



*PUBLIC MEETING on  
INTERGITY MANAGEMENT  
IN HIGH CONSEQUENCE  
AREAS*

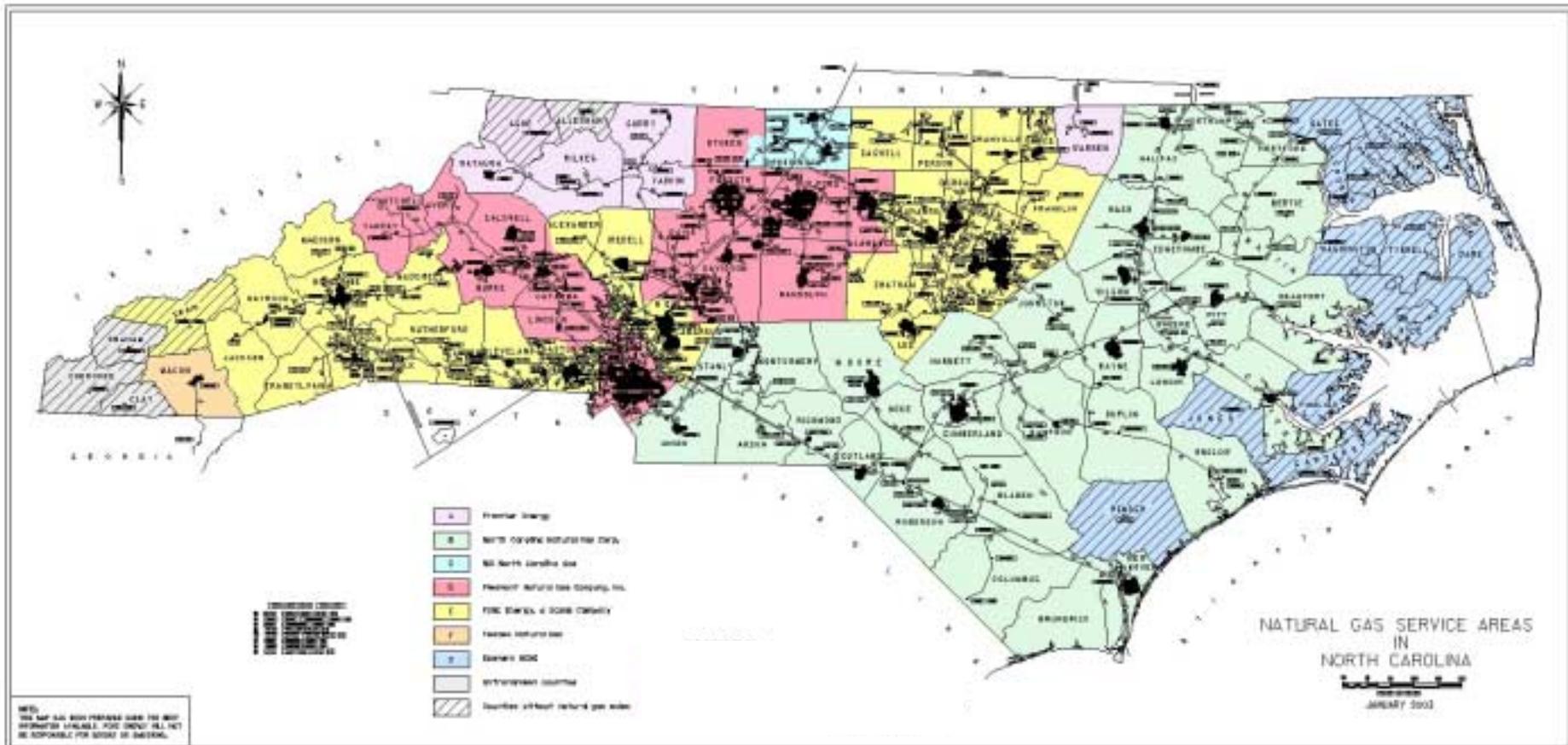
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March 14, 2003

*Physical Makeup  
and Operation*

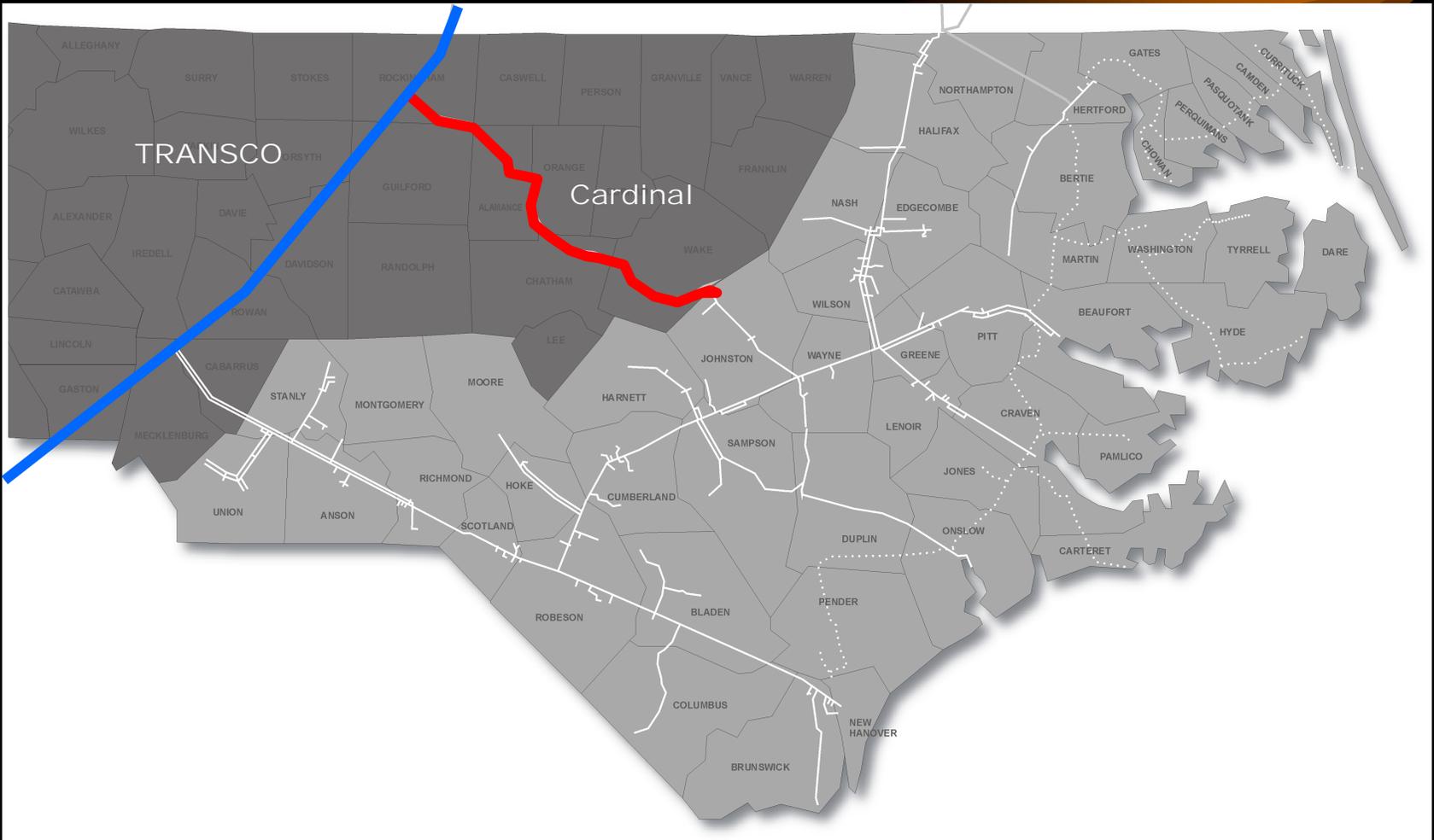


INTERSTATE PIPELINES  
VS  
INTRASTATE PIPELINES

# North Carolina Pipeline Infrastructure



# North Carolina Intrastate Operator



# *North Carolina Transmission Lines*

CARDINAL	104	
ENCNG	118	
FRONTIER	94	
NCNG	1,276	
PIEDMONT	493	
PSNC ENERGY	692	
TOCCOA	12	
TOTAL	<u>2,789</u>	miles

# *Cost*



- Varies Based on Test Method
  - Direct Assessment (DA)
  - In-Line Inspection (ILI)
  - Hydrostatic Pressure Test (HPT)

# *DA Projected Cost 7 Year Baseline*

2789 miles of Transmission in NC

75 % classified as HCA'S

2092 miles in Integrity Management Plan

348 miles / year x \$10,000-\$15,000 / mile

\$3.48 - \$5.22 Million per year

# *ILI Projected Cost 10 Year Baseline*



2789 miles of Transmission in NC

75 % classified as HCA'S

2092 miles in Integrity Management Plan

232 miles / year x \$25,000-\$30,000 / mile

\$5.80 - \$6.96 Million / year

# *HPT Projected Cost 10 Year Baseline*



2789 miles of Transmission in NC

75 % classified as HCA'S

2092 miles in Integrity Management Plan

232 miles / year x \$30,000-\$35,000 / mile

\$6.96 - \$8.12 Million / year

# *LDC Issues with ILI & HPT*



- Piggability
  - Necessary Facility Upgrades
    - Launchers & Receivers
    - Full Port Valves
    - Long Radius Ells & Barred Tees
    - Flow Control Fittings
- Environmental
  - Dewatering
  - Liquid Hydrocarbon Disposal
  - Purging / Blowdowns

# *Cost Benefit*



Cost

VS

Risk Reduction

# *Impact Area*



Potential Impact Radius

Vs

Potential Impact Zone

# *Potential Impact Radius*



- C-FER Equation
- $P.I.R. = 0.69 * \sqrt{\text{pressure} * \text{diameter}^2}$
- Example
  - 6" pipe / MAOP 600 psig
  - PIR = 102 feet

# *Potential Impact Zone*



- Threshold Radius
  - 300', 660' or 1,000'
- Based on C-FER Equation rounded to the next highest Threshold

# *IMP Rule Complexity*



- HCA, MRA, CDA, PIZ, PIR?
- C-FER Equation, Class Location, SMYS
- Baseline Assessment Intervals
- Reassessment Intervals

# *Compliance Concerns*



- Inspector Training
- Operator Training
- Guidelines
- Regulation Clarification