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Advanced Mobile Methane Detection Collaboration

May 15th, 2018

McKenzie Schwartz

Who We Serve

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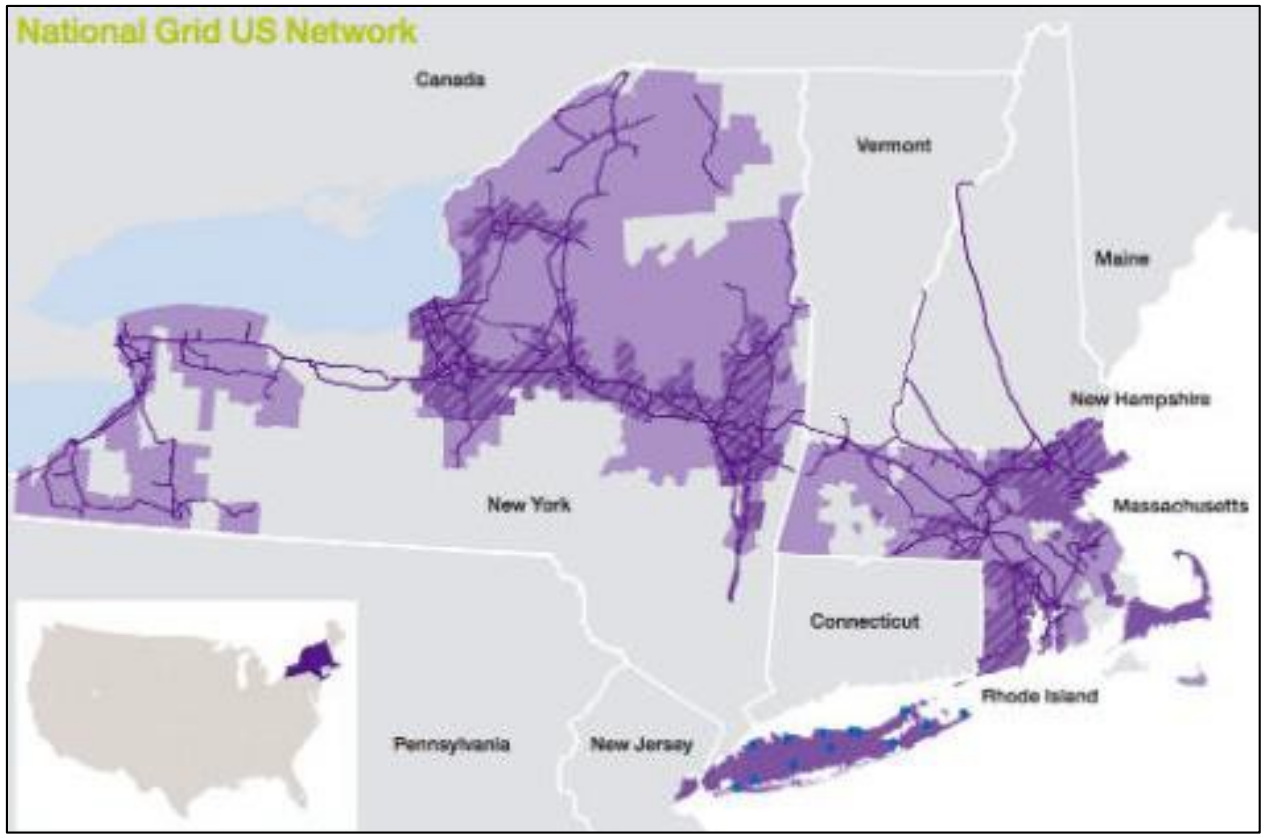
- Gas and electric distribution company providing energy to 20 million customers in NY, MA, RI
  - Value - **safe, affordable, reliable** & **environmentally responsible** energy



Traditional Utility Leak Surveys

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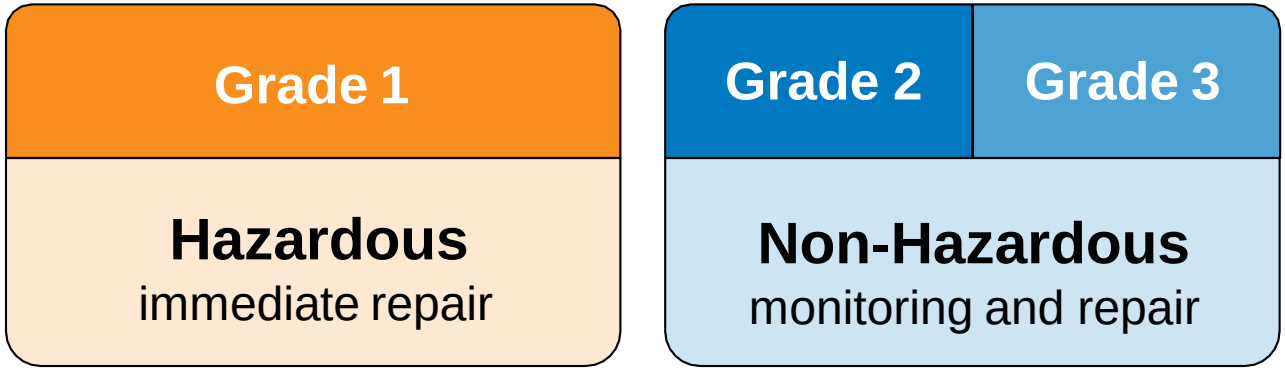
- **Safety #1 priority**
- Traditional leak surveys designed to identify and prioritize hazardous leaks on the gas distribution system
  - Hazard calculation includes **proximity** to buildings/confined spaces, **gas to air concentration**
  - Grade 1 leak ≠ high emitter



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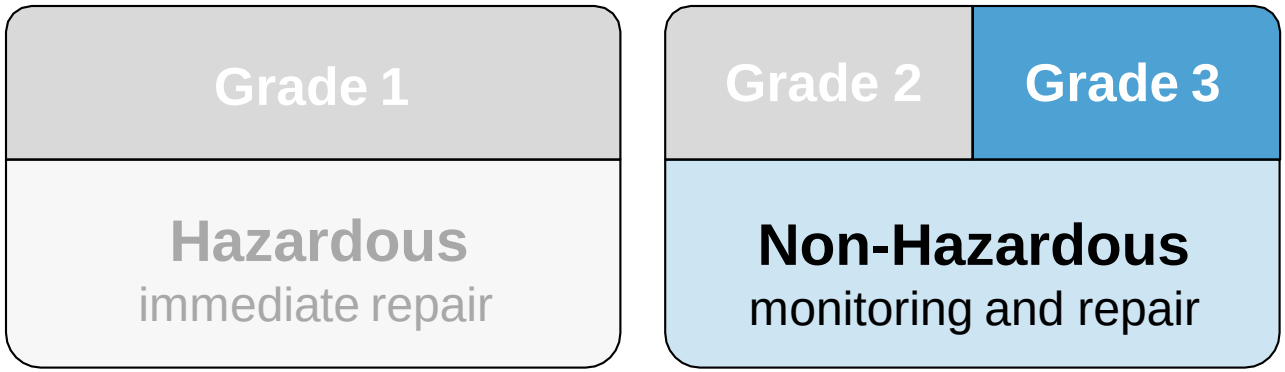

Methane Mapping Partnership

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- Develop more efficient ways to find and quantify nonhazardous leaks
  - **EDF** convened & planned project
  - **Google** provided vehicles mounted with methane analyzers
  - **Colorado State University** analyzed data & grouped leaks by environmental risk
  - **National Grid** shared leak data for validation analyses

- Benefits of new method
  - Automated & mobile, ability to quickly collect large amount of emissions data
  - Highly sensitive methane analyzer records data every half second & provides estimate for leak flow rate (emissions)

Partnership Results

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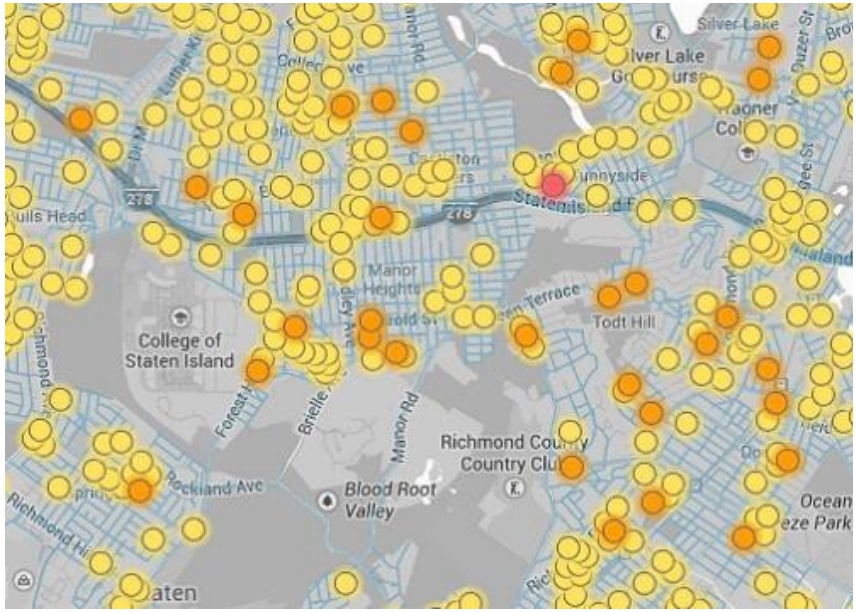
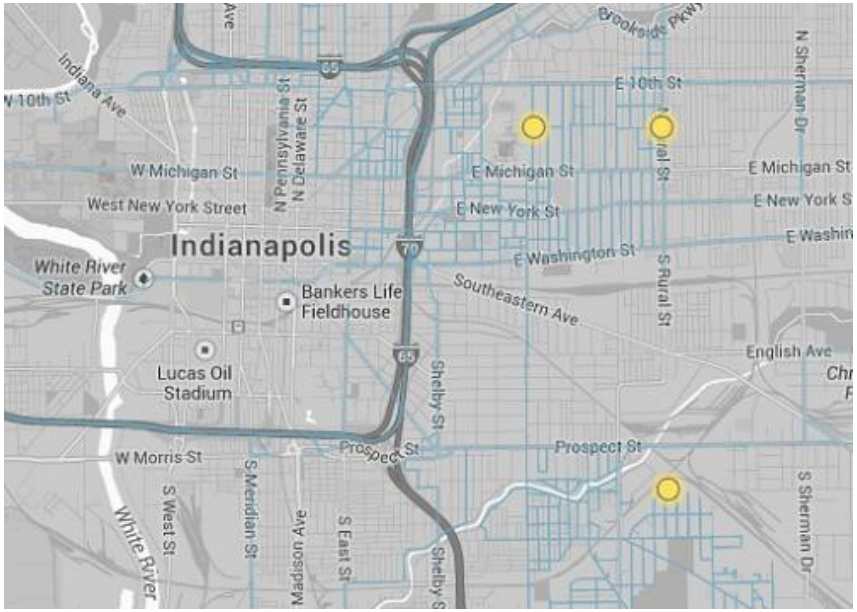
- Mapped National Grid network in Boston (2013) and Staten Island (2014)



Staten Island
Older pipes, more leaks



Indianapolis
Newer pipes, fewer leaks

- New dataset for leaks – **flow rate** (emissions)

low medium high

Skewed Gas Leak Emissions

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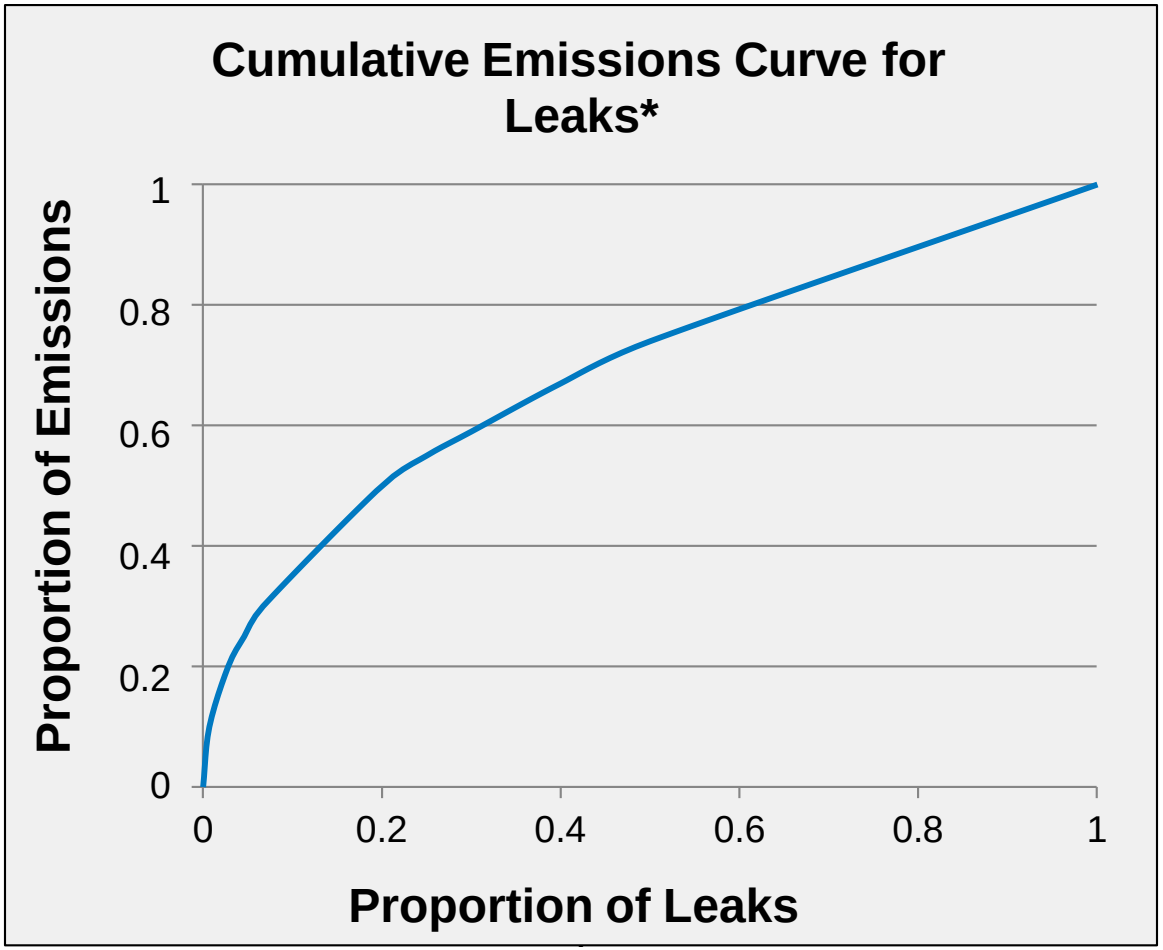
- A Few very large leaks account for the majority of emissions



*Data courtesy Joe von Fischer, Colorado State University

Technology Assessment

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- Launched a 2 year study to further assess advanced mobile methane detection technology in 2016
  - Study Area – Long Island, NY
  - Assess ability to quantify and prioritize the leakiest section of our network
  - Maximize the climate benefits of a three-year $3 billion capital investment program approved by the NY Public Service Commission
    - Targeting 585 miles of leak prone pipe replacement
  - Second year testing started in April & report expected end of 2018

Conclusion

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- Developing new methods for prioritizing capital efforts based on environmental impact
- Assessing new technologies to improve the performance of our network, and the performance of our repair and replacement programs
  - Particularly important due to methane's high global warming potential when emitted rather than combusted

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