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LAUF and Pipe Replacement Programs

Susan Fleck
National Grid
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Our US Network

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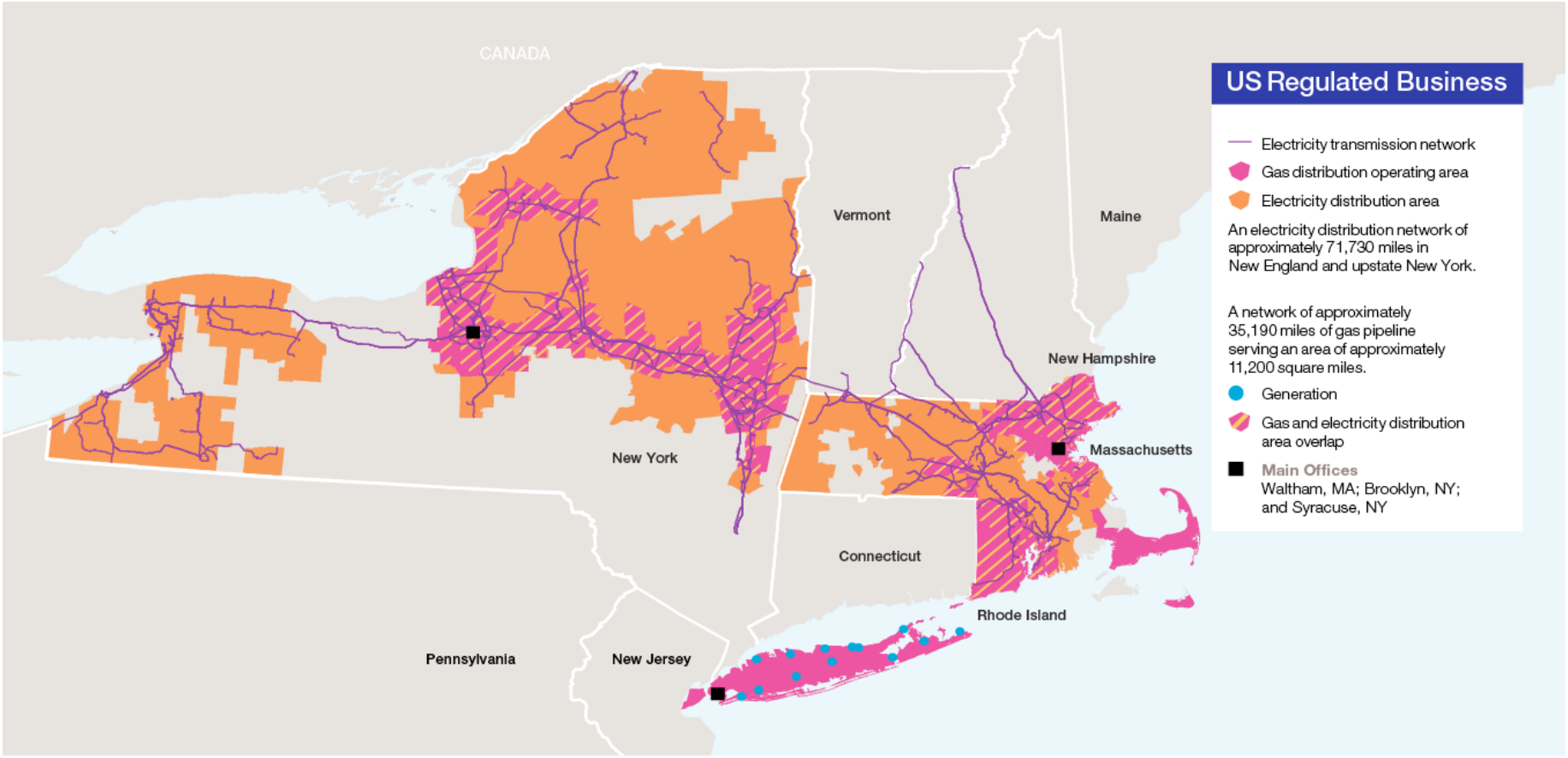

The Landscape

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Nationally:

- Increasing public safety concerns
- Increasing public climate change interest and passion

In the Northeast:

- National Grid is the largest natural gas infrastructure company
- We have one of the oldest networks in the nation

And at National Grid:

- Public safety is our first priority
- We are committed to accelerating methane reduction efforts

LAUF

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LAUF combines accounting and operational factors into a company specific calculated amount of lost gas. The operational issues that National Grid is attacking to reduce methane emissions include the following:

- **Third Party Damages**
- **Blow-downs**
- **Leakage - Aging Infrastructure**
  - Corrosion of bare steel
  - Breaks and joint leaks on cast iron

Main Inventory
US Comparative Summary

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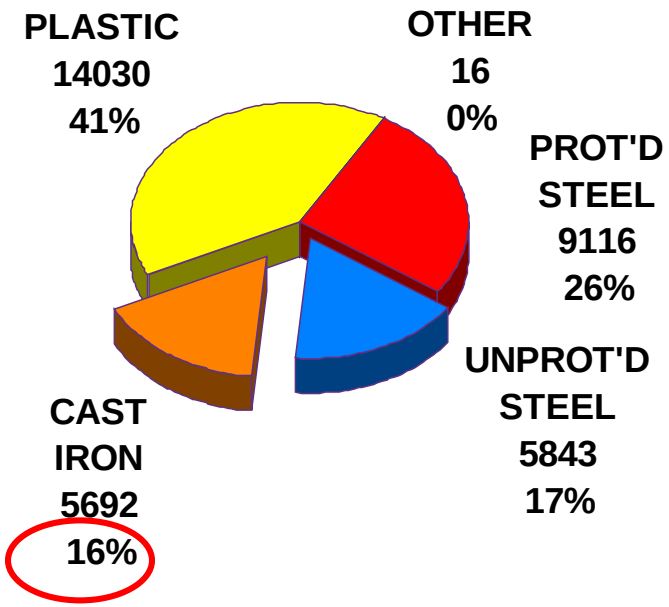
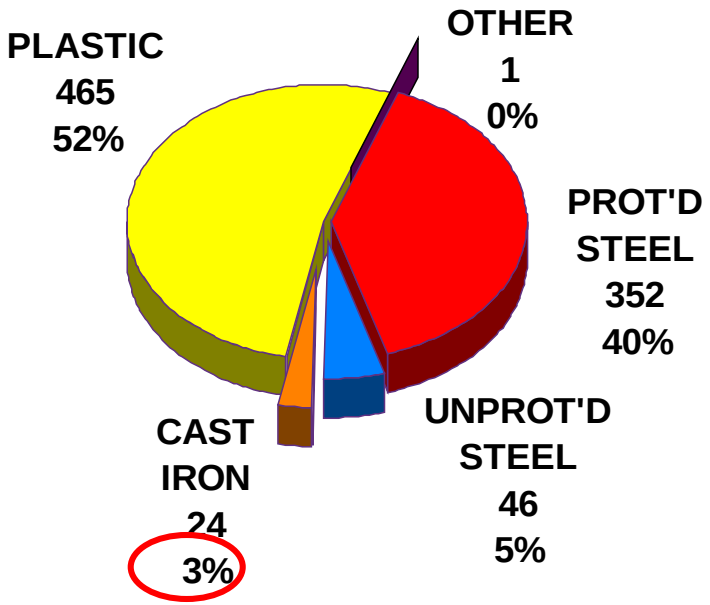
National Grid - US

34,697 Miles



PHMSA Average LDC

888 Miles



Infrastructure Replacement

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- To manage public safety and emissions, a comprehensive program of timely repair and proactive replacements is employed.
- These efforts are coordinated by our TIMP and DIMP programs to develop the five year capital plans for our main and service assets.
- Since 2010, we invested $1.5 billion replacing older, leak prone mains and services. Our spend in this area will increase by at least 60% to $2.4 billion over the next five years.
- Additionally, we spend approximately $65 million annually on leak repairs, and expect this number to increase based on our projections of leak rates new regulatory requirements.

Challenges

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- Expansive infrastructure replacement programs like National Grid's come with challenges for all of our stakeholder groups.
  - Customer
  - Community
  - Regulatory
  - Company

Customer Challenges

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- Our customers face *increasing rates* resulting from our investments in pipeline and service replacement programs.
- They face *disruption in service* during change over to newer systems.
- They face *inconveniences* due to the physical construction work on-going in the communities where they live and work.
- They *struggle to get current and accurate information* about what the utilities are doing, and why they are doing it.

Community Challenges

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- The communities where we operate distribution systems face challenges due to the large volume of work.
- They must coordinate permitting, police protection, and paving replacement projects with our replacement and/or repair work.
- They must respond to public complaints about noise, debris, detours, parking restrictions, and other inconveniences due to the heavy work.

Example of Community Impact

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- City of Waltham MA
- Leak Prone Pipe
  - Red is Cast iron, Brown is Wrought Iron and Light Blue is Bare Steel.
- Newer Pipe
  - Dark Blue Coated Steel and Yellow is Plastic.

Example of Community Impact

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Example of Community Impact

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Regulatory Challenges

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- Rate regulators face the burden of additional rate cases for utilities to report and get recovery for the replacement programs.
- They need to balance and manage customer bill impacts.
- Safety regulators face increased activity in the work areas that needs to be monitored and reviewed for safety and compliance.
- They must respond to complaints about increasing field activity

Company Challenges

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- Companies have to manage the risk of aging infrastructure during replacement programs; fixing or monitoring leaks as appropriate.
- They must develop more frequent rate filings to work with regulators on appropriate recovery programs.
- They must raise capital to fund the programs.
- They must recruit, hire, train, qualify, and retain additional workers; field workers, administrative support, engineers and management.
- They must acquire additional materials, equipment and vehicles.
- They must coordinate work permitting with cities and towns.
- They must communicate effectively to all stakeholders.