LDC Innovations through NYSEARCH’s Voluntary RD & D Program

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Nature of Voluntary RD & D funded by Gas Local Distribution Companies (LDCs)

- Collaboration among members about needs, applications and challenges
- High leveraging of R & D dollar
- Proactive approach – how can we make things better? How can we apply technologies that others have used to make things safer? How do I best utilize my R & D funds to gain specific company benefits?
- Control of funds; impact on project decisions
Important Areas of Tech Devt for Improving Safety

- Multi-faceted inspection platforms that do not require shutdown of operation or large/numerous excavations
- Advanced warning for activity of threats near pipelines
- Real-time knowledge of condition of pipeline assets
- Simplified customer awareness of presence of natural gas
Important Areas of Tech Devt for Improving Safety

- Risk Assessment Techniques
- Innovations in Leak Pinpointing
- Breakthroughs in PE Pipe Locating
- Accurate assessment of Methane Emissions from Non-Hazardous Leaks
- Trenchless innovations; reduced risk with installation of new utilities
NYSEARCH Program Areas

- Improved Installation, Maintenance and Repair
- **Pipeline Integrity/Direct and Remote Assessment**
- Pipe Location/Damage Prevention
- Leak Detection
- Real-time Sensing & Inspection for Distribution
- Environment/Reducing GHG Emissions
- Gas Quality
- Evaluation of New Materials
Inspection of LDC-owned Transmission Pipes

- Have completed all planned Explorer robotic inspection platform sizes for un-piggable pipe
  - 6” – 36” pipeline sizes; up to 750 psig
  - Visual and MFL data; operate thru bends and plug valves
  - Tetherless, battery powered, wireless communication, operation under live conditions

www.pipetelone.com
Supporting Technologies Enhance Inspection

- Addition of sensing functionality to Explorer platform & expanding robot range
  - Mechanical damage/ovality
  - Crack sensor (TMFL/EMAT and EC)
  - Hardness Tester
  - Higher quality data in bends
  - Energy Harvesting to reduce power req’ts
Scenes from Commercial Jobs

Over 40 gas companies in N. America have used these tools
Technologies Available or On the Horizon

- CIPP Liners to Rehabilitate Steel & Cast Iron
- Live Electrofusion Repair Sleeves for PE
- Proactive Monitoring/DP Systems for Distribution & Transmission
- Real-Time Distribution Sensing Network – GasComm™
Technologies Available or On the Horizon (cont.)

- Tools for Non-Destructive Evaluation PE joints
- Tools for Tracking & Traceability
- sUAS (drones) for inspection & methane detection
- Next Generation Methane Detector for Use in Homes
Many gas companies have been proactive in innovations for safety and integrity.

Implementation and market development of innovations are challenging!
Technologies Under Development

- Inspection of Plastic Pipe – early stage
- Energy Harvesting from Pipelines to power robots & sensors
- Use of Augmented Reality – A/R for Gas Operations training
- Reduction of Emissions by use of catalysts during combustion (replace flaring)
- Application of various forms of RNG

Future

- Exo-Skeletons for Injury Prevention
- Self-Healing Pipe