

Gas REV Geothermal Demo



2018 AEC

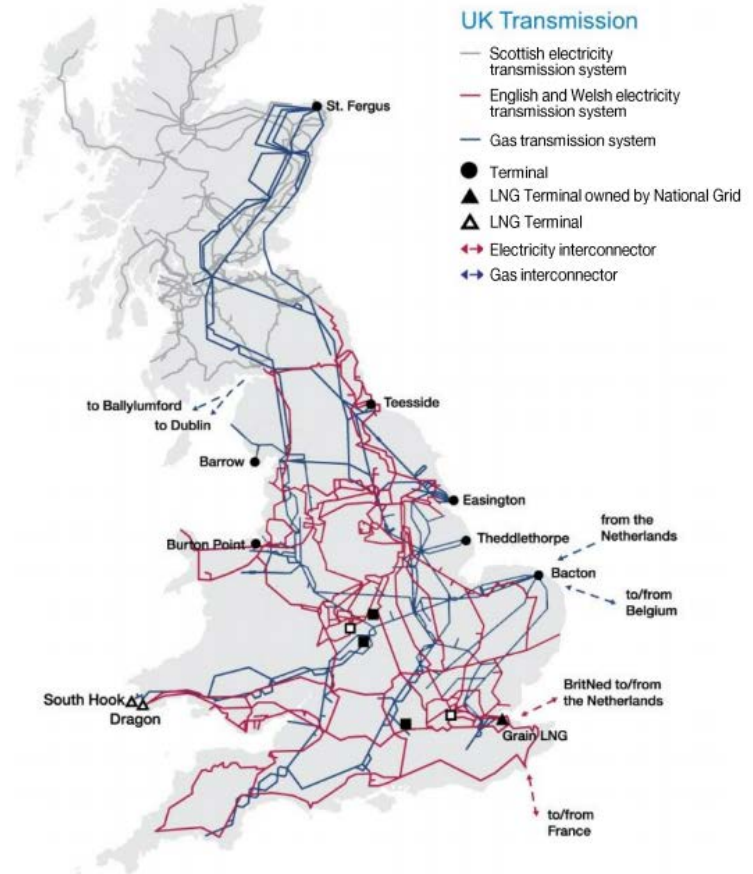
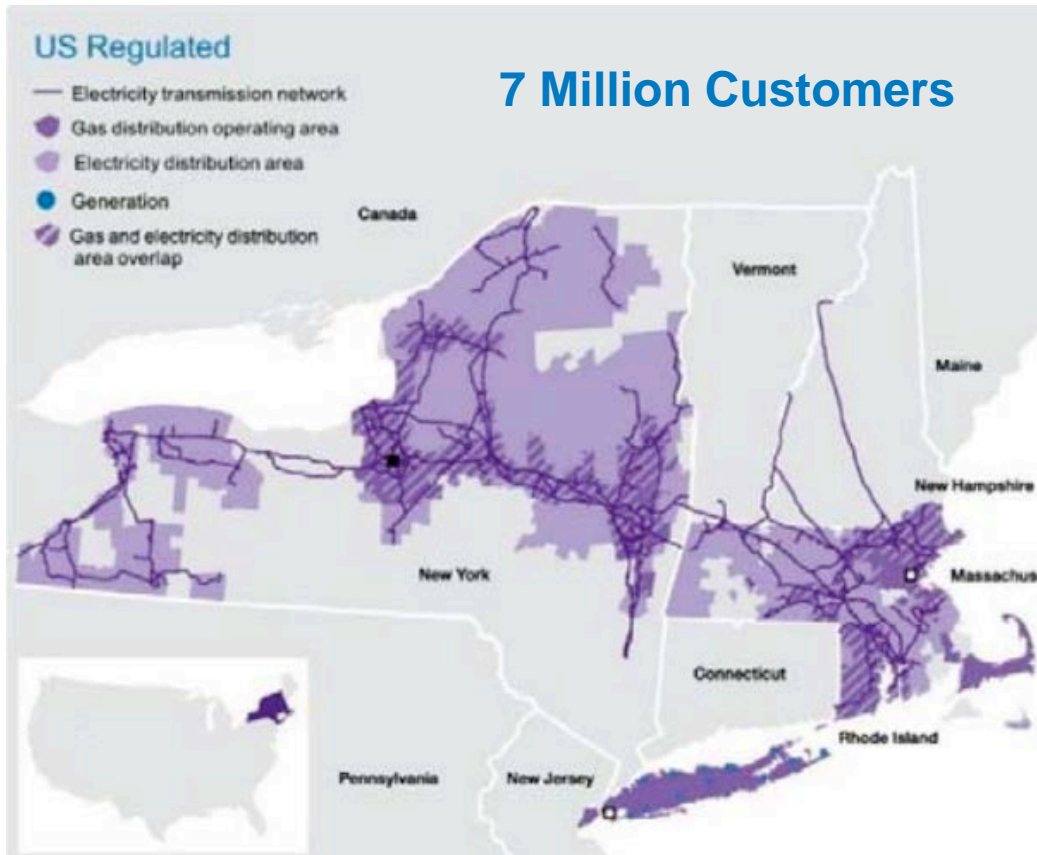
Chong Lin, New Energy Solutions

Agenda

- About Us
- Benefits of Heat Pump Technology – Gas & Electric
- Long Island Gas REV Demonstration
- Benefits of Utility Involvement

An International Energy Company **nationalgrid** with a Local Presence

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Our New York Business

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4 million gas and electric customers



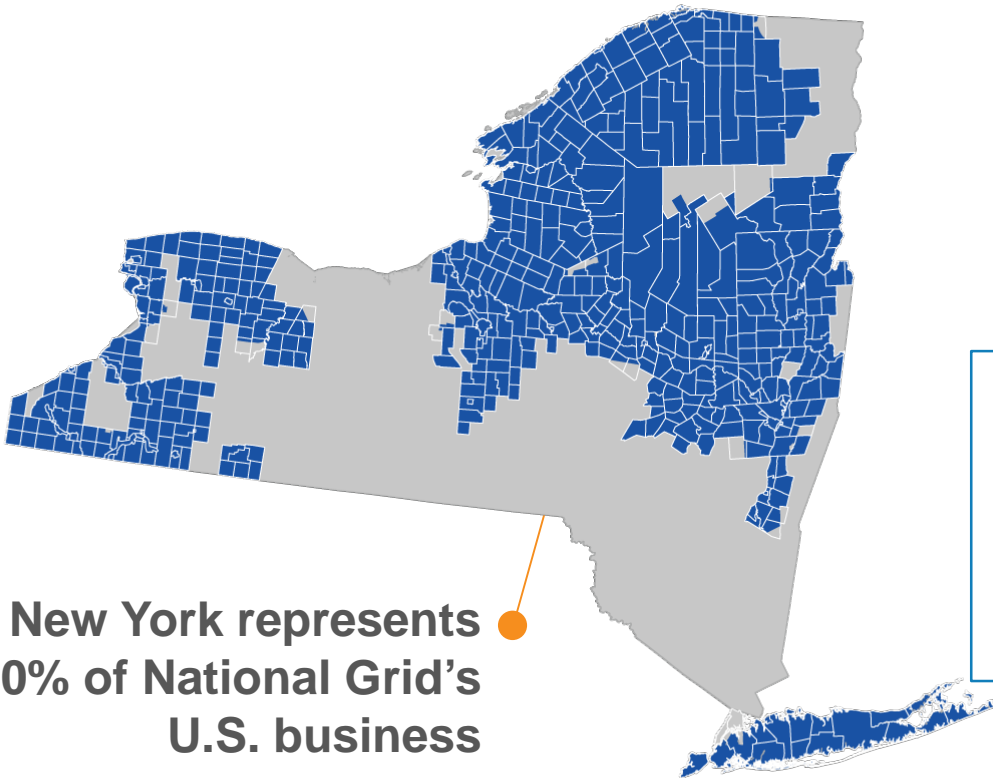
8,000 employees

\$10.7 billion of rate base

\$1.5 billion annual O&M budget

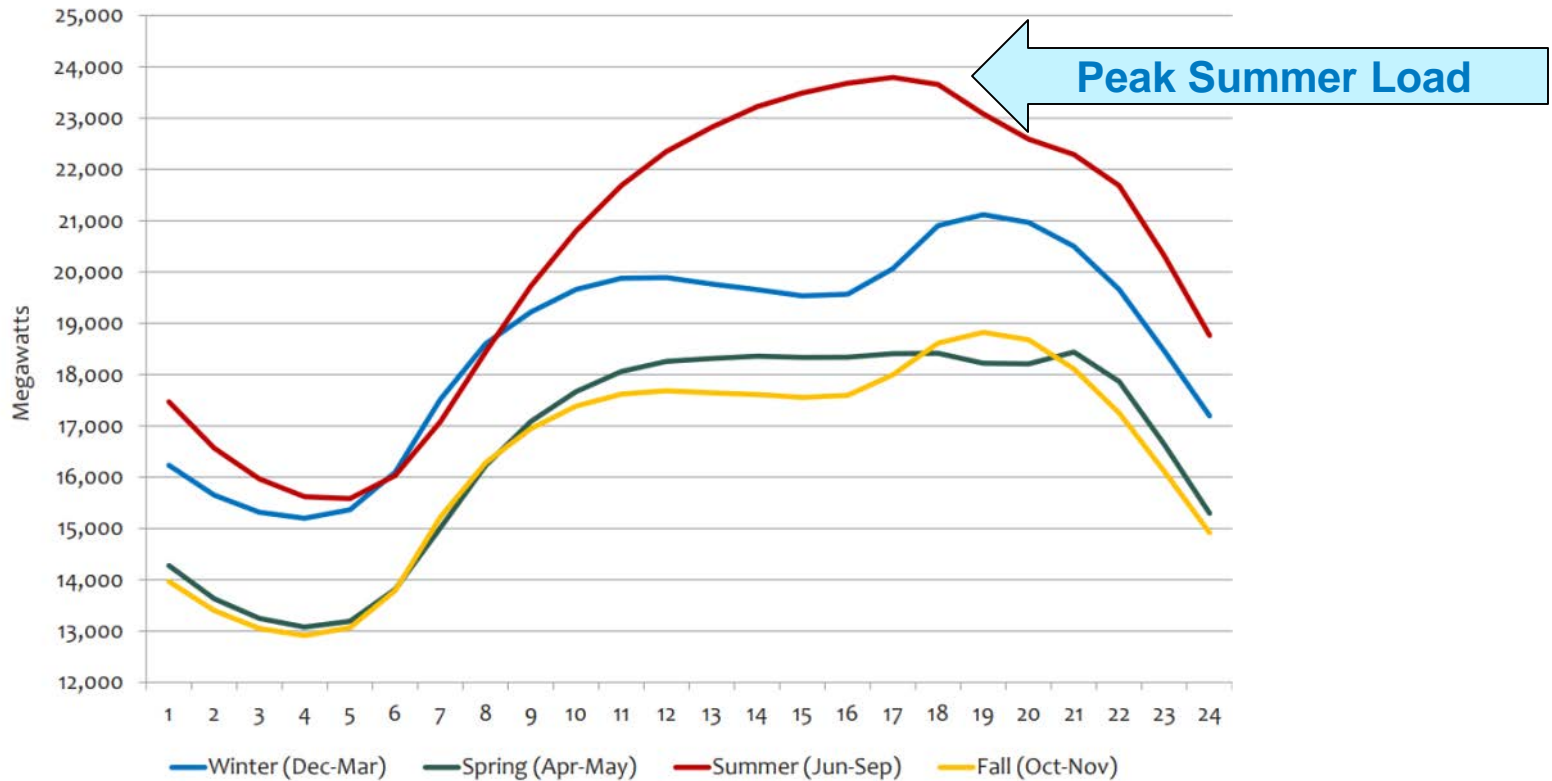
\$1.2 billion of annual capital spending

New York represents
60% of National Grid's
U.S. business



Benefits of Heat Pump Technology – Electric Grid

■ New York Electric Demand 2016



Source: EIA Power Trends 2016

Benefits of Heat Pump Technology – Gas Grid

- 3 million housing units in NYS do not have access to natural gas
- In National Grid NY service territory
 - Over 1 million buildings heating with oil or propane
- Provide low-cost, renewable heating and cooling
- GSHP accounts for **less than 1%** of statewide HVAC load

Long Island REV Demonstration

- Project will provide cost-effective, renewable heating and cooling technology to 10 residents
- Same pipes and fusing techniques used in the gas world
- Provide environmental and health benefits, energy bill savings, carbon savings, and increased comfort levels.
- Partnering with NYSERDA to collect and analyze data and LIPA/PSEG-LI on EE programs



National Grid's First Utility Geothermal Installation

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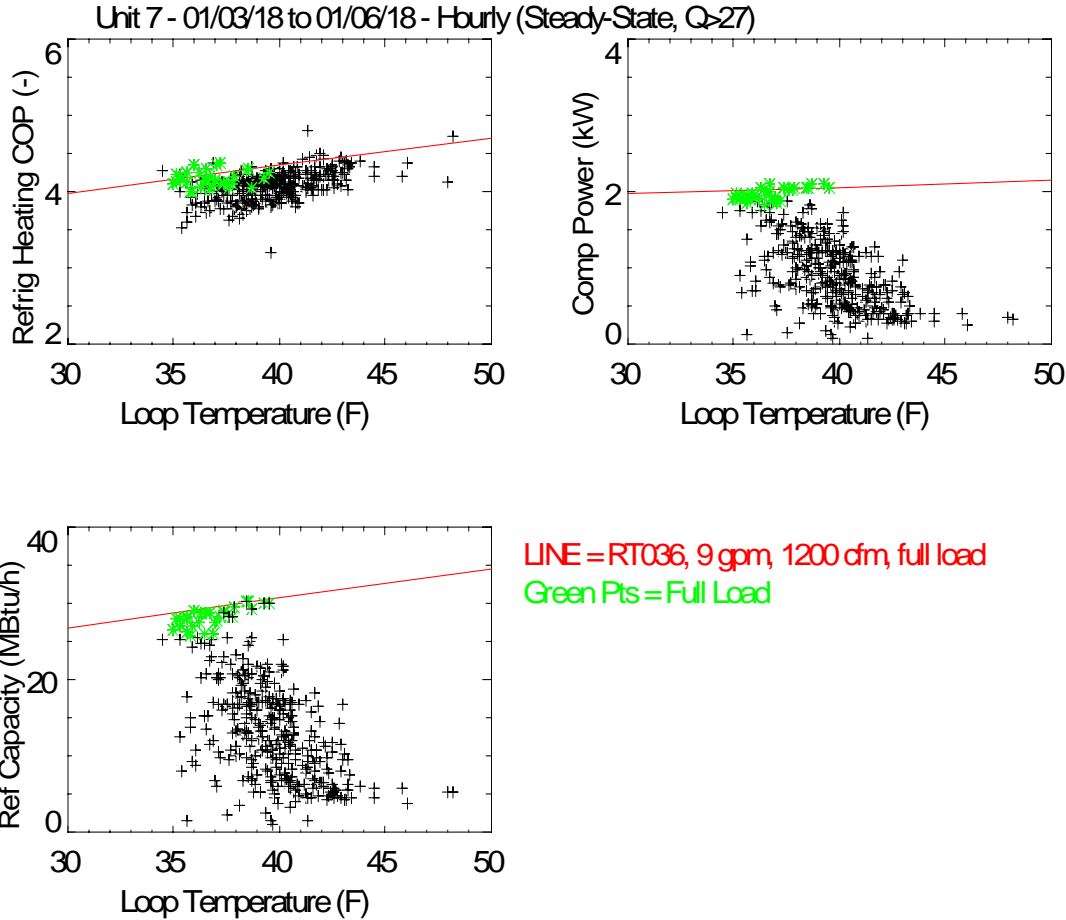


Lessons Learned

- Mobilization costs can be reduced with district loops
- Knowledge of the local geology is crucial
- Energy efficiency is required for retrofits
- Seemingly identical houses but not identical loads



Performance Data



Benefits of Utility Involvement

- Co-marketing - increase awareness and confidence
- leveraging data analytics for customers aggregation – minimize mobilization costs
- Long-term financing of utility assets and customers
- Recognizing utility systems benefits – rebates and rate design
- Increase volume to remove market barriers



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Thank You



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