



RDC of Alaska

Improving Economics for Pipeline Construction

Anchorage - November 16, 2000

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VP - Operations

Williams Gas Pipeline - West



Energy • Communications • Leadership



Company Overview



Diversified company with holdings in natural gas and petroleum pipelines, refining, energy marketing and trading, exploration and production, telecommunications, and an international satellite and fiber-optic video service.



Humble Beginnings

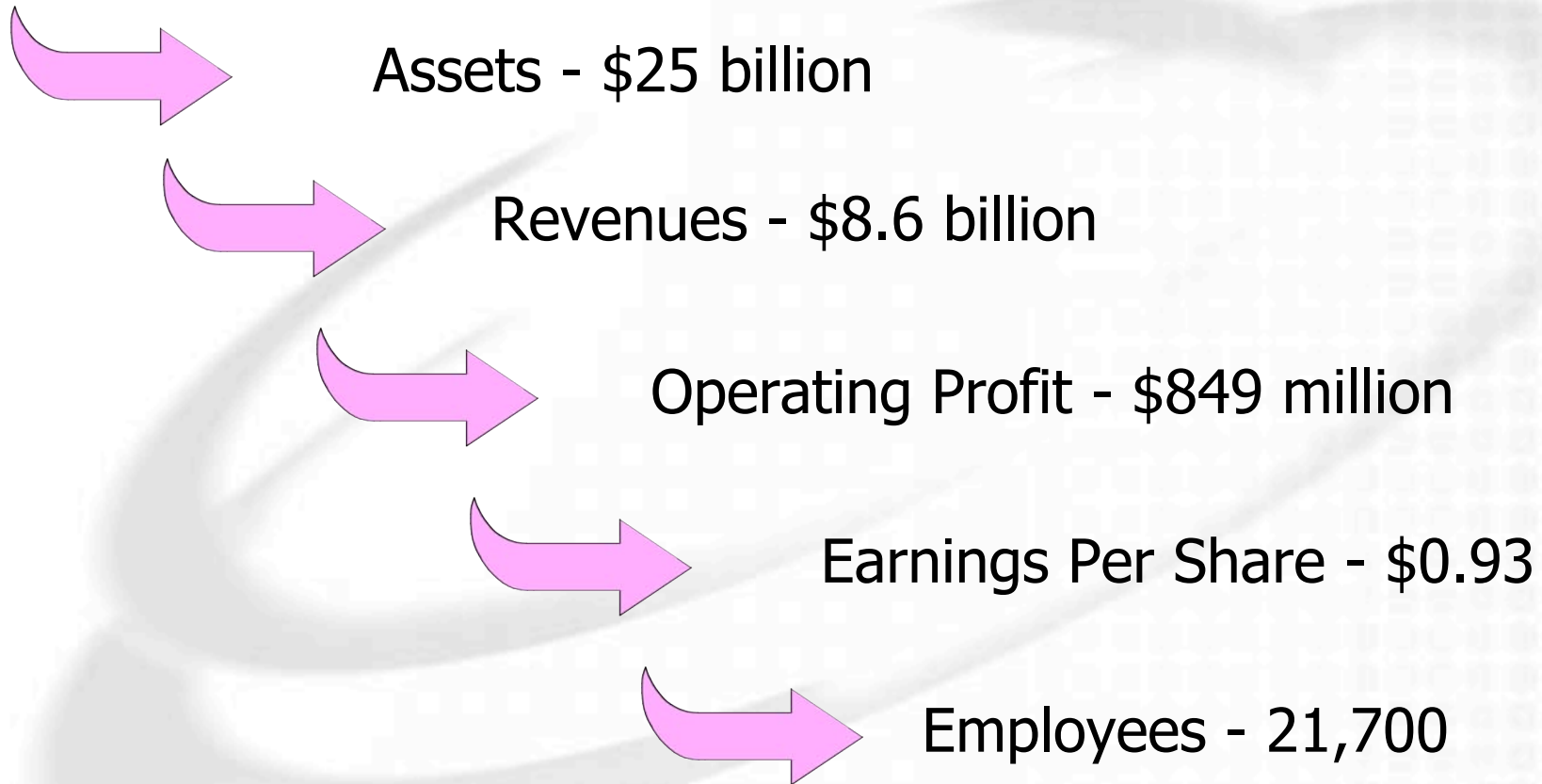


- 1908:** Founded by two Williams brothers
- 1916:** Moved from civil work to pipeline construction
- 1957:** Went public
- 1966:** Began pipeline ownership
- 1977:** Certificated to Build Alaska Segment of ANGTS
- 1985:** Started fiber network
- 1995:** Sold WilTel; Acquired Transco Energy Company
- 1996:** Merged with Nortel Communications Systems
- 1998:** Acquired Mapco
- 2000:** Purchased TransCanada Mid-Stream Assets





Vital Statistics (1999)





- Gas Pipeline

- Transco
- South Central
 - Central
 - Texas Gas
- West
 - Kern River
 - Northwest



- Energy Services

- Energy Marketing & Trading
- Exploration & Production
- Midstream Gas & Liquids
- Petroleum Services



- Communication

- Solutions
- Network
- Applications





Gas Pipeline



Gas Pipeline Assets (1999)

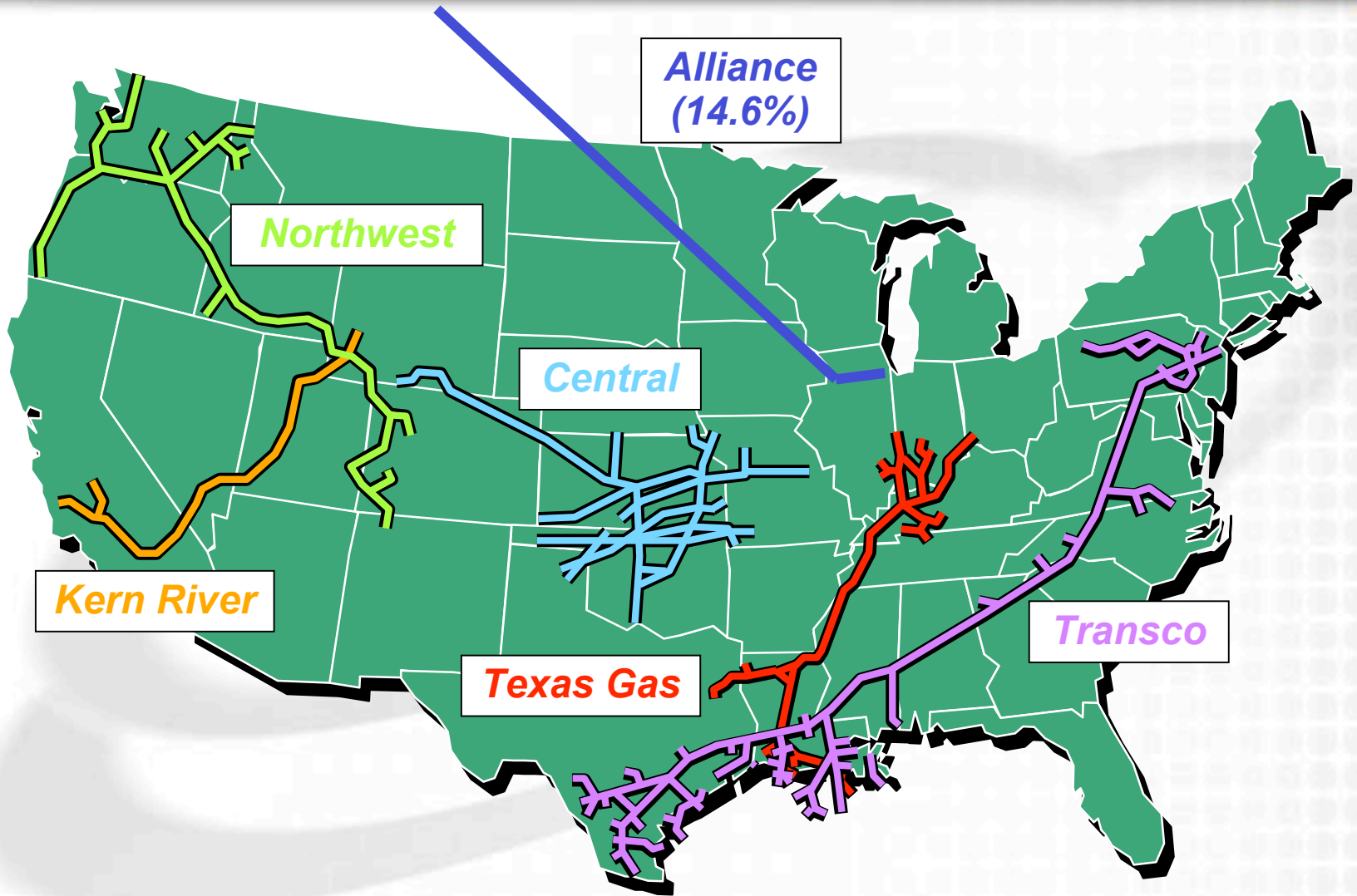


- **Operating Unit offices in Houston, Salt Lake City, and Owensboro with assets in 30 States**
- **Throughput**
 - Peak Day - 15.0 bcf/d - 17.0 % of US Market
 - Annual - 3.7 TCF - 22.3 % of US Market
- **Pipeline**
 - 27,300 miles (43,900 km)
 - Diameters to 48-inch (1220 mm)
- **Compression**
 - 2.4 million hp (1.8 million kw)
 - 155 Compressor Stations
- **3,586 Employees**





Gas Pipeline





Gas Pipeline

Construction History and Current Proposals



- **Kern River**

- \$1 billion
- 700 mmcf
- Placed in service March 1992

- **Northwest Pipeline Expansion**

- \$373 million
- 433 mmcf added to NWP system
- Placed in service April 1993

- **Buccaneer (offshore)**

- \$1.5 billion
- 900 mmcf
- Projected in service April 2002

- **Independence**

- \$678 million
- 916 mmcf
- Projected in service November 2002



Gas Pipeline

Advances for Constructing An Arctic Pipeline



- **Increased Construction Experience in Arctic Geological and Meteorological Conditions**
 - Alyeska Experience
 - Major Canadian Projects
 - Winter Construction Capabilities
- **Environmental Knowledge**
 - Permitting Process
 - Directional Drills
 - Ice Roads
- **Dense Phase Flow**
 - Transporting Liquids to Market
- **High Pressure Pipeline Systems**
 - Above 2000 psig
- **High Strength Steels**
 - Fracture Toughness Tests
 - Burst Tests
 - Increased Metallurgy Studies
 - Thinner Wall Pipe



Gas Pipeline

Advances for Constructing An Arctic Pipeline



- **Larger and More Efficient Compressor Units**
- **Increased Pipeline Construction Productivity**
 - **Mechanized Welding**
 - **More Powerful Trenching Equipment**
 - **Ditch Preparation and Backfill**
- **Quicker and More Accurate NDT Results**
 - **More Efficient Internal NDT Crawlers**
 - **Continuous Ultrasonic Weld Testing**
 - **Geometry Pigs and Smart Pigs**
- **Advanced Project Management Tools**
 - **Flow Modeling**
 - **Estimating Software**
 - **Financial Models**
 - **Scheduling Software**
 - **Real Time Cost Tracking**
 - **Owner/Contractor Relationships**



Gas Pipeline Pipeline Operation Advances



- **Higher Quality Construction on New Facilities**
 - **More Stringent Specifications**
 - **More Knowledgeable Contractors and Inspectors**
 - **Operator Input**
- **Risk Assessment**
 - **Geographic Information Systems (GIS)/Mapping**
 - **Approved by DOT**
- **Public Knowledge and Awareness of Pipelines**
 - **One Call Systems**
 - **Public Education by Operators**



Gas Pipeline Pipeline Operation Advances



- **Pipeline Protection and Reliability**
 - Cathodic Protection Systems
 - Protective Coatings
 - Additional Depths of Pipelines
 - Real Time Monitoring

- **Inspection Tools**
 - High Resolution Smart Pigs
 - Ultrasonic Thickness Gauges
 - Anomaly Evaluation Software

- **Remediation Tools**
 - Visual Inspections
 - Recoating
 - Clock Springs



Gas Pipeline Importance of Alaska Gas



- **Provides Long Term Domestic Gas Supply**
- **Adds to Alaska Permanent Fund**
- **Tax Revenues for Alaska**
- **Construction Jobs and Permanent Employment for Alaskans**



Alaska



Williams Alaska



- **Employs 500 Statewide**
- **3+ % Owner of TAPS**
- **Refinery at North Pole (Fairbanks)**
 - **70,000 bpd of product**
 - **60% of product is Jet Fuel**
 - **Connected to Trans Alaska Pipeline**
 - **Produces 40% of Alaska's Jet Fuel**
- **Terminal Operations at Fairbanks Airport and Port of Anchorage**
- **Retail Petroleum Outlets (gas stations)**
 - **28 Statewide**
 - **2nd Largest Retailer of Gasoline in Alaska**



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