



# TransCanada – ACAMP 2014

Perspective on Coatings

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# Overview



1. TransCanada - \$38 Billion Capital Program
2. Coatings in Use at TransCanada
3. Cost/Benefit
4. Issues We Experience: Coating Failures
5. What we Need: Coating Successes!
6. Q&A

# TransCanada: \$38B Capital Program



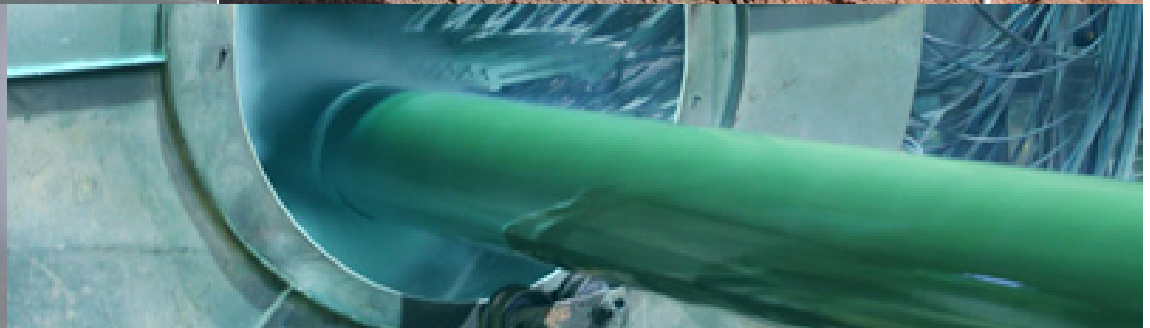
## \$38 Billion Portfolio of Commercially Secured Projects

Project	Capital Cost*	Expected In-Service Date*
Gulf Coast Project	2.6	2013-2014
Keystone Hardisty Terminal	0.3	2015
Heartland & TC Terminals	0.9	2015
Keystone XL and Bakken ML	5.4+	2016
Grand Rapids	1.5	2015-2017
Northern Courier	0.7	2017
Energy East	12.0	2017-2018
NGTL System	2.7	2013-2018
Tamazunchale Extension	0.5	2014
Topolobampo	1.0	2016
Mazatlan	0.4	2016
Prince Rupert	5.0	2018
Coastal GasLink	4.0	2018+
Ontario Solar	0.5	2013-2014
Napanee	1.0	2017/18

\* TransCanada share in billions of Canadian dollars. Certain projects are subject to various conditions including corporate and regulatory approvals.



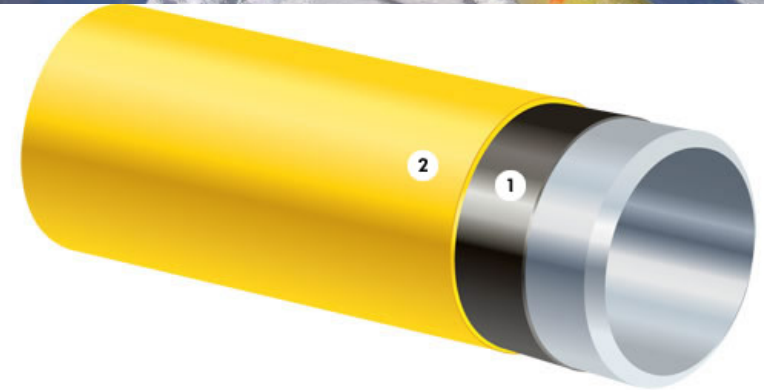
# Coatings in use at TransCanada: FBE



FBE – Plant Applied



# Coatings in use at TransCanada: Internal & PE



Internal Coatings for flow efficiency  
Poly-ethylene (Yellow Jacket)

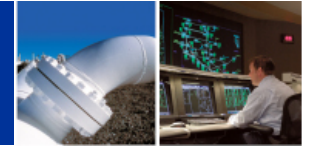


# Coatings in use at TransCanada: Field Applied





# TransCanada: Facilities, Tanks & Offshore



## Cost/Benefit?



- **Effective coatings are a Regulatory and Code requirements (not optional)**
- **Coatings are the 'primary' line of defense to...**
  - Maintain safety & reliability
  - Preserve our energy infrastructure
  - Prevent environmental damage
- **NACE International estimates corrosion costs the Gas & Liquid transmission pipeline industry \$7 Billion / year**
- **TransCanada spends >\$500MM/yr [directly] on pipeline integrity**
  - The majority of these costs would not be required if coatings performed as intended



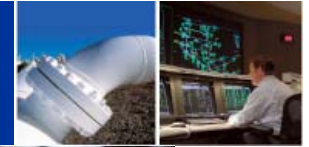
# Failed Legacy Coatings (i.e. tape)



Examples of  
Wrinkled Tape



# Coating Failures: That should not have occurred





## Coating 'Successes'



- **Many of our 1940s and 1950s pipelines (i.e. coal tar) are in pristine condition**
  - Greater 'quality' of work – pride of workmanship?
- **The vast majority of our FBE and liquid epoxy coatings are working perfectly with 0 corrosion detected in ILI**
  - Epoxy coatings that have failed – fail CP 'friendly'
- **Quality costs less**
- **Development of new products for extreme temperatures, abrasion resistance & construction handling**
- **National and International Standards have been developed to codify improvements**
- **Properly applied coatings today can be expected to function as intended indefinitely**

# What We Need



- **All customers & suppliers to expect quality products and applications**
- **Development of products and techniques that are more 'tolerant' of surface condition and operating conditions**
  - Products more resistant to handling and installation damage
  - 'Fool proof' repair products and techniques
- **Education:**
  - EITs, Engineers, Operations personnel, Management
  - Coating inspectors
  - Vendors and applicators
- **Smart coatings – inherently safe coatings (???)**





# QUESTIONS

