

Potential Impacts of Mexico's Energy Reform on the Texas Transportation System

Background:

- Mexico's energy reform constitutional changes, signed in December 2013 by President Enrique Peña Nieto, aimed to end the oil monopoly of Pemex and encourage foreign investment in Mexico's energy sector. Changing Mexico's energy industry was necessary to foster development for the economy and increase oil production.
- Due to an expected increase in foreign investments for exploration of Mexico's shale reserves that are located south of the Rio Grande, mainly in the Burgos Basin, the hydraulic fracturing boom along the Eagle Ford Shale region in Texas will likely expand south. The potential influx of investment from domestic and foreign companies in the Burgos Basin can have strong implications on Texas' transportation system.
- After a brief introduction of the hydraulic fracturing process, this paper analyzes the potential impacts of the Mexican energy reform in the Texas transportation system by first presenting the general goals of Mexico's energy reform and documenting previous research that was conducted on the influence that the energy sector had on Texas transportation systems. This paper then presents the potential impact that Mexico's National Infrastructure Investment Program could have on Mexico's shale region, identifying possible similarities in the energy sectors of Mexico and Texas. The final section of this paper presents findings and identifies areas for further research.

Preliminary Findings:

- Texas roadways: Mexico will most likely be able to run a self-sufficient water industry to meet the demands of hydraulic fracturing. A self-sufficient Mexican water supply means that Texas' transportation system will likely be unaffected by the water trucks needed for Mexico's energy industry.
- Texas rail network: With the majority of oil refineries being located on the US Gulf Coast, the demand for Texas railways has been increasing as the shale boom has been taking off. With the combination of an increase of crude oil production in Mexico and the lack of refineries in Mexico, it is safe to assume that this demand for Texas railways will increase when more oil is being brought from south of the border. This research has led to the conclusion that Texas' railways will be the transport mode most affected by Mexico's energy reform. There are three reasons why the railways will be most affected:

- The shortage of refineries and the absence of pipelines in the area will lead to an increase in the use of railways for the transportation of crude oil.
- The fracking sand that is coming from Wisconsin to areas like the Eagle Ford and Permian Basin, is likely to be moving south towards the Mexican side of these shale reserves. Rail volumes through Texas will increase.
- With an increase of foreign investments in infrastructure development, Mexican railway concessionaires will most likely see an increase in oil industry- related traffic, so they will make the necessary investments to cope with the additional demand.
- Border crossings: With a greater amount of cargo crossing through the borders (inbound and outbound traffic), it will be necessary to address potential capacity issues. These issues could be resolved with additional physical capacity that will require expanding current ports of entry or building new ones. The other alternative is to use current infrastructure more efficiently by adding staff and/or technology. The latter requires less funding and could be implemented faster, as the development of international port of entry infrastructure is a lengthy process. Further research would be needed to quantify the potential increase in the flow of goods through the border.

Areas for further research:

- Safety measures for rail cars in the US and Mexico
- The anticipated increase in rail traffic
- Increase in border crossing volumes, identifying location and commodity types
- Mexico's future water extraction processes