



# TransCanada Pipeline Projects

*with a Focus on the Unique Execution Challenges in Mexico*

# Overview



## *TransCanada Today*

- Overview

## *TransCanada Project Portfolio*

- Near Term and Longer Term

## *TransCanada in Mexico*

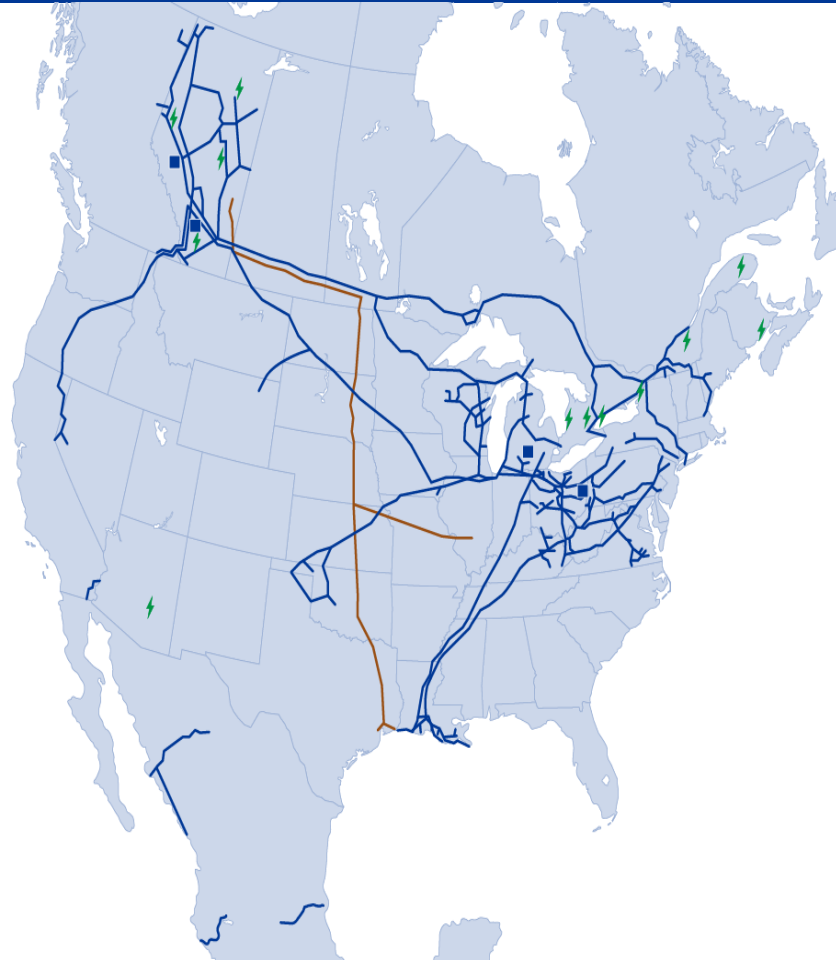
- Overview

## *Topolobampo Project*

- Land, Permitting, Indigenous, Construction, Safety & Security

## *Closing*

# TransCanada Today



- **One of North America's Largest Natural Gas Pipeline Networks**

- 91,500 km of pipeline
- 653 bcf of storage capacity
- 23 bcf/d; ~25% of continental demand

- **Liquids Pipeline System**

- 4,300 km of pipeline
- 545,000 bbl/d; ~20% of Western Canadian exports

- **One of the Largest Private Sector Power Generators in Canada**

- 12 power plants, 6,200 MW

# TransCanada Project Portfolio



- **Near Term ~\$20B under execution**
  - Mexico \$3.4B
  - United States \$7.5B
  - Canada \$9.1B
- **Longer Term ~\$30B under development**

# TransCanada in Mexico



## • Four revenue-generating pipelines

- Topolobampo
- Tamazunchale
- Mazatlán
- Guadalajara

## • Three new projects

- Tula (\$0.6B) – 275 km NPS 36
- Villa de Reyes (\$0.6B) – 299 km NPS 36
- Sur de Texas (\$2.2B, 2.6 Bcf/d):
  - Offshore 690 km NPS 42
  - Onshore 70 km NPS 42/36

# Topolobampo Project



## • Scope

- 570 km NPS 30 (670 MMCFD)
- 2 Compressor Stations (15 and 24MW)
- 3 Meter Stations
- 3500 workers peak, 22MM hours total

## • Schedule

- 2013 to 2017

## • Prime Contractor

- Saipem (Subcontractors GDI/FlowTex)

## • Key Challenges

- Land acquisition and permitting
- Indigenous consultation
- Construction
- Safety and Security



- **2014 Mexico Energy Reform**

- Change of law in the midst of execution
- Land acquisition and indigenous consultation process defined

- **Land and Permitting – Complex**

- Civil Law and Agrarian Law overlap
- 52 “Ejidos” (communally owned land)
- Acquisition process labour intensive, no eminent domain option
- 845 land parcels acquired in insecure area
- Permitting - under-resourced agencies
- NGO influence

# Topolobampo Project - Indigenous Consultation



- **68 indigenous groups in Mexico representing 21% of Mexican population**
- **One of the first projects in Mexico to go through new indigenous consultation process led by government**
- **Government resourcing constraints**
- **Consultation process involved 119 communities**
- **Ejido governance and approval issues**
- **152 community projects:**
  - Educational centers
  - Medical centers
  - Electrical installations
  - Water installations
  - Recreational facilities



## Topolobampo Project – Community Projects



## Topolobampo Project – Construction



# Topolobampo Project - Construction



- **Mountain**

- 144 steep slopes (>25 degrees, 90-300m)
- 46% rock terrain, 200km blast rock

- **Access**

- 100km access roads
- 10km helicopter stringing
- 6 camps and 1 fly camp

- **Special Construction**

- 150m rock cliff raised bore
- Geotechnical
- Chinipas HDD





- **Raised-boring**

- 150 meter rock cliff
- Used in mining to excavate subsurface tunnels without blasting

## Topolobampo Project - Construction



# Topolobampo Project - Construction



- **Geotechnical**

- Millions of hours dedicated to geotechnical works





- **Chinipas HDD**

- Isolated, insecure location
- 2 section pull, extreme access constraints each side



- **World class safety performance**

- 0 fatalities
- 22 million hours, 9 million hours without lost time incident
- LTIF 0.08
- TRIF 0.46
- VIF 1.56 (80 million kilometers driven)

- **Security concerns - Sinaloa and Chihuahua States**

- Community engagement and local opportunity
- Indigenous support
- Security management plans, intelligence gathering, and strict adherence to procedures
- Visibility
- State government and state police support



**World Class Project with Industry Leading Safety Performance**

**Success in Mexico? External Stakeholders, Risk Management**

**Patience and Determination. Portfolio and Long Term Approach**

**Opportunity**

**Thank you!**

**Thank You**



**Questions?**