

Natural Gas Replacement Programs

for

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Company Profile

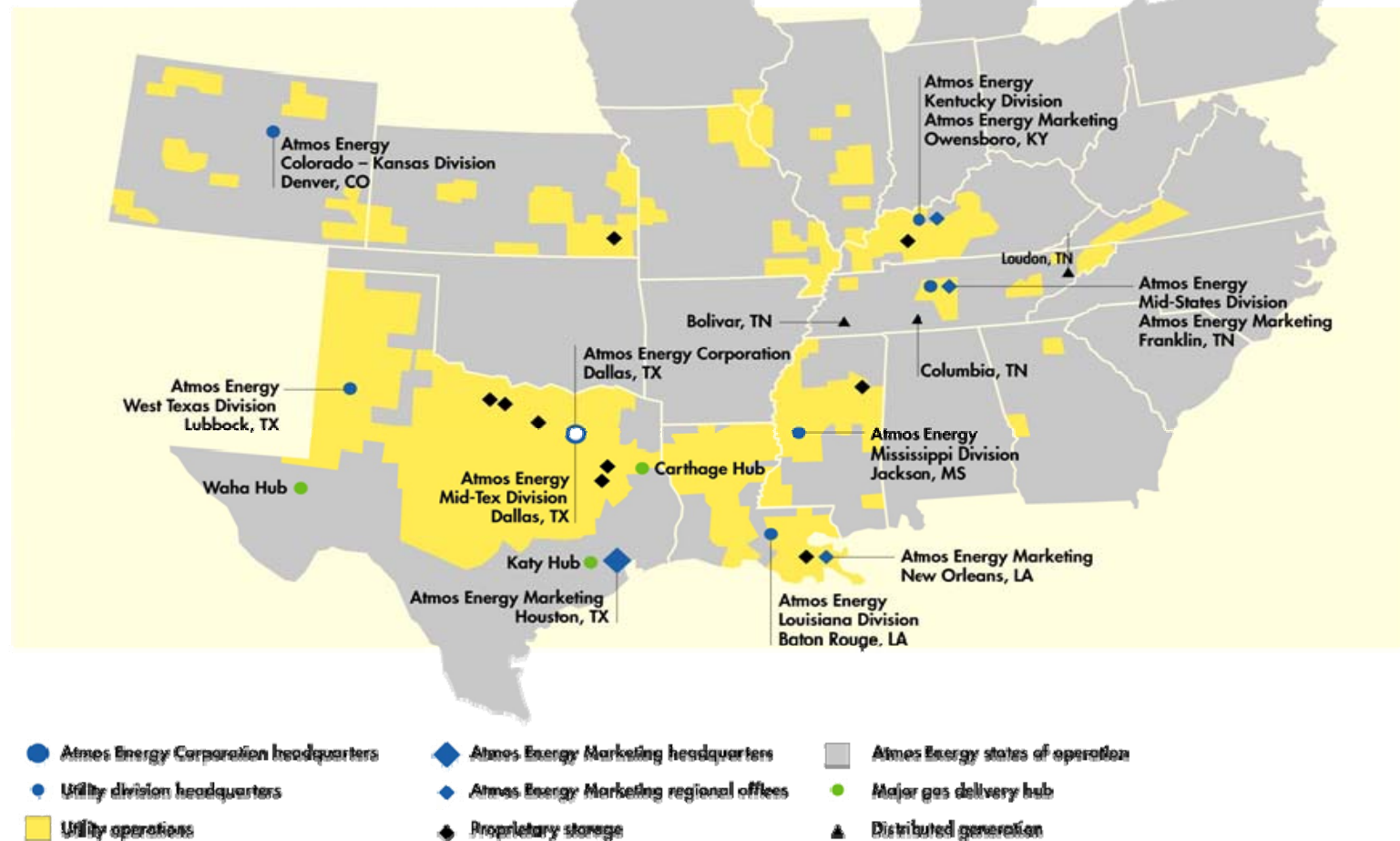


- Atmos Energy turned 100 in 2006
 - Founded in 1906 as the Amarillo Gas Company
- Today, Atmos Energy is the nation's largest pure-gas distribution company
 - Delivers natural gas to 3.2 million customers in 1,500 communities throughout 12 states
- Fortune 500® company, has declared a dividend for over 100 consecutive quarters.

Scope of Operations



- Utility operates in 12 states (yellow)
- Nonutility operates in 22 states (grey)



Why Enact A Pipe Replacement Program



- 1) Aging Piping Infrastructure (Ex. Cast Iron, Bare Steel, etc.)
 - a) Safety and System Reliability
 - b) Mandates to Perform Replacements
 - c) Leak Mitigation
 - i) Joint Connection
 - ii) Material Defects/Degradation
 - d) Threat Analysis and Risk Management
 - i) Distribution Integrity Management

Why Enact A Pipe Replacement Program



2) Improve System Operating Characteristics

- a) Eliminate low pressure systems/increase system capacities via move to intermediate pressure
- b) Financial Savings by downsizing on replacement pipe
- c) Eliminate “Trapped-out” Customers / Drips / Environmental Issues
- d) Decrease operating expenses due to leak reduction, inventory reductions, compliance activities, etc.

3) Planning for the Long Term!

- a) Re-investing in your system for the next 100 years
- b) Systematic approach to avoid rate shock
- c) Nothing lasts forever!

Successful Pipe Replacement Philosophy



- 1) Partner with contractor whose expertise is in pipe replacement.
- 2) Systematic grid work is far more productive than jumping around to eliminate the “worst”.
- 3) Consistent long term plan with stable budget dollars.
- 4) Don’t over-engineer on the front-end. Changes will occur daily in the field due to unforeseen challenges or obstacles.

Successful Pipe Replacement Philosophy



- 5) Start small and grow into the project.
- 6) Engage all stakeholders (Company, Contractor, City & Customers) on regular basis.

Contractor Requirements



- 1) Experience and skills to match work environments
- 2) Financial strength
 - a) Liquidity / Credit
 - b) Insurance
 - c) Equipment – Owned / Leased
 - i. Variety of Equipment
- 3) Meets safety / OQ standards
- 4) Contractor culture / values
 - a) Do they mesh with Gas Company's?

Contractor Requirements



- 5) References – What do they say?
- 6) Visit other jobsites – see firsthand their operations.
- 7) Long-term goals??
- 8) Equipment – Must have access to wide variety of boring rigs, vacuum trucks, excavators, pavement breakers, pipe trailers, etc.
- 9) Supportive of damage prevention.

4 Phase of Replacement Projects



- 1) Preliminary Engineering/Planning
- 2) Pre-Construction
- 3) Construction/Installation
- 4) Post Construction

Preliminary Engineering / Planning Considerations



- 1) System Flow Modeling – Size on Size Replacements versus Downsizing or Upgrading
 - a) Anticipated peak loads
 - b) Growth patterns
- 2) PE vs. Steel
 - a) Cathodic Protection
 - b) Isolated steel segments (Replace or not?)
 - c) Valve placement

Pre-Construction Phase (Town/Area Specific)



- Meeting with City Officials and Public Works
 - Mayor and County/Parish officials need to know what we are doing
 - Permits
 - Street cut
 - Traffic control plans
 - Plumbing permits for meter move outs
 - Environmental (if required)
 - Public Works
 - Coordinated water and sewer locates and repairs
 - Street restoration requirements
 - Planned street paving projects and/or relocates
 - Video sewer mains

Pre-Constructions Phase



- Notify Public
 - Newspaper articles
 - Door tags and/or letters
 - Town meetings

- Construction Conditions
 - Sand or Rock
 - Wetlands
 - Concrete
 - Historic areas
 - High traffic

Pre-Constructions Phase



- Materials Management
 - Systematic ordering process
 - Storage

Preliminary Site Work

- Verify utility to be replaced
- Pre-video area
- Locate Utilities
 - One-Call systems
 - Spot dig crossings
- Determine ROW width



Construction - Main Installation Methods



- 1) Directional drilling – most popular method due to lower restoration costs.
- 2) Trenching / Plowing – Restoration costs are highest under this scenario.
- 3) Insertion – Requires detailed planning
- 4) Pipe Bursting – Atmos-MS did not consider this option for its cast iron replacement project due to concerns about shard damage to PE pipe.











Construction - Service Replacement Considerations



1) Service Line Construction

a) Insert

- Beware of offsets and couplings

b) Trench / Plow

- Yard restoration

c) Directionally bore

d) Tap connection

- Fuse
- Bolt-on

Construction - Service Replacement Considerations



2) Service Line Replacement Criteria

- a) Main to Meter?
- b) Just Test and Reconnect?
- c) New Meter Loop and Meter?





Construction – Main Retirements



- Verify all services replaced.
- Take small bites.
- Purging.
- Start early and not on Fridays.
- Challenges: Un-mapped feeds into kill section.

Post Construction



- Restoration
 - Concrete and Asphalt
 - Sod
 - Sink holes
- As-Built Drawings
- Project/Paperwork Closing

Review of Atmos – MS Cast Iron Replacement Program



Completion of Ten-year Cast Iron Replacement Program by October 2009

- a) 220 miles of mainly 2" and 4" cast iron mains along with all services – main to meter concept.
- b) Miller Pipeline of Indianapolis, Indiana selected to perform work. Started in Jackson, Mississippi in August 1999 with one crew.
- c) Ramp-up plan to increase crew size, equipment and work capabilities. Eventually had 40 Miller employees working full time to replace on annual basis an average of 22 miles of main and associated services.

Review of Atmos – MS Cast Iron Replacement Program



Will have completed replacements in 27 towns across Mississippi at a total cost of \$52 million

Atmos-MS Cast Iron Replacement Program Challenges



- 1) Short Sections of Main
- 2) Large Diameter PE
- 3) Non-locatable water and sewer lines
- 4) Mitigating isolated steel segments
- 5) Availability of welders
- 6) Errors in Company Maps and Records
- 7) Contract Employee Turnover

Lessons Learned



- 1) Communication between Gas Company, Contractor and City Officials are key in order to minimize issues with most important stakeholder – the Customer.
- 2) With Miller and Atmos - Mississippi, ten-year relationship has been built on a win/win partnership and a long-term commitment to accomplish the replacements. Essential for a successful project are:
 - a) Steady consistent work
 - b) Stable budgets
 - c) Long range planning (managing the peaks and valleys)
 - d) Commitment to continual process improvement
 - i) Measure productivity against established benchmarks.
 - ii) Recognize and understand what goes into the numbers.

Lessons Learned



- 3) Success is driven by the Gas Company's ability to be proactively engaged in making decisions with the Contractor. Quick problem resolution is key to minimizing down time.
- 4) The skill and experience of the human assets determines the success of the project.
 - a) Talented and motivated crews
 - b) Good equipment and tools
 - c) Construction inspectors who are proactively involved in the entire work process from cradle to grave.

Lessons Learned



- 5) Back office support is absolutely required.
 - a) Logistical support for ordering materials, maintaining inventories, performing HR functions, OQ and Safety training, recordkeeping, etc.

Questions?

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Thank you!

