

# **People and Equipment Supply Issues**

## **Gas/Electric Partnership Workshop XVI**

January 30, 2008

Westin Galleria Hotel – Houston

Joseph E. Ramsey

# Agenda

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- Pipeline Projects
- Materials Issues
- Construction Resource Issues
- Balance/Imbalance
- Electric Generation Issues
- Going Forward

# Pipeline Projects

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- Background
- Recent Developments – Many Projects
- Project Drivers
  - Rockies, Barnett Shale, LNG
  - Oil Sands
  - Eastern Markets
  - Competitive Advantage Projects
  - Integrity Management

# Gas Pipeline Projects – Certificated or Announced

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2006 – 2010

## Selected Sample

1.	Rockies Express	--	1763 miles	--	42" Diameter
2.	Mid Continent Crossing	--	1600 miles	--	42" Diameter
3.	Continental Connector	--	1000 miles	--	42" Diameter
4.	Mid Continent Express	--	780 miles	--	42" Diameter
5.	Texas to Mississippi	--	330 miles	--	36" Diameter
6.	Carthage to Perryville	--	172 miles	--	42" Diameter
7.	Perryville to Gulfstream	--	250 miles	--	42" Diameter
8.	Pacific Connector	--	223 miles	--	36" Diameter

# Oil Pipeline Projects – Announced

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1. Enbridge Gateway -- 720 miles -- 36" Diameter
2. KM – Terasen Corridor -- 292 miles -- 42" Diameter
3. Enbridge Alberta Clipper -- 1865 miles -- 36" Diameter
4. Altex Pipeline -- 2424 miles -- 36" Diameter
5. TransCanada – Keystone -- 1830 miles -- 30" Diameter

# “Potential” Pipeline Project Requirements

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24” Diameter or Greater

2007 – 2009

Miles of Pipe

<u>Year</u>	<u>24”</u>	<u>30-36”</u>	<u>42-48”</u>	<u>Total</u>
2007	432	1434	929	2795
2008	453	1391	1356	3200
2009	80	852	639	1571

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# Materials Issues

# North American Pipe Manufacturing Capacity

<b>ERW Producers Up to 24" OD</b>		Production Capacity
<u>Company</u>		<u>(tons/year)</u>
American Steel Pipe		220,000
Ipsco		300,000
Stubb Corp.		225,000
Tubacero		<u>190,000</u>
	Sub Total	935,000
<b>DSAW Producers --24" and Up</b>		Production Capacity
<u>Company</u>		<u>(tons/year)</u>
Berg Pipe		480,000
Camrose Pipe		180,000
Durabond		200,000
Ipsco		300,000
Oregon Steel Pipe		170,000
SAW Pipes		500,000
Tubacero		<u>190,000</u>
	Sub Total	2,020,000
	<b>Grand Total</b>	<b>2,955,000</b>

# Annual Manufacturing Capacity in Miles

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ERW Up to 24" OD 3400 miles

DSAW 24" OD and UP 3200 miles

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# Construction Resources

# Major U.S. Construction Contractors

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- Apex Pipeline Services
- Associated Pipe Line Contractors
- R.L. Coolsaet Construction
- Gregory & Cook Construction
- H.C. Price
- Henkels & McCoy
- Latex Construction
- Otis Eastern Services
- Precision Pipeline Solutions
- Rockford Corp.
- Sheehan Pipe Line
- Snelson Companies
- Sunland Construction
- Troy Construction
- U.S. Pipeline
- Welded Construction
- Willbros RPI

# 2008 Construction Requirements

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24" Diameter -- 453 miles -- 7 projects ranging from 13 to 150 miles each

30-36" Diameter -- 1391 miles -- 23 projects ranging from 13 to 180 miles each

42-48" Diameter -- 1356 miles -- 8 projects ranging from 20 to 622 miles each

Total 38 individual projects

Not Counting: Integrity/Replacement Work  
Smaller Diameter Work

# Construction Spreads

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- Miles Constructed per Spread – 35 to 100 miles depending on:
  - Terrain
  - Schedule
  - Pipe size
- Workers per Spread – 350 to 550.
- For 2008, to construct 3200 miles of new pipe, need 40 Spreads installing 80 miles of pipe each.
- Even at the low end of the Workers per Spread range, need 14,000 workers for 40 Spreads.

# Capability Imbalance

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Needed for 2008:

40 Spreads and 14,000 workers

Anecdotal industry estimate of current capability:

16-20 Spreads and 3,500 – 4,000 workers.

**Result: TILT!**

# Other Issues Impacting Construction Capability

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- Graying workforce
- Demand for skilled labor
- Shorter construction windows
- Equipment needs/availability

# Other Areas of Concern

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- Compressor Equipment
- Station Contractors
- Metering Equipment
- Pipeline Services
- Transportation

# Electric Industry Issues

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- Little gas-fired generation activity
- U.S. coal-fired generation
  - Some delays and cancellations
  - 43,000 MW “in process” – 5 Years
  - China is doing 35,000 – 40,000 MW per Year
  - Permits and approvals – 18 months plus litigation
- Nuclear
  - Next new construction 2013. Maybe.

# Going Forward

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- Workforce Issues
- New Pipe Mill Construction
- Cost Inflation