

# Oilfield Logistics & Supply Chain : WHAT'S CURRENTLY AVAILABLE AND WHAT'S NEEDED?



November 5, 2014  
Alaster Love

# The 2 Sides of the Rio Grande and Golf



# “Big Data and Analytics” for Oilfield Transportation

- Centralized TMS “Control Tower” collaborating with District Level Execution
- Business Intelligence to provide visibility and monitoring route guide compliance info
- Proven Procurement process for Oilfield trucking
- Dynamic routing for Sand and Production Water

# Logistics or Supply Chain?

- When it's a \$100 a barrel, I am chasing you
- When its \$85, people start to pay attention
- When its \$75, they are calling me to discuss “supply chain”
- When the discussion is Mexico, its outsourcing – no company owned fleets

# “ Seismic then Rigs”

\*15 years moving Oilfield equipment in and out of Mexico

- Seismic is harbinger of the future
- Alice to Poza Rica to Carrizo Springs, Rig #451
- Supplies to Monclova for US Driller in 2008 (QHSE standards)
- 2007 – 28 rigs in a month into Poza Rica
- Offshore logistics mature (Laredo), onshore



# HOW ARE RAIL, TRUCK, AND BARGE GROWING TO SUPPORT THE EAGLE FORD SHALE?



# South Texas Truck Stops



# Eagle Ford Oil Production Growth

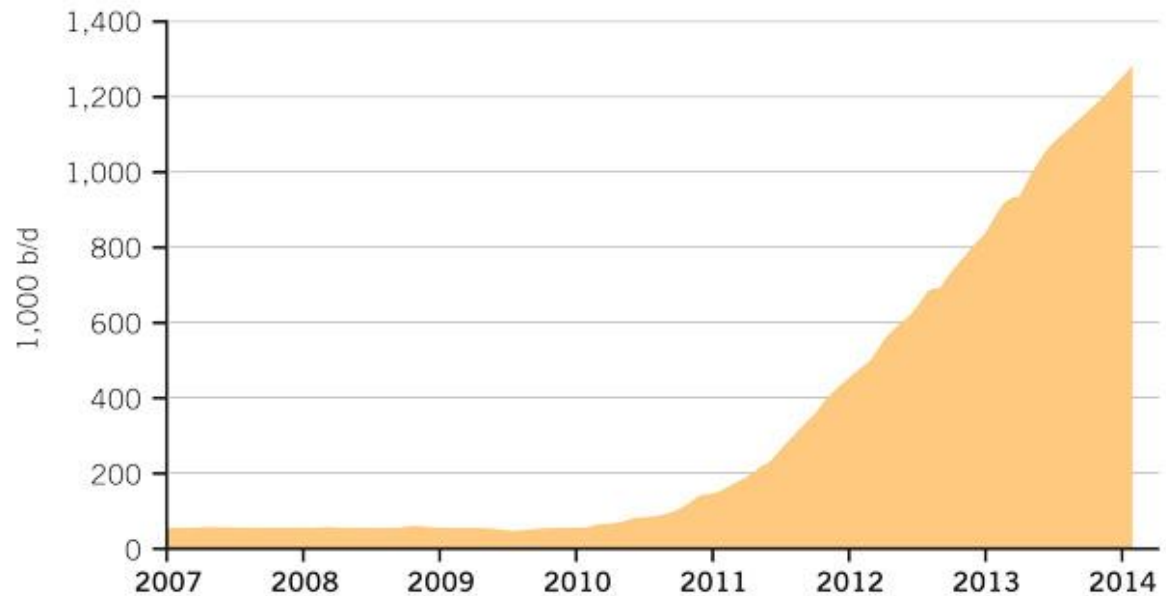
Between 2011 and 2012, oil delivered to refineries by trucks increased 38 percent, crude moved on barges increased 53 percent and rail deliveries **quadrupled**.

According to the Association of American Railroads, the amount of crude oil and refined petroleum products transported by rail totaled close to 356,000 carloads during the first half of 2013, an increase of 48 percent from the same period last year.

Source: Texas Tribune

## EAGLE FORD OIL PRODUCTION

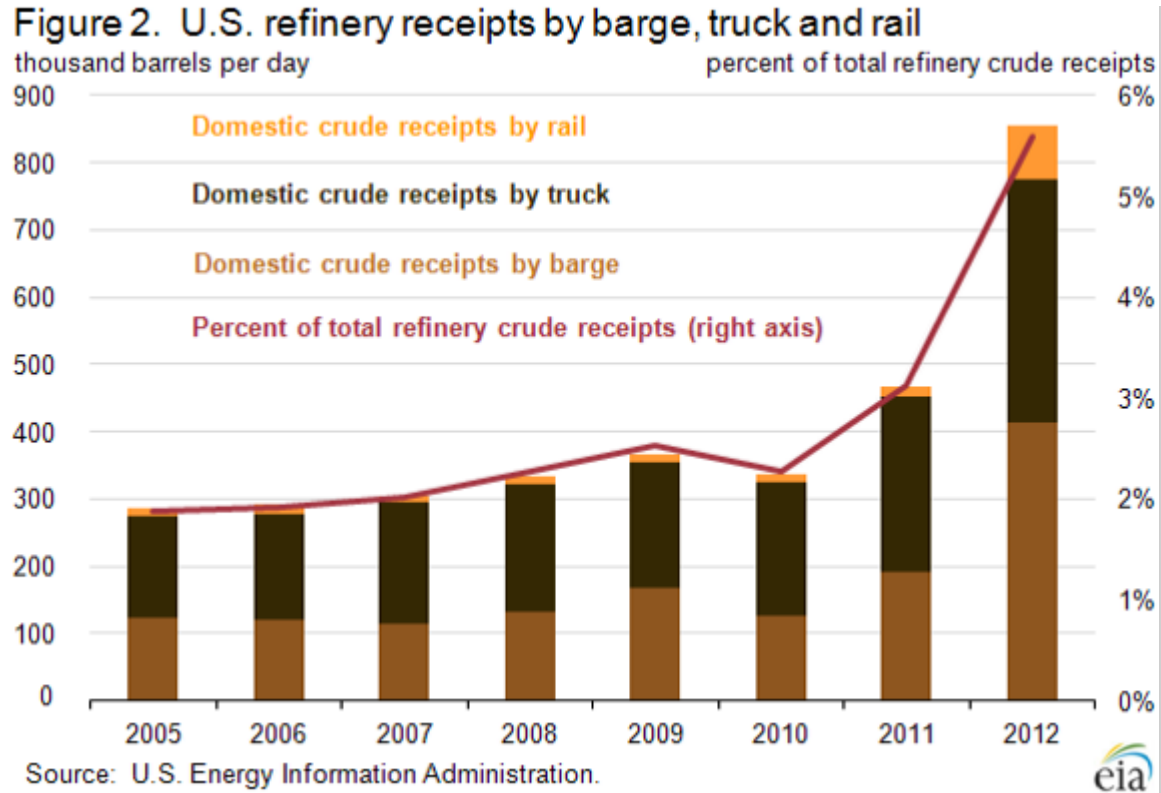
FIG. 2



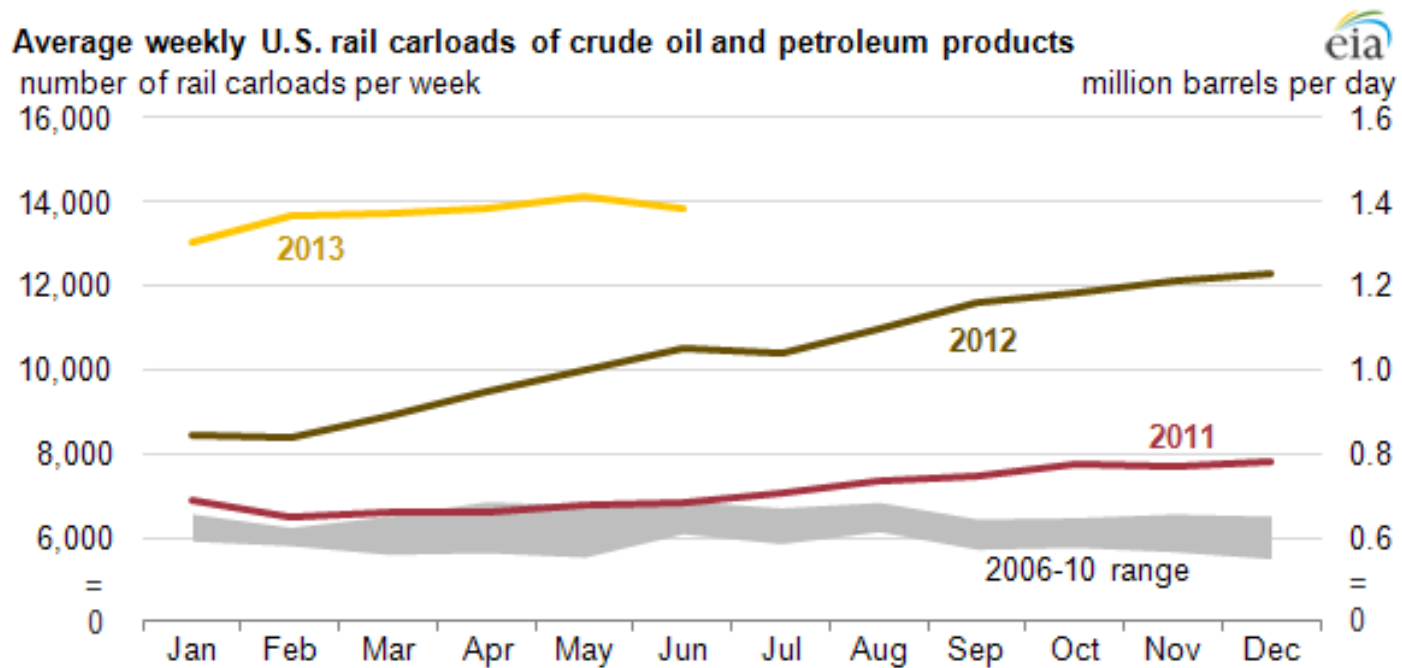
Source: EIA Drilling Productivity Report, January 2013



# U.S. Rail, Truck, and Barge Growth



# U.S. Rail Growth in the Eagle Ford Shale



Source: [EIA](#)

# Barge Growth in the Eagle Ford Shale

## Port Corpus Christi: Transportation & Storage Hub Growth

- 5<sup>th</sup> largest port of shipments in US by tonnage
- #1 Crude Exporter from Eagle Ford Shale: Houston, TX



Source: [Oil & Gas Journal](#)

### CORPUS CHRISTI CRUDE DESTINATIONS: JANUARY 2014

Offtake port	Total received
	bbl
Beaumont, Tex.	1,309,200
Chester, NY	796,262
Freeport, Tex.	1,043,760
Houston, Tex.	3,896,620
Lake Charles, La.	1,122,760
Morgan City, La.	2,232,516
New Orleans, La.	208,501
Newark, NJ	306,582
Philadelphia, Pa.	317,836
Port Arthur, Tex.	1,674,000
St. Rose, La.	865,800
Texas City, Tex.	2,637,576
<b>Total</b>	<b>16,411,413</b>

Source: ClipperData, January 2014

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# HOW IS CURRENT TAKE-AWAY CAPACITY AFFECTING HOW THE PLAY DEVELOPS?

# Pipeline Construction Caught Up With Production?

More than 2.6 million miles of pipelines, enough to circle the Earth about 100 times, transport the majority of oil and natural gas in the U.S., according to the Pipeline and Hazardous Material Safety Administration.

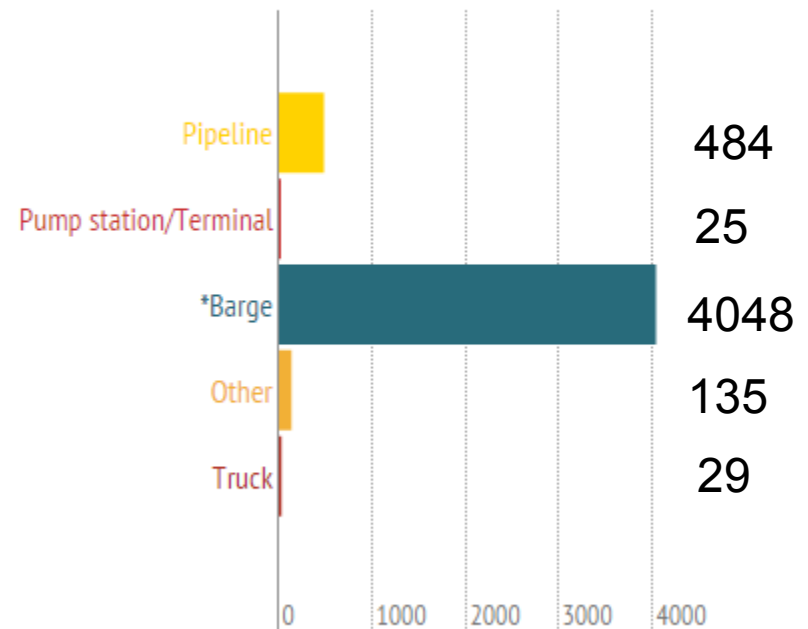
But the ongoing boom in Eagle Ford Shale oil production has outpaced the transit capacity of Texas pipeline infrastructure.

The oil and gas industry is predicted to spend \$30 billion this year investing in projects in the Eagle Ford Shale.

Much of this investment is anticipated to be in pipeline infrastructure.

Source: [Global Data](#)

## Barrels of Oil Lost: 2009-14

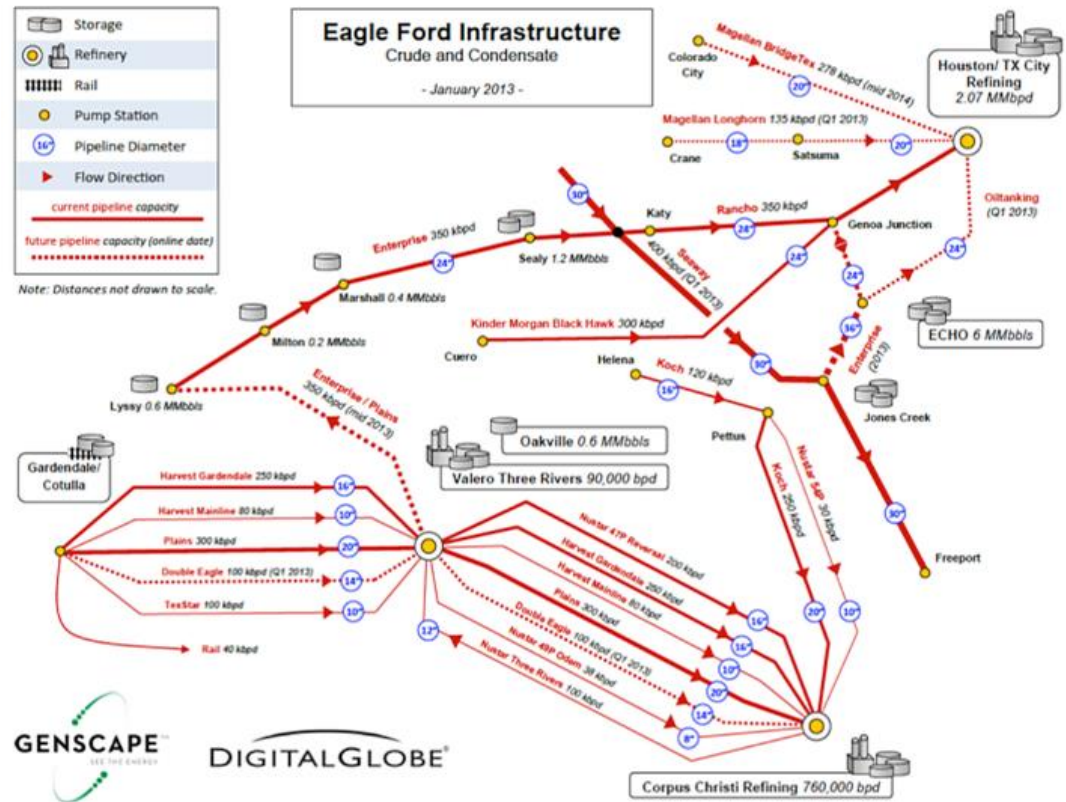


Source: Texas Railroad Commission

# Infrastructure Eagle Ford Shale

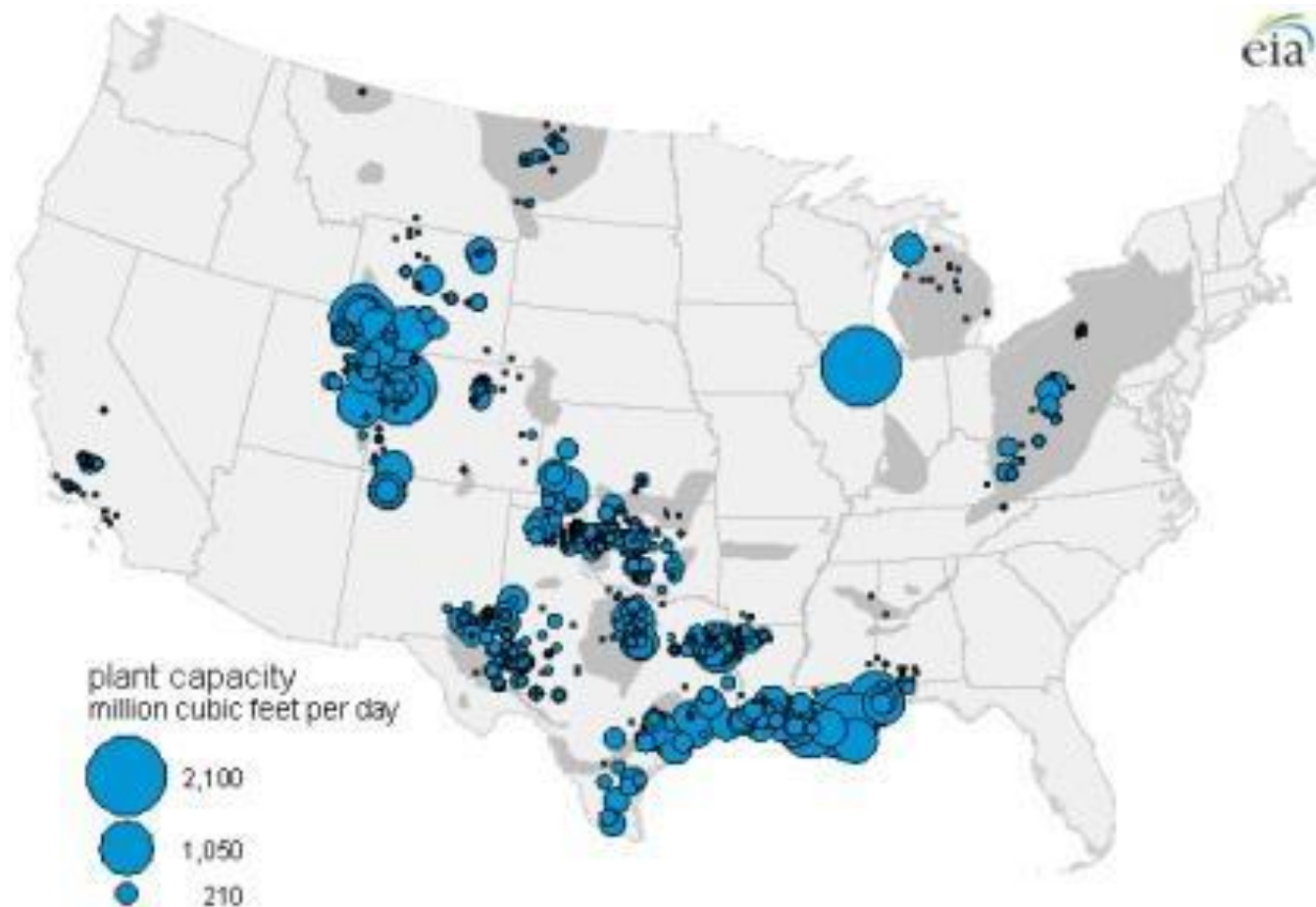
- Eagle Ford pipeline takeaway capacity is four times production and local refinery consumption – an excess of over 1.3 MMb/d.
- More than 20 pipeline projects are already built or under construction to move Eagle Ford production to market.

Source: [Genscape](http://Genscape.com)



Source: [Oil & Gas Financial Journal](http://Oil & Gas Financial Journal)

# Take-Away Plant Capacity in the U.S.



Source: EIA





# AN ASSESSMENT OF TRUCKING AND RAIL IN THE REGION – AND PROJECTED NEEDS WHEN MEXICAN DRILLING RAMPS UP POST-REFORM

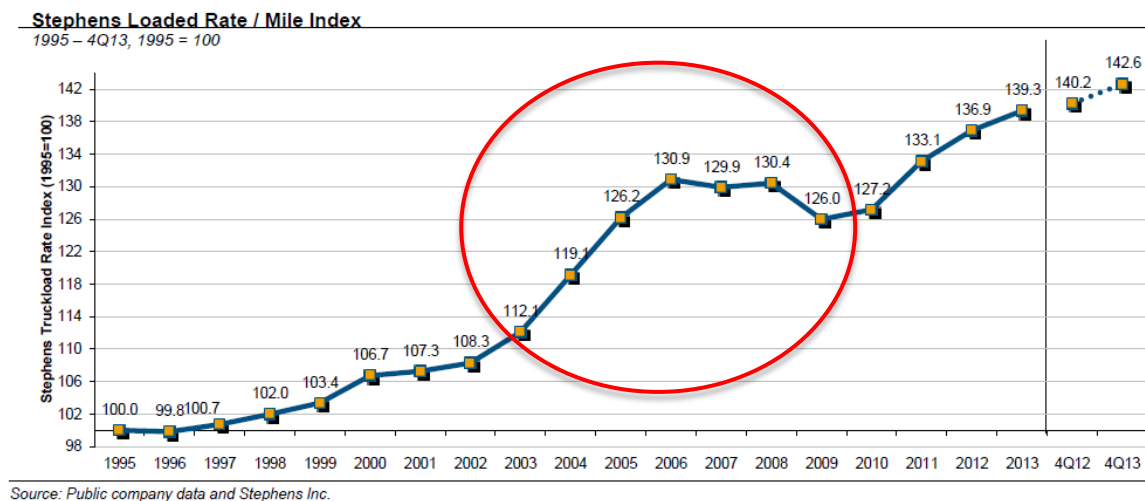
# The Border and its role....



# Rate Scenario Outlook – 2014 & Beyond

TL Capacity will continue to tighten and the market is entering an extended rate increase period similar to 2003-2008

- Analyst consensus is for increase in rates of 2 to 5% for balance of 2014 and 2015
- Rate increases will continue in the following years for a 3 to 5 year period
- Rates will generally increase 1.5 to 3% per year, but some years may see increases of 3 to 5%
- The general trend can be heavily impacted by economic and non-economic factors, such as accelerated short term economic growth or severe weather that creates short term pressure on TL capacity (examples being Hurricane Katrina and Winter Vortex 2014)



# Bi-National Trucking Trends



# Trucking Assessment

- Highway Infrastructure will need to be improved for Trucks.
- Lack of trained Oilfield truck drivers.
- Truck security for transportation.

Source: [The Mexican Eagle Ford](#)



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# Railroad Facilities in the Eagle Ford



Source: [UTSA Institute for Economic Development](#)



# DEVELOPING THE NECESSARY WORKFORCE TO MAXIMIZE THE POTENTIAL OF THE BURGOS BASIN



## Coahuila estimates \$64 billion investment and 240,000 jobs from shale gas industry.

The Secretary of Economic Development and Competitiveness for the Mexican state of Coahuila, Antonio Gutiérrez Jardón, expects to receive **US\$64 billion in investments** for the exploration and production of unconventional hydrocarbons over the course of the next 15 years.

During this time, he anticipates approximately 8,000 shale wells to be developed through hydraulic fracking. As a result of the investments and related industrial activity, **Coahuila hopes to generate as much as 240,000 jobs.**

The 8,000 wells have been identified through seismic testing performed by the Instituto Mexicano del Petróleo, which included roughly 500 km<sup>2</sup> in the Northern part of the state

Burgos Basin, Eagle Ford, Mexico Energy Reform, Mexico Shale, Sabinas Basin, Unconventional

By: Staff Reporters | September 27, 2014

# Major Benefits of Workforce Maximization

- An estimated **2 percent growth in GDP** and **2 million more jobs** created in Mexico by 2025.
- Opportunities for private international companies to invest in petrochemical assets for the first time in 76 years, creating new partnership with US business.
- A restructured **natural gas industry** with the goal of increased access to natural gas for large consumers to enjoy reliable, low-cost power.
- Potential lower electricity prices through the substitution of high cost diesel and fuel oil with new supplies of natural gas.

The energy reform benefits will extend beyond Mexico's own economy. Increased private investment from both domestic and foreign companies will strengthen economic ties and lead to increased integration across North America.

The Mexico Energy Reform is an integral component to North America's Energy sustainability. With the future of oil and gas supply in the hands of three strategic neighboring countries, North America will be better prepared to weather external economic shocks with a steady fuel supply to power the economy.

Source: [Mexico Energy Reform](#)

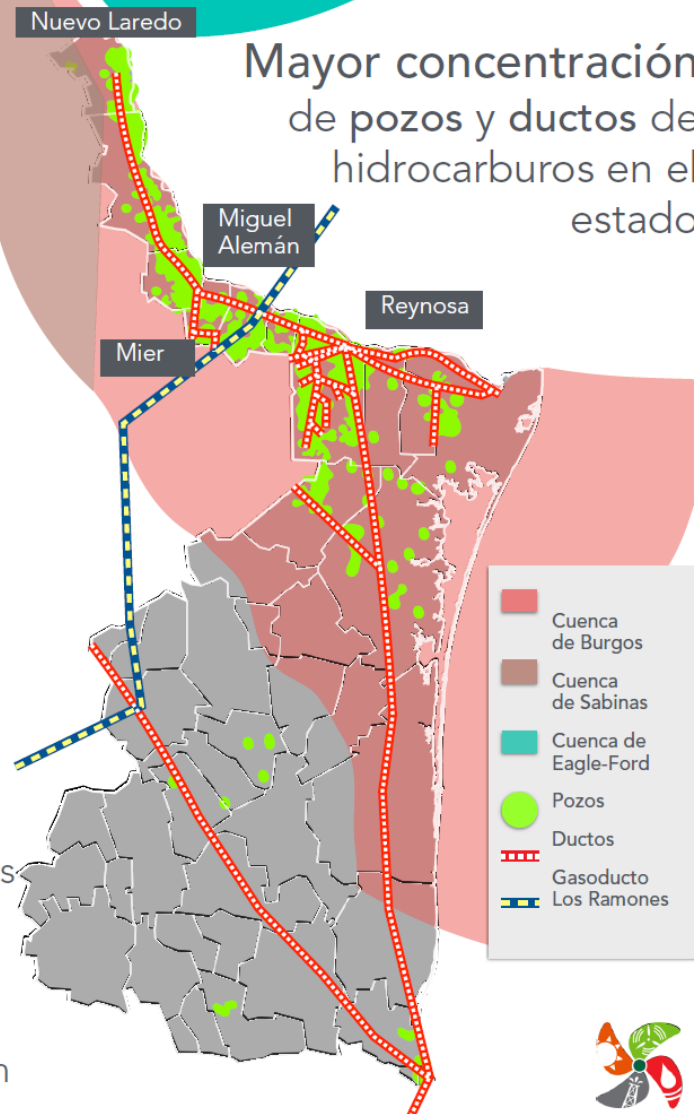
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# Workforce

## Región Ribereña

- Región Ribereña: 5 MUNICIPIOS. HABITANTES: 69,820
  - ➔ Miguel Alemán 29,533 habitantes. 42% del total de la población ribereña
- TASA ANUAL DE CRECIMIENTO:
  - 0.6% regional
  - 1.7% Miguel Alemán
- Cuenta con cuatro cruces internacionales: Miguel Alemán, Camargo, Guerrero y Díaz Ordaz
- Esta región se encuentra en la confluencia de las cuencas de Burgos y Sabinas
- Colindante con la cuenca Eagle-Ford en Texas
- Tiene dos campos de gas de Pemex: uno en los municipios de Miguel Alemán y Mier; otro en Camargo y Gustavo Díaz Ordaz
- Construcción de la primera fase del **Gasoducto Los Ramones**
  - ➔ Conexión con la red de gas de Texas con la red de ductos nacionales
  - ➔ Principal vía de distribución del gas de lutitas que se extraiga en la región
- En la Ronda Cero, a Pemex se le asignaron reservas probadas y probables por 425 millones de barriles de petróleo crudo equivalente en esta zona

Source: Gobierno de Tamaulipas





# EQUIPMENT ACCESSIBILITY: OVERCOMING THE LOGISTICAL AND SUPPLY CHALLENGES

# Fracking changed the Game..

- Trucks to move, at the beginning, Upstream, Midstream, and Downstream
- 2,500 trucks of water and sand per well
- Hundreds of Medium to Small businesses that support the industry

# Truck Drivers: We need More!



# 2,500 per well : Need a lot of these

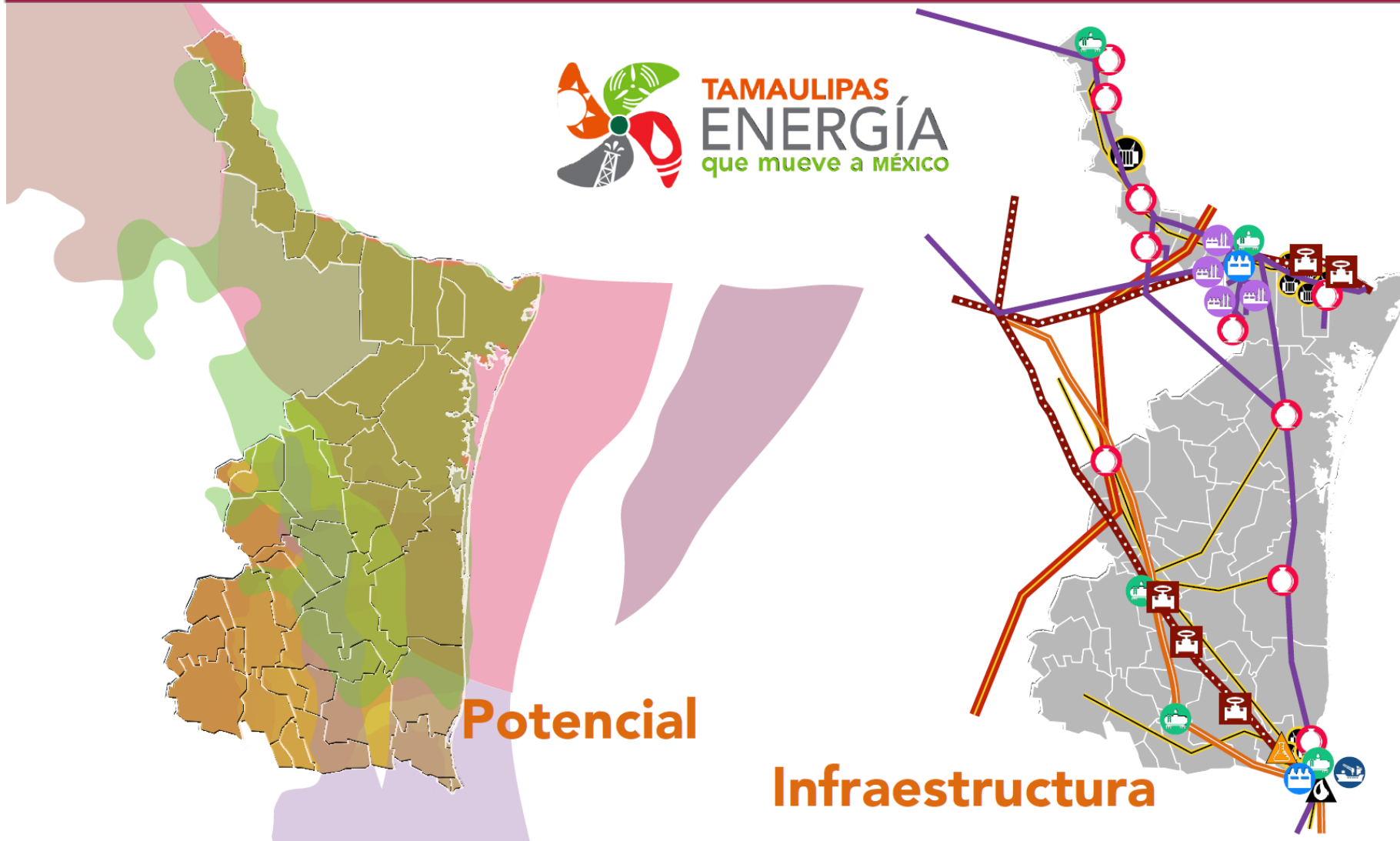






**WHAT KIND OF CONNECTIVITY – RAIL, ROAD, LOADING/UNLOADING – IS AVAILABLE CONNECTING MEXICO AND TEXAS AND WHAT NEEDS TO BE IMPLEMENTED TO SUPPORT BURGOS PRODUCTION GOING FORWARD?**

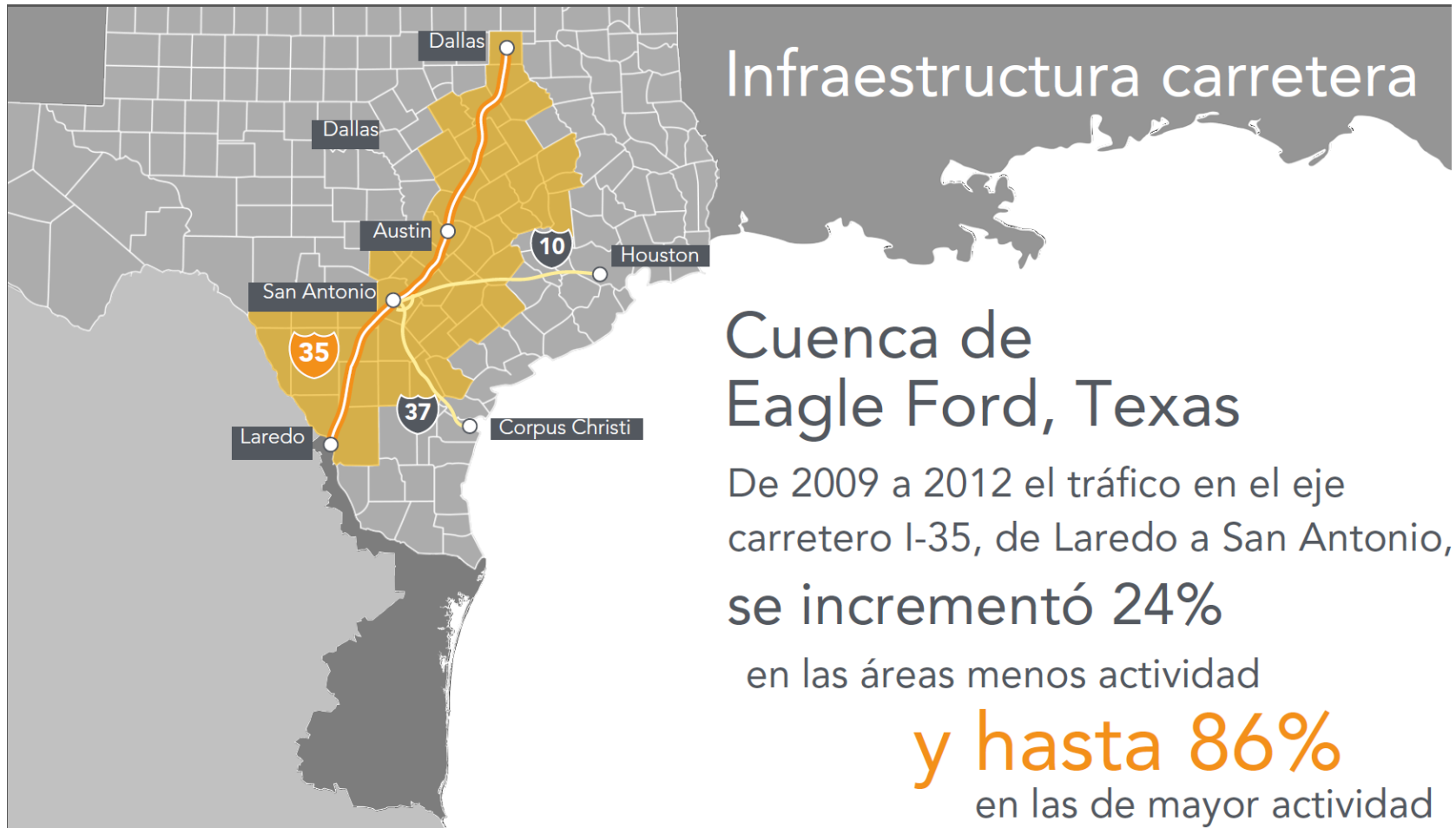
# Projected Infrastructure



Source: Gobierno de Tamaulipas

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# Highway Infrastructure – U.S.



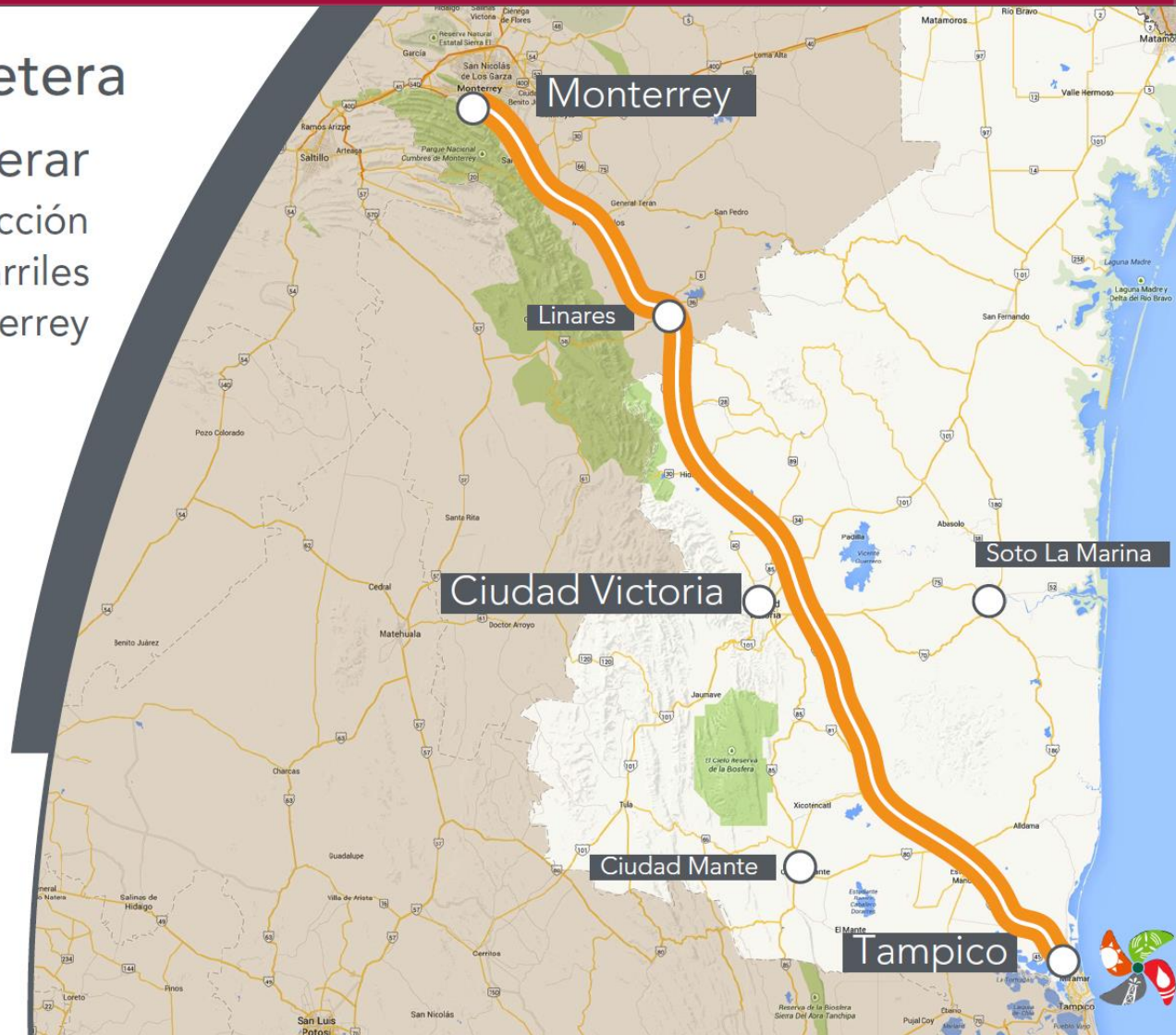
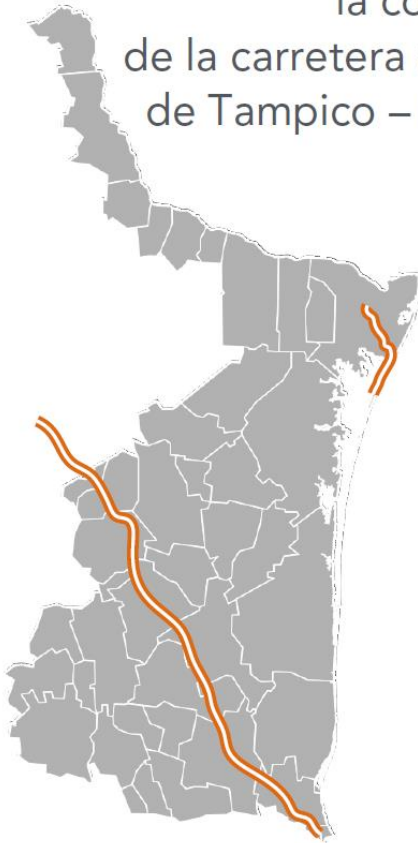
Source: Gobierno de Tamaulipas

# Highway Infrastructure - Mexico

## Infraestructura carretera

En proceso

Acelerar  
la construcción  
de la carretera a 4 carriles  
de Tampico – Monterrey

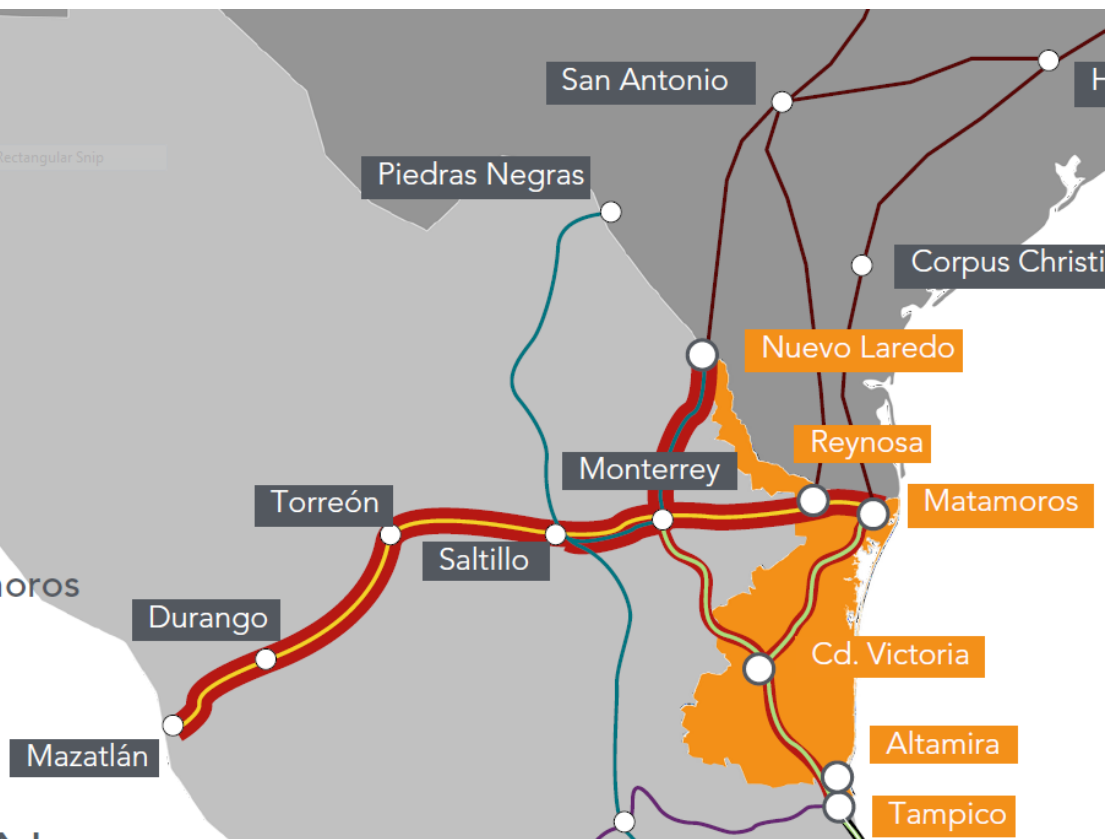


Source: Gobierno de Tamaulipas

# Highways in Tamaulipas

4 ejes  
carreteros  
nacionales  
inciden en nuestro Estado

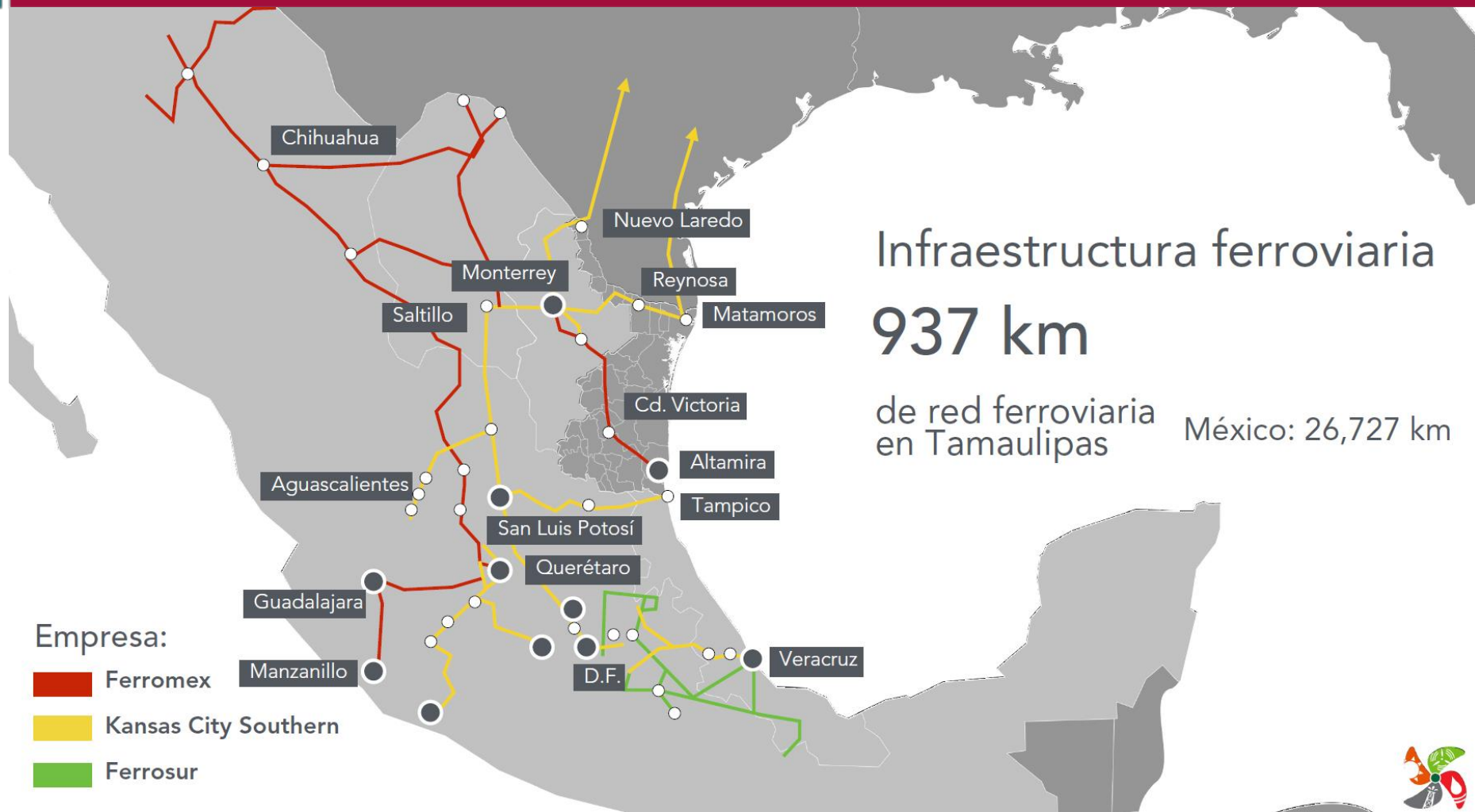
- México - Nuevo Laredo
- Veracruz - Monterrey con ramal a Matamoros
- Manzanillo - Tampico
- Mazatlán - Matamoros



Source: Gobierno de Tamaulipas



# Rail Infrastructure



Source: Gobierno de Tamaulipas



# Port of Matamoros : Offshore





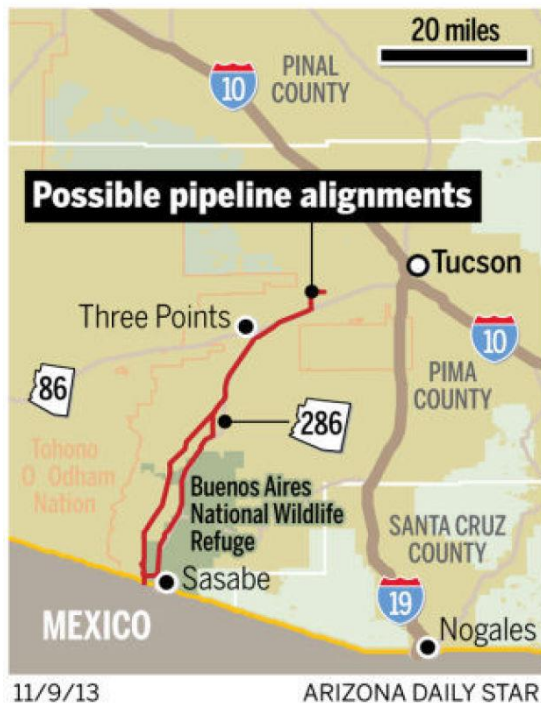


# EQUIPMENT, GATHERING LINES: WHAT'S IN PLACE?

# Equipment Gathering – Pipelines

## Proposed pipeline

Pipeline company Kinder Morgan Energy Partners has proposed one route (left) for its natural gas pipeline through private and state-owned ranch land in the Altar Valley. A second route (right) would cut through the Buenos Aires National Wildlife Refuge.



## Pipelines:

- Columbia Pipeline LLC (Texas to Mexico)
- Sierrita Pipeline (Left Fig.) (Connects US to Mexico)

Source: [The Mexican Eagle Ford](#)



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# What's in place?

- All infrastructure in poor conditions. Need upgrades.
  - Pipelines
  - Rail
  - Roads
- PEMEX territory with minimal equipment.



Source: [The Mexican Eagle Ford](#)





# SUPPLY CHAIN AND LOGISTICS AS CATALYST FOR SOCIOECONOMIC CHANGES AT THE BORDER

# My Nephews and Nieces....





# Border – Rio Grande River





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