Becoming Gas Reliant; How Mexico is Betting for a Risky Game

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Abstract

Transitioning to clean energy includes using natural gas as a transitional energetic. Nevertheless, for a country like Mexico, this transition is more of a static strategy. Gas infrastructure is planned to be highly dependent on US gas imports. This creates a gas lock-in strategy reliant on US gas supply.

Natural gas is considered the keystone for transiting to a cleaner energy matrix. Unfortunately, this is far from being true. Several factors undermine the possible green transition for Mexico, given the pressing presence of natural gas as a main fuel. In 2013 Mexico went through an energy sector reform, which opened the energy market to the private sector, this was reflected in the increase of private participation in electricity generation and opened new spaces for private investment in the oil and gas value chain.. The capital influx from private firms was meant to cover the underinvestment of infrastructure in the energy sector.

The energy reform fostered the increase of green energy projects. After three successful rounds of bid, wind and solar prices broke the record as the lowest prices for these technologies globally. However, the reality is that the energy matrix is still dominated by fossil fuels. Only 23.2% of electricity generation comes from clean energy. Despite the low participation of renewable energies, the current energy policy has focused on the promotion of fossil fuels. In the same line of promoting fossil fuels is the energy policy of the current administration, which aims to ensure energy sovereignty and therefore seeks to reactivate the extraction and refining of oil. However, the big problem lies in the dependence on natural gas from the United States.

The main energy guidelines coming from the government is to protect overall national energy security and strengthen the "State Productive Companies" in the oil sector (*Petróleos Mexicanos, PEMEX*) and in the electricity sector (*Comisión Federal de Electricidad, CFE*). This policy which, seems contradictory against a green agenda, is the mainguideline of the present administration.

Being a close neighbour of the United States opens the door to cheap natural gas, around 3 dollars for MBTU (millions of British thermal units). Compared to Europe or Japan, the MBTU is 5 dollars for the former and 10 dollars for the latter. Given these prices, natural gas was a clear option. But considering political or climatic risks like the outage in Texas at the beginning of this year makes vulnerable the energy systems. Relying only on gas imports from the US is a risky bet.

Although previous administrations were opting for clean energy, they were as well investing in natural gas infrastructure. As a result, from 2012 to 2019, the total importing capacity increased from 2758 to 11,000 mdcf (millionsof daily cubic feet). This increase in capacity was thanks to seven new interconnectors and the already existent internal ducts built by private firms that supply gas to the main public electricity producer (CFE).

This kind of infrastructure secures a contract of 25 to 30 years of an interconnection agreement. And given the present administration's plans where the main project is to create 6 new gas-dependent electric central, it is clear that gas infrastructure will increase.

Nevertheless, this investment is incomplete. Just as the Texas outage madeit clear, Mexico doesn't have enough gas storage capacity. Therefore, the electric system relies on a constant flux of gas coming from the USA that it is impossible to store. This is the combination for a perfect storm, just like the one happening early this year in Texas.

Another key factor that may make gas look like a safe bet is that it is not as unpopular as green energy infrastructure. As Andres Manuel Lopez Obrador mentioned, the "not in my back yard" movement against wind farms and solar panels is stronger in Mexico than reticent against gas infrastructure. Besides, given that gas is one of the leading energy fuels worldwide, technology and infrastructure have more investment. This leads to more efficient technologies in this niche, creating more money influx. This circle creates a constant and strong demand for gas.

Transiting to clean energy is a technology-feasible and cost-optimal option (Solano-Rodriguez, et al., 2018). But a projection of over investment in gas infrastructure in the following 15 years means locking in for a gas reliant energy matrix. Unfortunately, as the investment in gas interconnections with the US and plans of new electric gas-plants projections, it seems clear a lock-in depending on natural gas.

The big paradox with Mexico is a clear lock-in process going on without enough resources allocated in gas. This is a wrong strategy that happened as well in the oil sector. For example, recently, Mexico acquired the Deer Park refinery in Texas. This acquisition was to reduce the dependency on US refineries. Nevertheless, since the first acquisition in 1993 of 50% Deer Park, there was never an agreement on training human capital. Now, 28 years later, when Mexico is acquiring the other 50%, it faces a shortage of qualified workers. Therefore, all of the workers will be previous ones at Deer Park with salaries coming from Mexico. In this

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way, Mexico is buying a refinery highly reliant on private suppliers and foreign workers.

Just like Deer Park, the gas industry is facing a similar paradox. The present government is becoming highly reliant on gas but is not investing enough in infrastructure to extract the 9 258 BCF (billions of cubic feet) of proven reserves. Even worst, extraction has fallen since 2009, where it was 7,030.6 mdcf (millionsof daily cubic feet) to 4,894.1 mdcf in 2019. Besides, there are no clear plans to increase gas storage. Mexico is betting on more interconnections with the US without making robust national production of gas.

The path to achieving energy security and sovereignty in Mexico is still very bumpy ahead. It is creating a lock-in in gas-reliant technologies, and at the same time, there is a structural shortage of resources in this sector. Therefore, Mexico will only be relying on the stability of gas supply from the US. Even against the evidence that there will always be room for extreme events that can potentially harm the national energy security.

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