



THE DOUBLE SENSE of the energy industrial reform

AUGUST, 2021

SIGNOS VITALES
EL PULSO DE MÉXICO

Image: in revista infraestructura: <https://tinyurl.com/8c392k9y>; energybusiness.com at <https://tinyurl.com/4y9rvpr7>

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SUMMARY

The partial analysis of the initiative to amend and add different dispositions to the electric industry law (LIE for its acronym in Spanish) sent by the federal executive enables us to scope the possible and plausible impacts. Emphasizes the fact that substituting the economic dispatch for merit will imply the loss of competition in the electric industry, which will bring consequences over prices, environment, and Mexican's health.

Concluding that the proposal is no more than nationalization in disguise since private sectors generating electricity with combined cycled technologies, wind power, and photovoltaic will have a scant probability of engaging in the electric market because, at the same time, CFE (Federal Electricity Commission for its acronym in Spanish) uses its full installed capacity, which will lead them to their eventual bankruptcy.

REMEMBRANCE

September 1st, 1982, date almost forgotten by most Mexicans, yet it was the date José López Portillo decided to nationalize the banking industry¹ and, according to different economic actors, was the beginning of the end of a regime that governed the country for more than 70 years.²

The nationalization, the last measure after several desperate attempts to safeguard exchange rate stability and the Mexican economy, was the most evident symptom of a government's downfall. After experimenting with the four-year period with the most significant economic growth in the country's modern history (1976–1980), public finance collapsed simultaneously with oil prices. The aforementioned collapse disgorged in the debt crisis that will escort what was called the lost decade.

It seems the then president sought a culprit—the bankers in this case—as well as to vindicate his name in the annals of history before the imminent government's failure. After such a materialization, protests followed, initially organized by the affected entrepreneurs. They did not have the slightest chance to win in court what the citizenry would win in the ballots years later. It bears mentioning that the struggle kept going until Mexico was organized in freedom, which movement birthed the first opposition president in Mexico.

1 According to the Espinosa Yglesias Study Center (Ceey, for its acronym in Spanish), only 50% of the population in the metropolitan area of Mexico City remembered the bank nationalization. Only 14% mentioned the exact date of the event from this population, meaning only 7 out of 100 remember the date.

2 For a thorough analysis of the bank nationalization, go to: <https://tinyurl.com/pstjnc6c>



Image “I will defend the peso as a dog” José López Portillo in *Reviario* 2021 at <https://tinyurl.com/7k8u9btj>

In contrast to those years, there are four conditions –that limit but do not stop– measures like that:

1. The judiciary power and different autonomous bodies like the Federal Economic Competition Commission (Cofece, for its acronym in Spanish) and so far, the Bank of Mexico (Banxico, for its acronym in Spanish), act as a counterweight other powers.
2. The Mexican economy is one of the most open globally, which implies having international agreements in different economic fields of competence, investment protection, climate change, and international commerce. The T-MEC is the best example.
3. Mass media censorship is more complex nowadays than before. Information spreading no longer depends on paper availability.
4. Organized civil society has been strengthened due to a more than 30 years consolidation process.

THE PROPOSAL

After several attacks from the federal executive against the involvement of the private energy sector in Mexico, on January 20th, 2021, the president of the republic sent the initiative to amend and add different dispositions to the Electric Industry Law (LIE). Said dispositions focus on electricity generation without affecting other activities of the business (transmission, distributions, supply, and commercialization).³ Meaning it is focused on production, but not in the way electricity reaches the cities, homes and, businesses from the electricity plants; the latter is only in the hands of CFE.

It bears mentioning that the initiative was preferent, which explains the expedition with which it was discussed and voted by the plenary of the origin chamber (deputies in this case) since in these cases they have a maximum limit of 31 natural days (Gamboa and Valdés, 2011) to deny or approve it. On the other hand, being modifications to the secondary law in the field, 251 votes are needed for its approval,⁴ which favors the federal executive (the initiative's origin).

In this case, the proposal has a focal point towards the beneficiary, in this case, CFE, leaving aside the consumers (homes and companies established in Mex-

³ According to the 27 y 28 articles of the de la Political Constitution of the United Mexican States (CPEUM, for its acronym in Spanish), the state is exclusively in charge of the transmission and distribution of electric energy

⁴ The party coalition where the federal executive comes from has the required votes (50% plus 1) to approve any modification to secondary laws.

ico). It could be thought that protecting CFE is equivalent to protect the Mexicans' interests; nevertheless, as exposed hereafter, the affirmation above is untrue under the propositions in which it pretends to generate electricity.



Image: House of representatives approves the energy industrial law in Wradio at <https://tinyurl.com/53srya29>

CHANGING THE RULES OF THE GAME

As a principle, CFE is defined as a predominant actor –the biggest weight– in the industry, albeit already produces a little more than half the energy consumed in Mexico. A mechanism is designed to enable it to have preference over the rest of its competitors. About that, we have to clarify that the LIE (approved in 2014) allows free competition (between CFE and competitors) in the production field.

However, to achieve a greater weight in the electric market for CFE, the preference in the dispatch of the produced energy over the rest of the competitors (private) is needed; hence, one of the main modifications of the law is focused on changing the priority in dispatch (immediate consumption electric energy dispatch).

The order of importance of the energy dispatch is currently given by the variable generation cost, which goes from less to more costly. Therefore, said dispatch is known as economic dispatch. Nevertheless, it is pretended to substitute that order for a discretionary one (order of merit).

The merit order determines who produces electric energy discretionally and indirectly where it is produced, with which technology and raw materials.⁵ This proposal establishes that the stemming energy from CFE plants must be dis-

⁵ It is relevant to clarify that the electric demand in Mexico is fulfilled at the moment it is generated.

patched first (starting from the hydroelectric plants), followed by other CFE and PIE (Independent Energy Producers, for its acronym in Spanish),⁶ to later make way to private wind power and solar and, in the end, private companies of combined cycle plants.

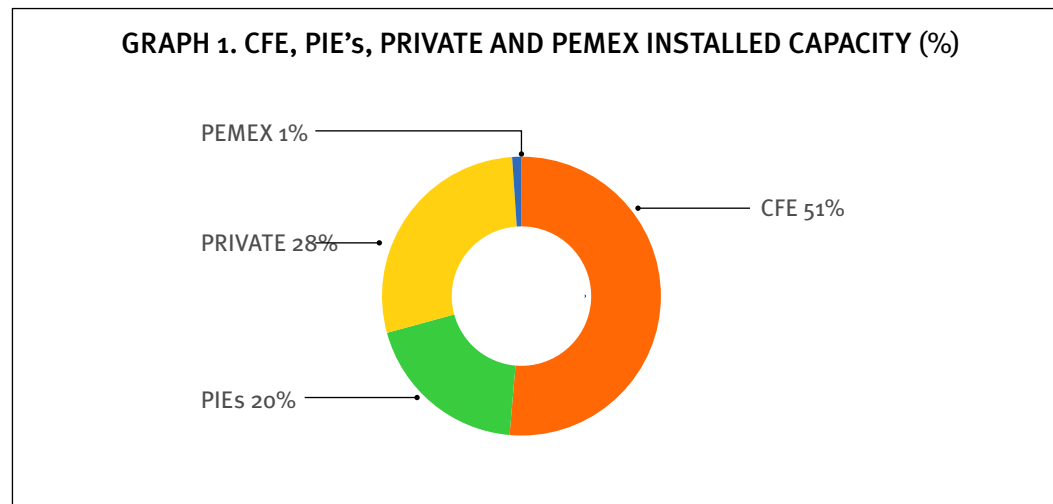
According to CFE itself (2020), the raw materials take relevance since they determine 75% of the generation cost of electric energy on average. In this case, by preferring energy from CFE plants over private (no matter the technology), the extensive use of fossil fuels like fuel oil is put ahead over clean energies coming from solar or wind.

This is because the combined cycle electric plants (configured to work with natural gas) would have priority over solar farms or wind parks (private) that feed on the sun or the wind, respectively. It must be highlighted that the cost of the latter is close to 0. The reason being simple. The sun that illuminates during the day and the air we breathe are public property. Hence, the marginal cost is 0, meaning its consumption does not have cost.

⁶ PIE are private companies that sell energy to CFE, said figure (like self-sufficiency) predates the so-called energy reform.

MARKET STRUCTURE

According to PRODESEN (Electric System National Development Program, for its acronym in Spanish), 2020–2034, the electric market installed capacity is 86,034 MW, from which 51.4% belongs to CFE, 19.4% to PIE. While the private sector has an installed capacity of 28.2%, the remaining 1.1% belongs to Petróleos Mexicanos (Mexican Petroleum) (Pemex for its acronym in Spanish).⁷ CFE and the PIE's accrue 70.8% of the country's installed capacity.



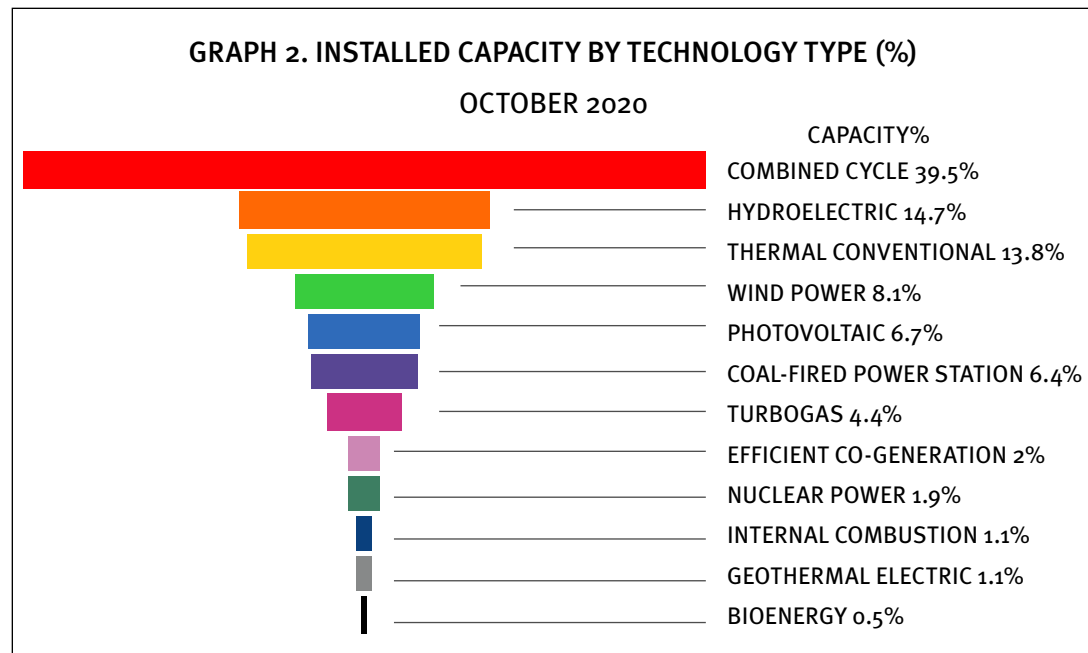
Source: In-house elaboration with data from PRODESEN (2020–2034).

It is important to specify that different technologies are used to generate electricity, each of them is characterized by the use of different processes to transform primary energy into electricity. Primary energy is not more than the fuel

⁷ The summation is not equal to 100% due to rounding.

or raw material used to generate electricity; some means are less clean than others⁸ likewise, more or less costly (in economic or social terms).

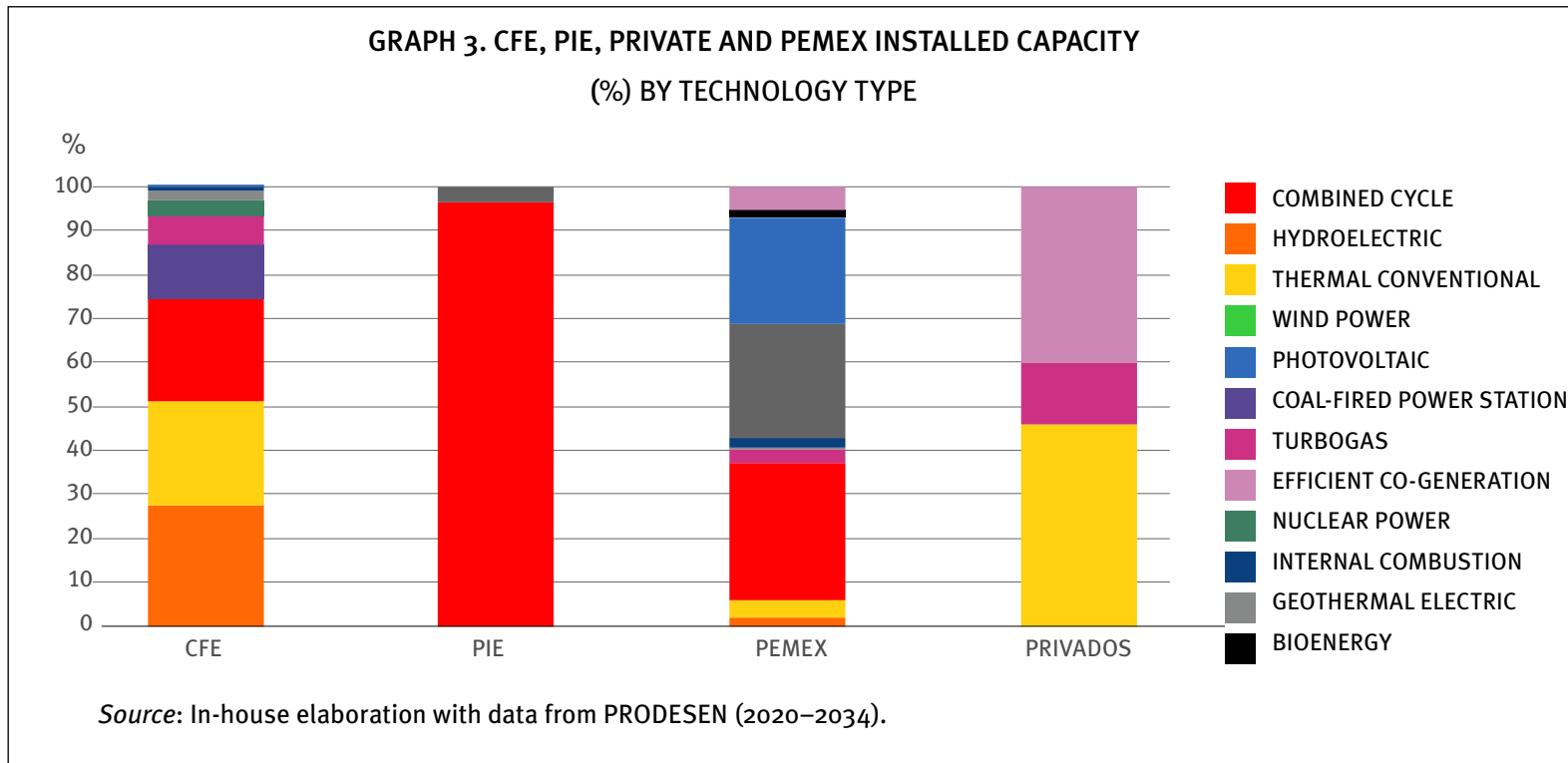
By October 2020, the installed capacity per technology type is dominated by combined cycle (39.5%), followed by hydroelectric (14.7%), conventional thermal (13.8%), wind power (8.1%), photovoltaic (6.7%), coal-fired power stations (6.4%), turbo-gas (4.4%), and the remaining technologies provide close to 7% of the total installed capacity in Mexico.



Source: In-house elaboration with data from PRODESEN (2020–2034). Includes trial units.

⁸ In Mexico, to be considered clean energy, it must be produced with the following technologies: hydroelectric, wind power, geothermal electric, photovoltaic, bioenergy, nuclear power, efficient-cogeneration and, breaking feeds.

However, for each producer (CFE or private), installed capacity by technology type is different. While almost half of the private capacity is focused on wind power and photovoltaic technologies (49.8%) (which use the wind and sun, respectively), CFE only has 1.2% total capacity on the technologies above (considering PIE's). However, it keeps 19.9% on hydroelectric, also considered clean energy.



Nonetheless, in CFE and PIE's case, the combined cycle is the technology type that dominates (43.3%). In fact, said technology is something of a backbone of the Mexican electrical system, which explains the reliance on natural gas for electric production (CC is natural gas-intensive), mainly by CFE.

It is noted that combined cycle or conventional thermal technology plants work with different fuels, like natural gas, diesel, gasoline, fuel oil, or carbon. The modifications to LIE seems to follow the fact that the rise of refining volume from Pemex (Mexican Petroleum) led to the growth in fuel oil production –an event alerted a year ago by Vital Signals–. Said residual product of the refining process is extremely pollutant due to its high sulfur content, which restricted its use internationally.

The above led to said fuel oil is destined to electric energy on the CFE combined cycle plants –configured to work with the oil product–. These modifications answer an economic need (though the motivation is political) since it minimizes the cost of storing fuel oil (since no one requires it), and it is transferred to CFE for electric energy production, which creates a monopsony (one great petitioner). In other words, both companies create a value chain that only benefits them (they create a market) since the health and environmental costs are transferred to the general population.

To accomplish this is imperative that CFE can set to work all of its installed capacity, including the regularly unused obsolete plants. CFE's idle capacity, in turn, is caused by the economic dispatch and the limited capital invested in cleaner technologies, which causes the displacement of less efficient and more pollutant technologies, and gives a chance to other market competitors to par-



Image: “CFE recognizes that has to consume fossil fuels to operate station in Hidalgo” Photo Aldo Falcón / La Jornada in otraopinion.com at <https://tinyurl.com/5hcfuab9>

ticipate. For example, the MWh generation cost of combined cycle CFE plants is 62.5% greater on average than PIE counterparts.

During 2019 maximum demand was 45,946 MW, but CFE installed capacity was 41,776⁹ MW. The former implies that CFE would not be able to provide the demand peaks using its total capacity (all-electric plants of different technolo-

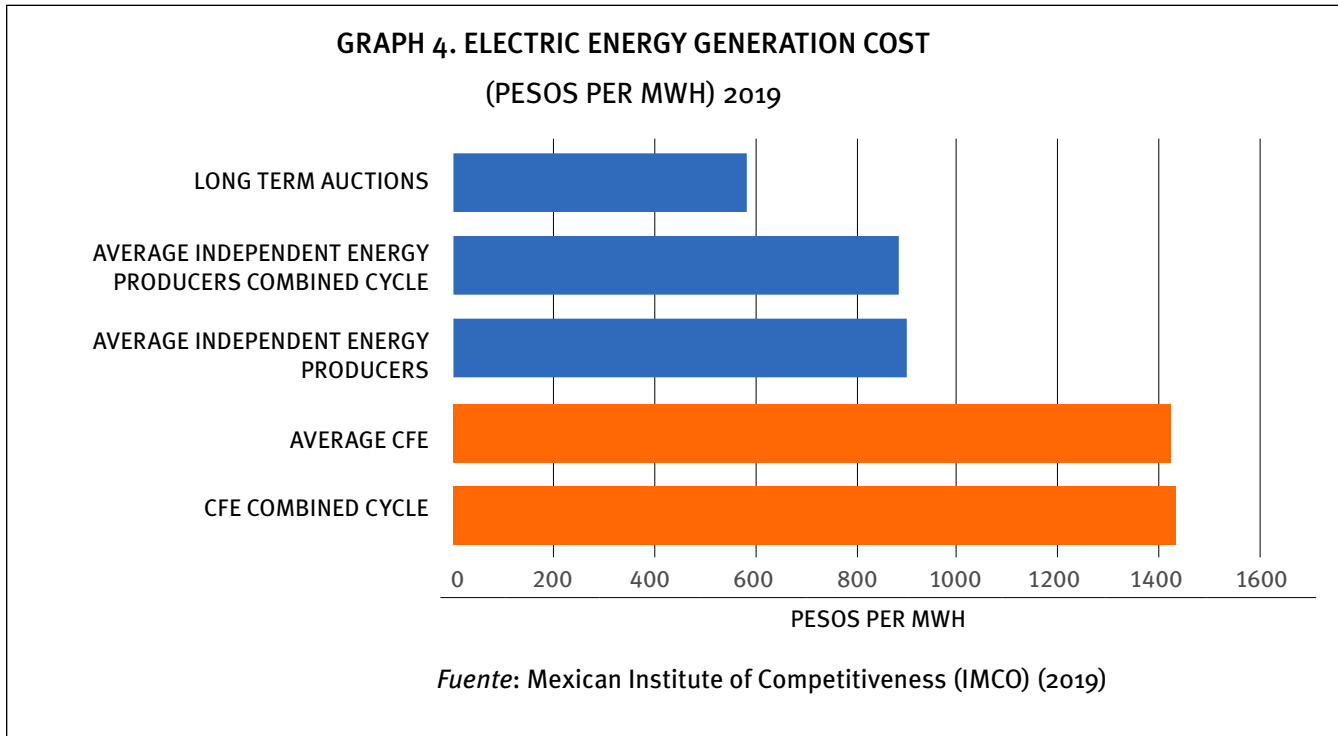
⁹ To estimate Baja California and South Baja California installed capacity is discounted from Annex 1 of Prodesen 2020–2034, the result is approximate.

gies). There would be an energy scarcity of around 10% of the time. Previous studies show that CFE would not have the capacity to satisfy demand approximately 17% of the time (Ramiro and Serrano, 2020); such an event happened from April to October 2018.

That is to say, PIE's (the plants next in order of merit) would take a pivotal role to supply demand 100% of the time (Ramiro and Serrano, 2020), not considering that a 13% failure margin is required in case of breakdowns or downturns of plants (reserve margin). 51,919 MW would be required considering a reserve margin in the maximum demand time.

Considering the situation described before, it is quite possible that private CC plant generated energy is no longer needed so that they would tend towards obsolescence, and just in case it was needed, they would come into work those fed by the sun and the wind, a highly probable event on shoal time when water scarcity is greater (for hydroelectric plants use).

That situation would drive many private companies to bankruptcy. Economic logic enables the conclusion that, instead of decapitalization, many of them would rather shed their assets (sell). Therefore, that action can be considered a disguised nationalization since only the one economic agent with greater certitude to sell electric energy is CFE.



Consequently, the industry's idle capacity will now focus on the private plants, even if this is produced at a lower cost and are less pollutant, mainly affecting combined cycle plants, followed by wind power and solar centers.

RISKS AND EFFECTS

Hereafter, the main consequences of applying the dispatch order changes are highlighted:

CFE will increase its market presence up to 90% of the average time but said increment would lead to the mean market cost rise. This increase will push the electric energy market price upwards in households and companies.¹⁰ Avoiding Price level increases, keeping it constant in real terms (as the president of the republic has stated). Requires some of the following conditions –but it does not notice that in both cases people will be affected, whether as a service user, other public goods consumer or, taxpayer–:

- » Increasing CFE subsidies. That situation implies resource transferring from the federal Budget to the issued company, decreasing the quantity or quality offered by other goods or services, like public health (change in relative prices).
- » Increasing the tax burden. To cover CFE production losses and not affect another federal program budget, it will be necessary to fund them through general taxation.
- » The rise in carbon and fuel oil use will increase air pollution, especially in the country's central area. In recent days Mexico City recorded the day with greater air pollution. As noted by Vital Signals, the decrease in vehicular transportation use did not accomplish the reduction of air pollution levels in Mexico City.

¹⁰ Though households receive electric tariff subsidies, companies do not.

- » The former strikes people's health. Recent studies for Mexico City's metropolitan area¹¹ show that Covid-19 fatality probability is boosted by 7.4% (López-Feldman et al., 2021) due to prolonged exposure to air pollution. It bears to clarify that evidence on the matter already existed; hence unawareness from the Mexican regulatory authorities cannot be pleaded.
- » The order of merit will discourage private capital investment since greater uncertainty is caused.
- » Mexico will breach its commitment to clean energy-intensive use (breaking the Paris accords) and, likewise, to risk breaching the T-MEC, which can cause penalties.
- » Incentives to increase fossil fuels installed capacity are created and hydroelectric technologies; hence, the use of water for electricity production is highlighted instead of human consumption.

This increase will push the electric energy market price upwards in households and companies.

¹¹ The metropolitan area comprises 76 municipalities from Mexico state, Mexico City, and Hidalgo.

THE INQUIRIES CONTINUE, AND HAZARD STALKS

Currently, Mexican judiciary power has acted as a counterweight to different attacks from the federal executive against energy sector private investment, mostly in electricity generation matters. Nonetheless, the constitutionality approval of the measure is still in play; it is in the hands of the Supreme Court of Justice of the Nation (SCJN, for its acronym in Spanish) ministries.

Given the context, two situations could enable the contention dam the judiciary power has become to be wholly lost:

1. That the political parties backing the president reach the federal congress qualified majority, which would allow the federal executive to perform constitutional order amendments, an event that did not happen in the June 6th, 2021 elections.
2. Significant changes in SCJN composition; in December of this year, a ministry replacement is scheduled, which would provide more significant backing to the federal executive.¹²

Still, many doubts jump pertaining to the electric market operation if the proposed measures are applied. Only the wave of impacts that the modification

¹² If appointed by the president, he would already appoint 4 out of 11 SCJN ministries; furthermore, the presiding magistrate of the court could expand his office. It bears to clarify that said expansion was proposed by the president of the republic (in spite of being unconstitutional). Hence, the federal executive could count with 5 of the 11 votes to his favor inside the greatest judiciary field body.

of the dispatch order will cause has been analyzed here. In principle, such law modification does not leave clear the price-fixing mechanisms, which add uncertainty to private actors. That determination will define the size of the subsidies and the pretension to the company's competitiveness –given will such variation– and public finances.

Finally, the Mexican government is determined to place pins where there are none, anchoring energy prices, which could end up being harmful to economic health. The proposal above also ignores international commerce, the environment and, Mexican health implications.

The Mexican government is determined to place pins where there are none, anchoring energy prices, which could end up being harmful to economic health, ignore international commerce, the environment and Mexicans' health.



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