



Leadership and the Sur de Texas – Tuxpan Pipeline Project

IPLOCA 2018



TransCanada Corporation (TSX/NYSE: TRP)

One of North America's Largest Natural Gas Pipeline Networks

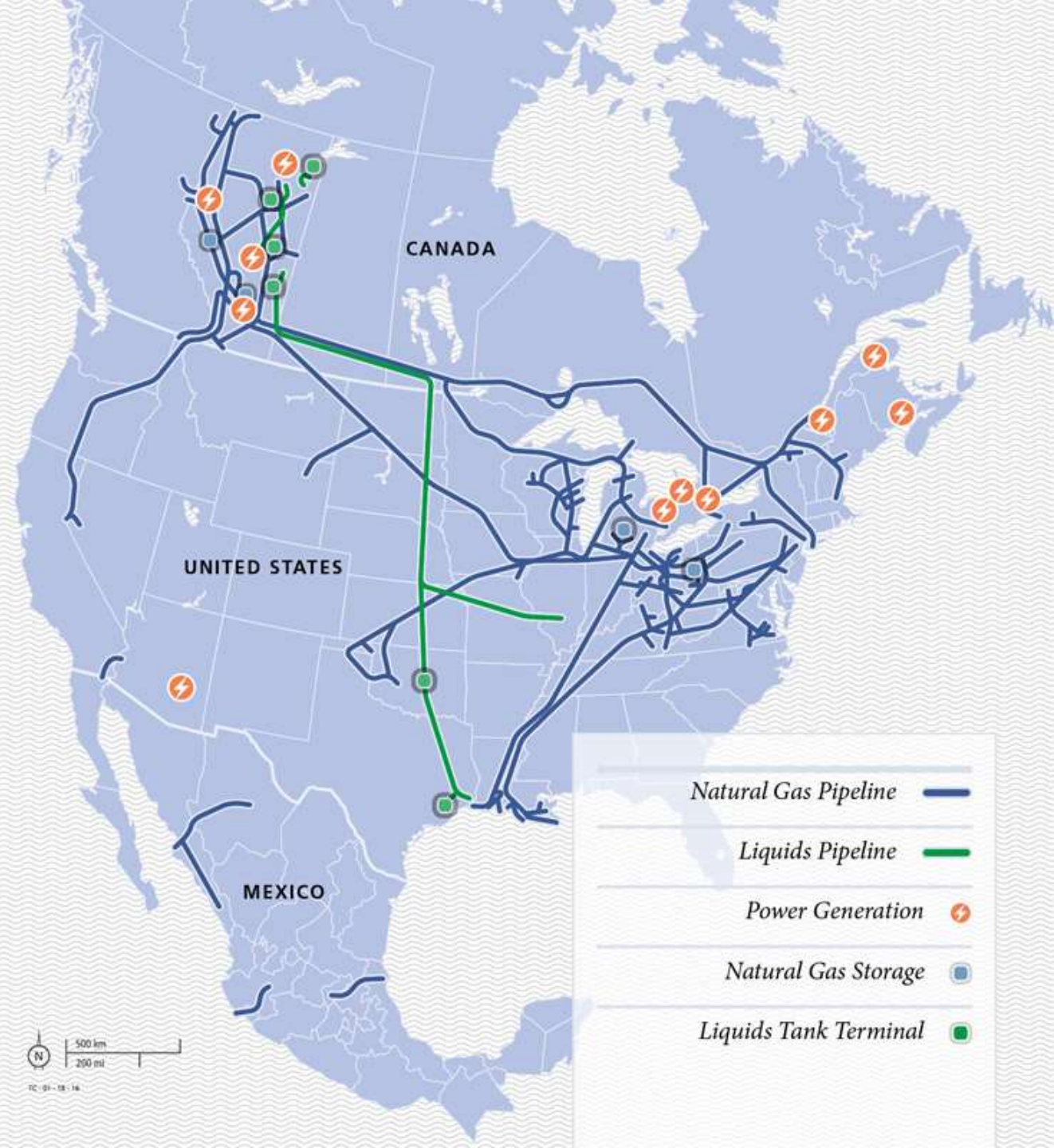
- Operate 91,900 km (57,100 mi.) of pipelines
- Transport ~25 per cent of continental demand
- Over 650 Bcf of gas storage capacity

One of Canada's Largest Private Sector Power Generators

- 11 power facilities, approximately 6,100 MW
- Diversified portfolio including wind, nuclear and natural gas

Premier Liquids Pipeline System

- 4,900 km (3,000 mi.)
- Keystone System transports ~20 per cent of Western Canadian exports
- Safely delivered more than 1.9 billion barrels of Canadian oil to U.S. markets



Sur de Texas – Tuxpan (SDTT) Pipeline Project



- One of the most important infrastructure projects in Mexico's history and Mexico's **first offshore gas transport pipeline**
- USD \$2.2B project
- Will increase gas import capacity by **40%**
- **Infraestructura Marina del Golfo (IMG)**, a joint venture between TransCanada (60%) and IEnova (40%) – won the international bid process in June 2016

Key Milestone	Date
Contract Award	Jun 2016
In Service Date	Q4 2018

Only 28 months from award to in-service.

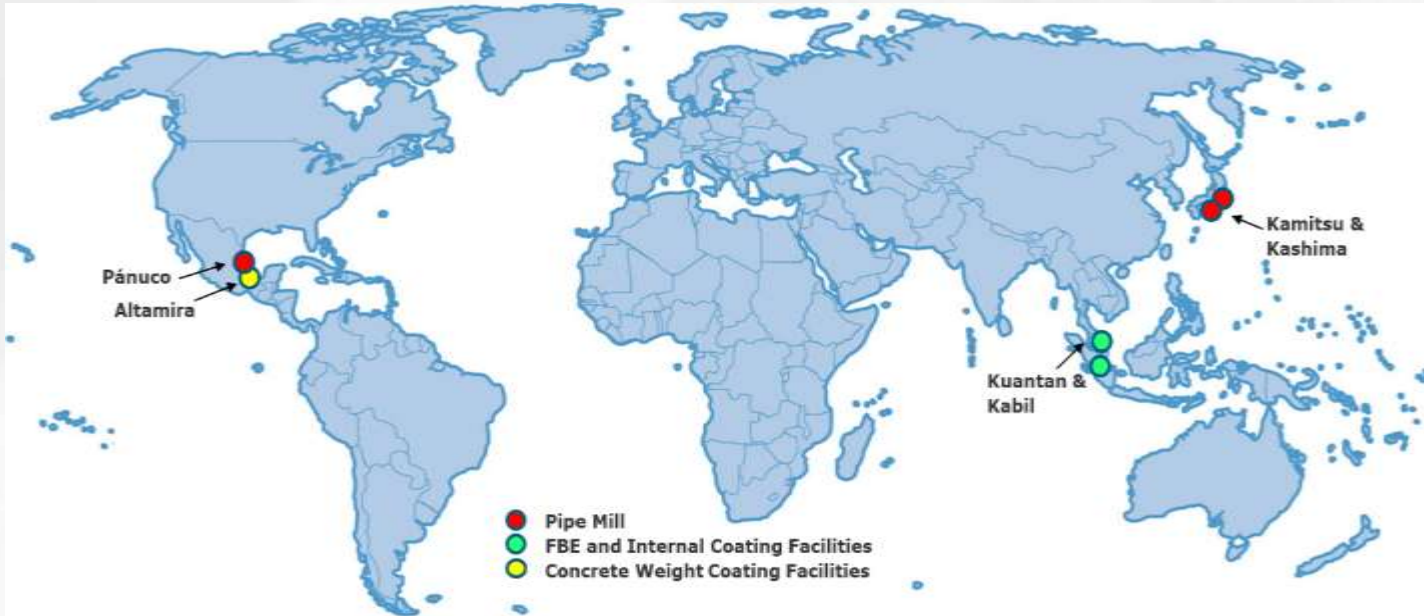
Technical Features



Technical Data	
Capacity	2600 MMcf/d
Length	~772 km (total)
Diameter	NPS 42/36
MAOP upstream of Midpoint CS	3000 psig
MAOP downstream of Midpoint CS	2220 and 1440 psig

- 90% offshore (NPS 42) (Allseas)
- 10% onshore (NPS 42 & 36) (Bonatti, GSP, GDI, Techint)
- **SDDT was the largest offshore pipeline under construction from 2016-2018**

Key Elements - Pipe



- 35,400 NPS 42 joints 10 tons each, safely transported to Mexico from Malaysia and Indonesia **without incident**
- Around 50% of the pipe produced by **Tubacero in Mexico**
- Concrete coating facility built by **Shawcor** coated all pipe over a 18 month period, each joint increasing the weight from 10 to 20 tons
- 6,800 truckloads of pipe delivered to offshore loading yards, 2,600,000 km **without incident**



Key Elements - Pipelay



- Mainline pipelay by AllSeas Solitaire vessel, nearshore pipeline by AllSeas TogMor vessel
- Upstream interconnection at the United States offshore border with Valley Crossing Pipeline by Oceaneering
- Dredging and jetting by Van Oord Costa Dorada, Utrecht, and AllSeas Calamity Jane
- Pre-commissioning by Eagle and Jill Liftboats
- Offshore tie-ins by Tog Mor and Quanta Iroquois



Key Elements - Pipelay



Key Elements - Environment



- Coastal mangroves protected by law, no disturbance allowed
- North landfall required 6 HDDs, 1 bore and a 2.2km microtunnel to protect 7 ha of mangroves
- South landfall required 8 HDDs and a 670m 56" direct pipe installation



Key Elements - Environment



- Monitoring vessels and action plans in order to protect sea wildlife during offshore works



Key Elements – North Landfall (Microtunnel)



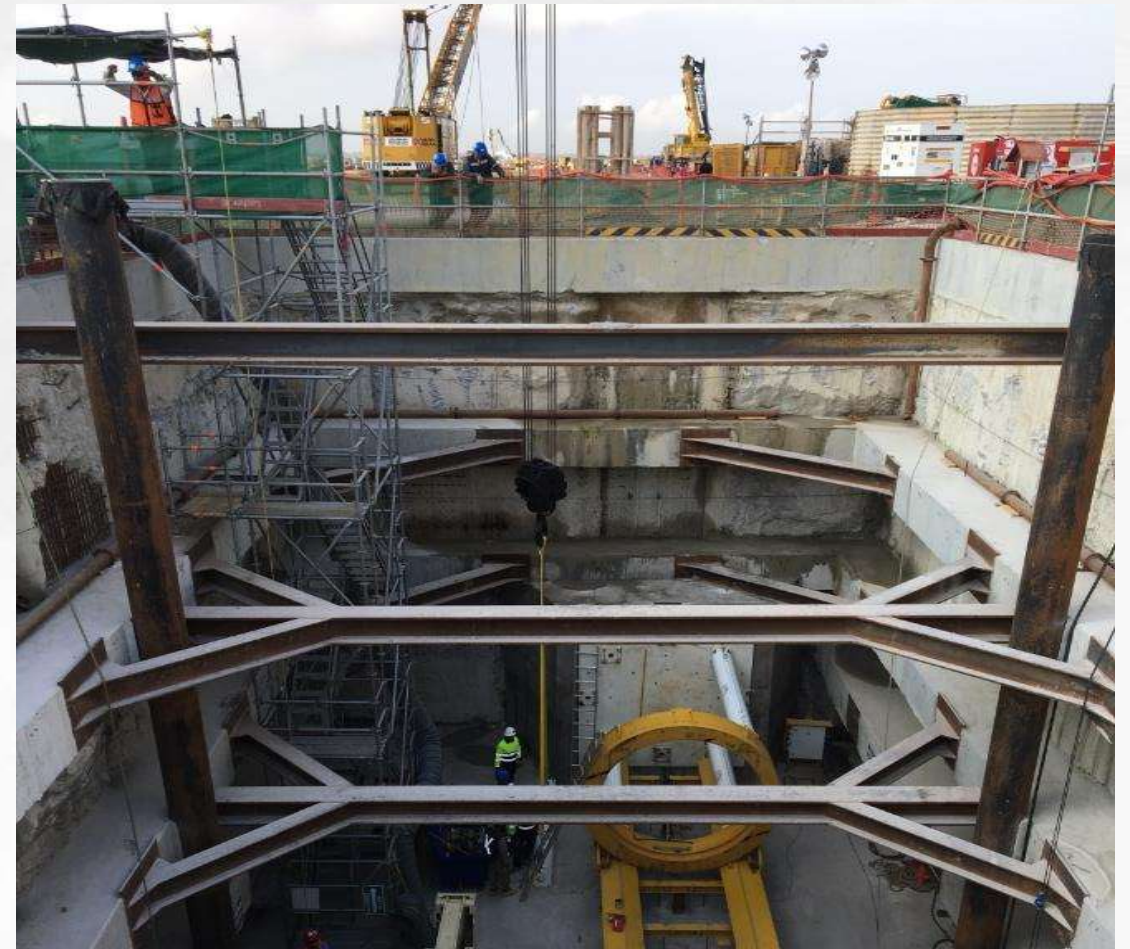
- Terratest/Eurohinca microtunnel by pipe-jacking method, 2.2km in length, 3.2m OD, 2.6m ID



Key Elements – North Landfall (Microtunnel)



- Tunnel boring machine 3.2 meter diameter



Key Elements – North Landfall (Microtunnel)



Rail system installed for miniature locomotive for movement of people and materials



- Bundle clamp for 2 NPS 42 pipelines and 1 NPS 24

Key Elements – South Landfall (Direct Pipe)



- South landfall required 8 HDDs and a 670m 56" direct pipe installation completed by GDI and HDI



Key Elements: Facilities

Altamira Compression Station

Largest **greenfield** compressor station built by TransCanada

Largest compressor station in **Mexico**.

Combined HP from 3 units is **135,000 HP**



Leadership and Culture Challenge

- International team of 3,000
- Located in 5 cities and 3 countries
- Contractors from the Netherlands, Spain, Japan, Italy, Argentina, United States and Mexico
- 9 million hours worked, 3 million kilometers driven
- Experience gaps in local workforce
- Security challenges – Area under the influence of drug cartels
- US \$2.2 billion, constructed in 28 months
- Technically challenging – offshore linesize, weather challenges (hurricanes), complex landfalls (longest microtunnel completed at 2.2km length and 3.2m diameter)

Leadership and Culture Challenge – Pursuit of Excellence

What is the Pursuit of Excellence?

- Culture development and leadership initiative
- Collaboration with Contractors, Employees and Workforce
- Focused on Safety, Security, Quality and Compliance

Why?

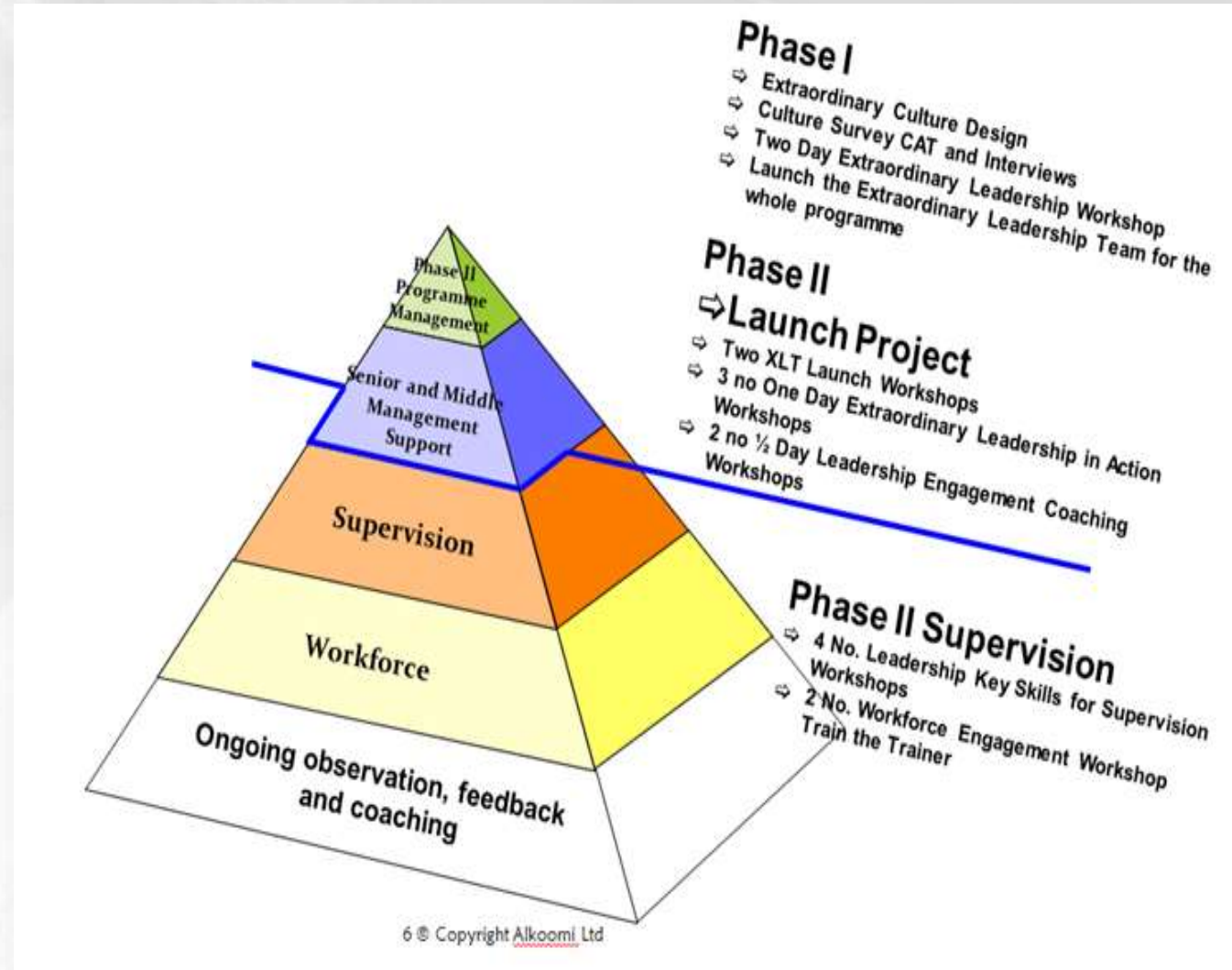
- Existing culture would deliver the past results
- Create a sustainable breakthrough in performance
- Program is not training...but a tailored development program



Leadership Challenge – Pursuit of Excellence

Program Engagement Activities

- Focus on people, leadership, and culture
- Engagement with all personnel from senior management to the workforce
- Collaboration between Owner, Contractor and Workforce
- Facilitated by UK Consultants Alkoomi



Pursuit of Excellence - Vision

Together in Mexico, we will proudly deliver the best pipeline projects in the global industry, ensuring we all go home safe to our families, positively impacting people and communities.

“Right First Time Every Time”

Pursuit of Excellence – Values and Commitments

We Value:

- ***The Safety, Security and Well Being of People and Communities***
- ***Honesty, Integrity, Open Communication and Mutual Respect***
- ***Collaboration & Teamwork***
- ***Commitment and Personal Responsibility***
- ***Quality in Delivery & Performance***
- ***Our Reputation and Compliance with the Law***

We Will:

- ***Provide a Safe and Secure Workplace and Empower People to do the Right Thing***
- ***Treat Everyone with Dignity and Respect***
- ***Listen to People's ideas and Recognize their Contributions***
- ***Set Challenging Targets and Celebrate our Successes***
- ***Be Fair and Firm in our Assessments***
- ***Be Visible and Accountable for What We Say and Do***

Program Success



Closing

- Thank you to our Contractors and Key Suppliers!
- Alkoomi, AllSeas, Arendal, Bonatti, Eurohinca/Terratest, GDI, HDI, Mitsui, Oceaneering, Quanta, Shawcor, Sicim, Techint, Tubacero, Van Oord
- Project Video

