolution

A robust legal system that reliably enforces contracts is essential both to protect the rights of the parties under the aforementioned contracts and to ensure the fair resolution of disputes. The recent judicial reform may diminish investor appetite in Mexico for fear that newly elected judges will not reliably enforce contracts and resolve disputes fairly. An alternative to this type of resolution is arbitration.

Private investors regularly resort to arbitration, and this is a method of dispute resolution that has historically been present in CFE contracts. Therefore, incorporating arbitration clauses into CFE contracts and government agreements related to electricity generation would be seen as reducing the associated risks.



Proposal 7. It would be beneficial for Sener to include arbitration clauses in CFE contracts with private investors, including international arbitration for foreign investors. This will reduce the perceived risk of generation contracts and make the investment that depends on them more attractive.