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Fabio Barbosa*

Impacts of the War in Ukraine on The Rise in Energy Prices in Mexico

Mexico cannot escape the international process of inflation unleashed by the war in Ukraine. In this article, I will attempt to describe the sectors affected both in industry and in the domestic market, because 85 percent of our national gas consumption is imported.

Although gas is a commodity traded in futures markets, it does not have a globalized market like crude oil; it can be divided into three large segments: North America, the European community and the United Kingdom; and Asia. The latter includes big consumers like China, India, Japan, and South Korea, which contribute almost nothing to supply, but constitute one-third of the world's demand.

I will focus on the first segment, which our country is part of. One of its most important characteristics is the low prices, explained by surplus supply due to the so-called shale-oil-gas revolution in the United States. Al-

though prices have risen again now, they continue to be the lowest worldwide because trade in the region benefits from the network of gas pipelines, contrasting with the long logistical chains that must cross the Atlantic or the Pacific to supply Asian markets. In addition, they require liquification plants at the outgoing ports and regasification stations in incoming ports. Maritime transport is carried out on methane tankers whose rates raise costs. A more efficient technology is being developed, however, such as floating units, but the war in Ukraine has created new stumbling blocks for which many countries were not prepared.

U.S. oil production rose from five million barrels a day in 2005 to almost twelve million at its height in 2020 before Covid-19; that is, it more than doubled. The same thing happened for gas extraction in that period, jumping from fifty billion cubic feet a day in 2005 to 110 billion cubic feet a day in 2020.¹

President Donald Trump declared his country the “dominant producer,” eliminated the ban on exports, and greatly fostered the oil industry, opening up exploration in new areas.

* Fabio is a researcher at the Institute for Economic Research (IEEC, UNAM); you can contact him at barbosa@unam.mx.

New Growth of Mexico's Natural Gas Market

In this context, conditions were established for replacing coal, fuel oil, and diesel with cheaper, less polluting natural gas for generating electricity, as well as the switch-over to the use of natural gas in industry and manufacturing. The magnitude of this change can be seen by the fact that today more than 60 percent of electricity is generated by turbines powered by natural gas and industry consumes almost 20 percent of that.

A period of low prices opened up in which the basic metal industry converted from coal and coke use to gas. A paradigmatic case of this is the laminated steel and rebar plant in what was the Lázaro Cárdenas steel mill located in Las Truchas, Michoacán, privatized in 1991 but reconverted into one of the world's largest. The same process can be seen in the Altos Hornos de México steel mills in Coahuila, Nuevo León, Puebla, and other sites.

The auto assembly plants operated by Ford in Hermosillo, Sonora; Kía in Pesquería, Nuevo León; Toyota, in Baja California and Guanajuato; General Motors, in San Luis Potosí and Silao, Guanajuato; Nissan, in Aguascalientes, Audi and Volkswagen in Puebla; Honda, in Celaya, Guanajuato; and Mazda in Salamanca, Guanajuato are all supplied through pipelines direct to their facilities, sent both by a group of new private companies that import the gas from the United States, and by Mexico's publicly owned Federal Electricity Commission (CFE), which acquired more gas than it needed and now also sells it to lower its surplus. A paradox emerged here that should be mentioned: during the last six-year presidential term, a CFE subsidiary signed contracts committing Mexico to purchase 22 billion cubic feet of gas a day from the United States, but at this point in our development, our country can only consume 9 billion cubic feet. So, it now must pay penalties for not living up to its commitments.

The manufacturing plants that had already been operating for a half century along the northern border states, from Baja California to Tamaulipas, have experienced a *new growth cycle* due to the cheap fuel, which, despite recent price hikes, is still more accessible compared to the prices in the European Union or the Asian market. I should mention that respected analysts have been expressing their concern—which I share—about the continued escalation of the conflict in Ukraine. In short, Mexico's energy

sector has been impacted by the international inflationary process, but thanks to the circumstances described, its effects have been mitigated. Naturally, we cannot fail to mention that if prices continue to rise, our smallest companies could be unable to compete.

A Different Panorama in the Domestic Consumer Market

Having arrived at this point, I should explicitly explain that, the gas that comes out of wells is actually a mix of different gases: the majority is a very simple hydrocarbon called methane, but it is accompanied by other higher-priced gases like butane, pentane, hexane, petrochemical precursors, and even other dangerous materials such as sulfuric acid, which can be fatal just by breathing it. It is so corrosive that it can even damage the metal in the pipelines; this is why the first operations have to be its separation and other processes that raise costs.

In poorer countries like Mexico with financial restrictions, the associated gas in oil wells is often burned and only the oil is sold quickly to avoid the costly operations of separating and transforming the gases into petrochemical derivatives. Without going into more detail, I will point out that one peculiarity of the Mexican market is that, since the 1950s, a 70-30-percent mixture of butane and propane known as "liquefied petroleum gas," or "LP gas," has been used for popular consumption in cooking and heating water. Percentagewise, this mixture is estimated at only 2 percent of all the gas Mexico imports, but it is still very important because of the size of its market.² Methane gas suppliers say they have about 70,000 customers, while INEGI estimates state that 79 percent of Mexican homes use LP gas. As a result, LP gas is the fifth most important product of almost 300 basic products

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and services whose prices impact the inflation rate used to update the prices of rates and services.³

The LP gas markets are different because, probably since 1950, monopolies have been created that control its distribution, in some cases even with a resort to violence.

When the current Andrés Manuel López Obrador administration (2018-2024) began, it faced a bleak panorama in this field, which was different from the wholesale plunder of gasoline pipelines that it also had to deal with—although this was also a possibility. Five corporate groups concentrated 53 percent of the national LP gas market in 2017, divvying up “sales regions” and imposing “exorbitant prices” with “excessive profits.” As a result, Mexico’s minister of energy, engineer Rocío Nahle García, called on the Energy Regulatory Commission (CRE) to set maximum prices, and the president’s office decreed the creation of a new state company for the sale of natural gas to consumers in Mexico City. It should be recognized that these measures have had only limited success, and high prices to the consumer continue to rise. This must be combatted not in the traditional way, but from the demand side. My proposal is to gradually replace the consumption of these gases, which could be used more rationally than as mere fuel, to establish widespread programs to foster the use of solar energy and manufacturing batteries to store energy. As is well known, Mexico has large lithium reserves.⁴

The Impact on Transportation

This section refers to diesel for heavy vehicles and gasoline and jet fuel for aviation. Given the limitations of space here, I will only delve into the first two, which I consider have the greatest impact.

The number of vehicles in the country is growing uncontrolledly, even beyond our ability to create statistics. We do not know how many used vehicles enter our country from our northern neighbor on temporary permits and

stay permanently. A constant flow of vehicles is tolerated and even fostered by border-state governors, who lower the prices of import permits and establish very lax policies for legalizing them to grow their electoral clientele. As the number of vehicles that consume traditional fossil fuel grows, the need to expand the refineries also grows, thus hindering the energy transition.

To stop popular mobilizations like those that have happened recently in neighboring countries, the government has adopted a policy of indiscriminate subsidies. This sacrifices its extraordinary income derived from the sale of imported gasolines, a very controversial measure; however, it has prevented protests in the streets.

By contrast, I think it is necessary to emphasize the production of diesel, used for heavy agricultural tractor engines, public transport vehicles, or the engines of our depleted fishing fleet.

I can conclude that the situation created by the war in Ukraine has fostered worldwide restrictions in the supply of fossil fuels and has stimulated transition policies. In Mexico, these measures have been weak and very slow. Mexico must incorporate itself more quickly into the international changes in the energy economy. ■■■

Notes

- 1 Fabio Barbosa, *Experiencias en la explotación de hidrocarburos no convencionales en México y Estados Unidos* (Mexico City: IIEC, UNAM, 2020).
- 2 This is an estimate that takes into consideration the consumption of the different kinds of gas: 1) more than 60 percent is used to generate electricity; 2) almost 20 percent is used in refineries and petrochemical plants; 3) another 20 percent is used in private industry (manufactures, metallurgy, assembly plants, auto part plants; and 4) domestic consumption for cooking and heating water only makes up 2 percent. However, since its use began after WWII, more expensive gases have been allowed to be burned off, which could be used in producing fertilizers, for example. This peculiar market is slowly constricting with the use of wind and solar energy, a change that some professors—myself among them—think should speed up.
- 3 Instituto Nacional de Estadística y Geografía, “Índice Nacional de Precios al Consumidor,” 2022, <https://www.inegi.org.mx/temas/inpc/>.
- 4 While oil production is in the millions of barrels and methane gas production in the billions, the production of propane and butane is only a few dozen barrels. As a member of the first Pemex History Commission, I became familiar with a pipeline that initially transported these fine gases to the Valley of Mexico; it was ten centimeters in diameter and ran alongside the oil pipeline from Poza Rica, Veracruz, to Mexico City’s Azcapotzalco mayoralty. See further information at Sener, “Directriz de emergencia para el bienestar del consumidor de gas licuado de petróleo,” 2022, accessed November 4, 2022, https://dof.gob.mx/nota_detalle.php?codigo=5625053&fecha=28/07/2021#gsc.tab=0.