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Carlos Navarro

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President Felipe Calderón Releases Comprehensive Energy Plan for 2012-2026

By Carlos Navarro

President Felipe Calderón has submitted a long-term energy plan that proposes to increase to 35% the percentage of electricity obtained from nonfossil fuels by 2026. The ambitious goal, contained in the Estrategia Nacional de Energía (ENE) 2012-2026, seeks to provide Mexicans with diversified, adequate, sustainable, high-quality, and low-cost energy. In addition to raising the percentage of electrical power not obtained from hydrocarbons, the plan envisions actions to restore the country's energy reserves, boost production of crude oil and natural gas, increase energy efficiency, and reduce the energy sector's impact on the environment.

Large expansion of nuclear power proposed

There are two potentially controversial proposals that stand out in the ENE. Both are intended to reduce harmful emissions but in the process create other environmental problems. One proposal, which is part of the plan to reduce dependence on fossil fuels, envisions a great expansion of Mexico's nuclear capability. Under the plan, nuclear power would account for 6.6% of Mexico's total electricity production by 2026, compared with the current ratio of just over 3%. This would be accomplished by constructing additional reactors at the Laguna Verde facility and possibly building nuclear facilities at two other sites in Mexico.

In recent years, the Calderón government has made a big push to promote other types of alternative energy to reduce reliance on fossil fuels. In addition to boosting nuclear power, the plan envisions increasing the proportion of wind energy to 16.8% and hydroelectric energy to 9.2% of Mexico's total energy-generation capacity, bringing the total to about 35%. Currently, nonfossil fuels account for 20% of Mexico's total energy output.

The move to reduce reliance on fossil fuels is part of a strategy to reduce emissions of harmful substances into the atmosphere. Under the energy plan, emissions of CO₂ would be capped at 567 million tons per year.

The Calderón administration envisions nuclear power as a major part of the solution. "Now we have an opportunity to explore new opportunities in nuclear power," the Secretaría de Energía (SENER) said after the ENE was released.

Energy Secretary Jordy Herrera underscored this point at an event in Mexico City at the end of February. "It's time to put nuclear power on the table," said Herrera.

But environmental advocates adamantly oppose nuclear power, pointing to the disaster at the Fukushima Daiichi Nuclear Power Plant in March 2011. Critics cite the fragile nature of nuclear facilities and the danger to nearby populations in the event of earthquakes and other natural disasters.

Proper disposal of nuclear waste is also a problem that has not been resolved.

While groups like Greenpeace México support the Calderón government's efforts to greatly boost renewable energy, the organization believes that increasing the resources devoted toward wind and solar power could be more helpful than building nuclear power plants. Notably, the ENE does not put significant emphasis on developing solar energy.

Environmental advocates lack the muscle to stop nuclear power projects, since they have the full support of many powerful politicians. "Modern nuclear plants provide the means to ensure that we have all the electricity we need," said Deputy Felipe de Jesús Cantú, who chairs the energy committee (Comisión de Energía) in the lower house. Cantú is a member of the governing Partido Acción Nacional (PAN).

Exploitation of shale-gas reserves also envisioned

In another potentially controversial proposal, the INE pushes for increased exploitation of reserves of shale gas, which is natural gas that is formed in shale formations. Mexico has large reserves of shale gas in northern and eastern Mexico, in an area that includes parts of Coahuila, Chihuahua, Nuevo León, Tamaulipas, and Veracruz states. Access to these reserves greatly increases Mexico's capacity to produce natural gas, which is a cleaner option than other hydrocarbons like coal and oil.

The biggest obstacle to this proposal is the large amount of effort needed to extract the vast reserves of shale gas. Extraction is an intensive process, requiring a large number of wells, pipelines, and processing plants. A big advantage is that access to these reserves could help boost Mexico's overall supply of gas, reducing costs for petrochemical plants that are already near the reserves.

Under the INE, natural gas production (without shale-gas reserves) was projected to increase to 6.3 billion cubic feet daily by 2016 and to 8.9 billion cubic feet by 2026. With the addition of shale-gas reserves, the total could reach 11.4 billion cubic feet by 2026, said SENER.

The big disadvantage of shale gas, in addition to the labor-intensive process, is its impact on the environment. The process requires the addition of chemicals to water injected into the wells to facilitate the underground fracturing process known as fracking, which releases natural gas. The extraction process produces contaminated water, a portion of which is not recovered.

Environmental advocates have warned that the wastewater that remains on the ground could eventually contaminate underwater aquifers. There is also the potential for heavy metals to contaminate above-ground local water supplies.

"It is misguided to think that shale gas is the solution to our energy needs," Beatriz Olivera, coordinator of the energy and climate change campaign at Greenpeace México, said in November 2011, a few months before the ENE was released.

"If the resources being devoted to fossil fuels were put toward renewable energy, we could create jobs, promote regional development, and integrate productive chains."

Oil a big part of the plan

Despite the objections of Greenpeace and other advocates, fossil fuels remain an integral part of the ENE. One goal of the energy plan is to boost crude-oil production by 20% by 2026. The plan envisions expanded drilling, as well as increased exploration to boost reserves. The increase in reserves is contingent on success in gaining access to reserves in the deep waters of the Gulf of Mexico.

Under the plan, PEMEX is targeting production of 3.35 million barrels of crude oil per day by 2026, compared with 2.54 million bpd in 2011.

Herrera said recent discoveries in the shallow waters of the Gulf of Mexico have allowed Mexico to replenish crude oil that is extracted at a rate of 100%. The goal for 2026 is to boost that rate to 110% with new reserves.

"For the first time in history, we have reached a point where the substitution of reserves is at 100%," said Herrera, who noted that this trend has been verified by several certifying companies and by the Comisión Nacional de Hidrocarburos.

But the energy secretary emphasized that there is much work ahead. "We have to continue investing in the exploration and development of hydrocarbon reserves," said Herrera. "It is not sufficient to know that we have a huge potential and not give a measurement and value to this potential, especially given the advanced technology that is now available in the market."

The increased access to technology and know-how implies partnerships with foreign entities.

The ENE also seeks to operate energy infrastructure in an efficient, clean, and safe manner, strengthen and modernize infrastructure, and promote development of the national petrochemical industry.

One goal established by SENER is to promote conservation and efficiency, so that the rate of energy savings is at 15% above consumption. Among other things, the plan would develop a standard for energy efficiency for automobiles circulating in Mexico.

The plan was submitted to the Senate at the end of February, and the initial reaction was positive.

"The plan addresses some of the concerns that we have raised in the past," said Cantú.

But legislators do not expect to give the proposal carte blanche, since there are portions of the plan they would like to change. Some legislators would like the plan to make electricity more affordable for the population. "In my opinion, there must be a change in the formulas used to calculate electricity fees," said Sen. Francisco Labastida, a member of the opposition Partido Revolucionario Institucional (PRI) and chair the energy committee in the upper house.

Others want to ensure that the plan does not violate the Mexican Constitution, which designates natural resources as the property of all Mexicans. "We also want to make sure that transparency is foremost in this plan," said PRI Deputy Guillermo Ruiz de Teresa, a member of the energy committee in the lower house.