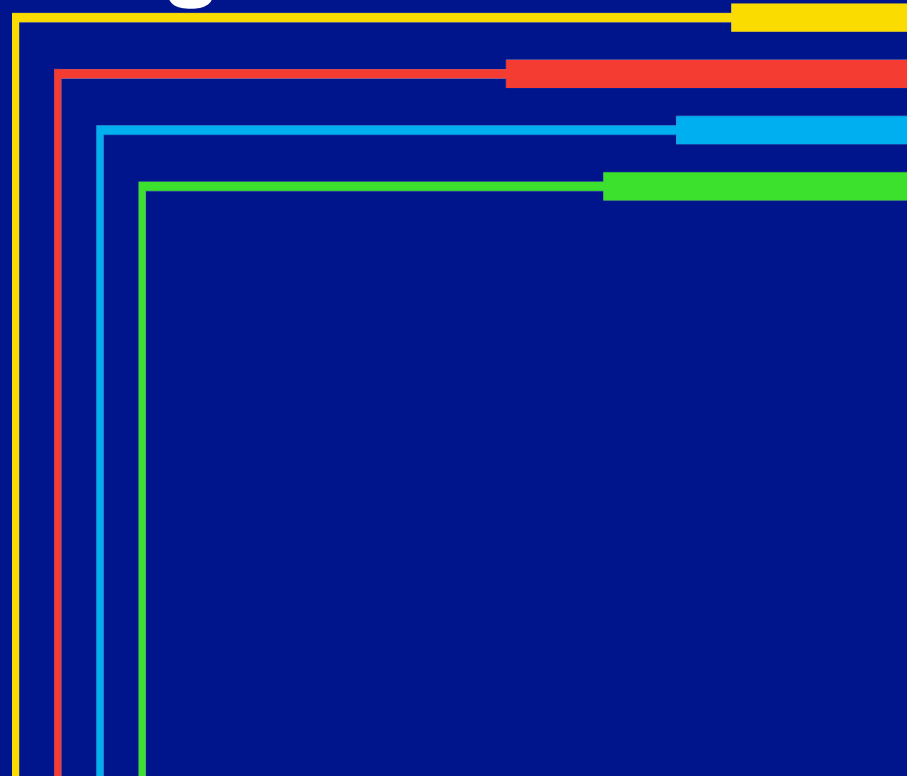


Transforming Gas Networks to Achieve Climate Justice and Emission Reduction Targets

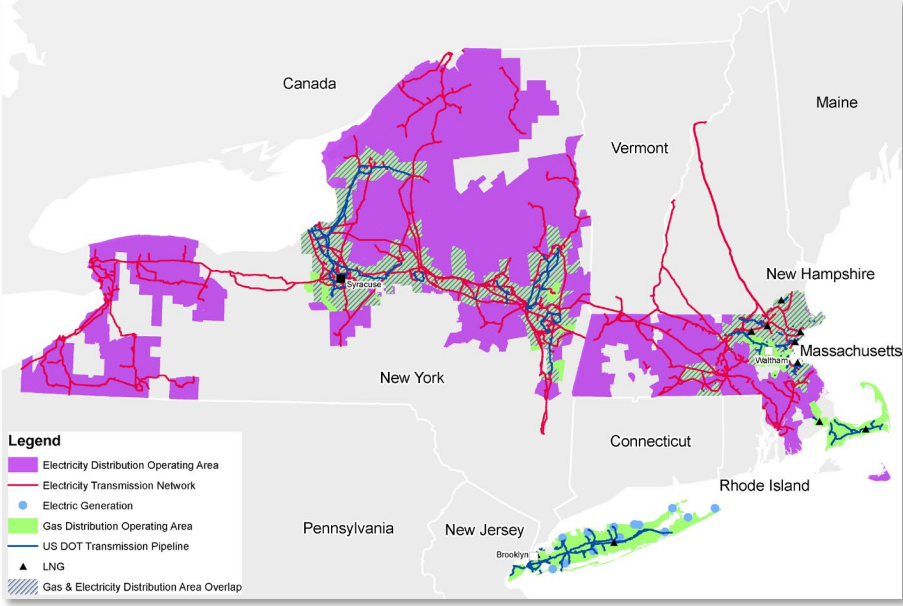
May 2nd, 2023

Huck Montgomery
Director, Policy & Strategy
nationalgrid



About National Grid

We are one of the largest investor-owned energy companies in the US — serving more than 20 million people throughout New York and Massachusetts.



Serving 20 million people

5.3M Residential + 600k Commercial
= 5.9 million customer accounts

Residential & Commercial customers by region:



Gas .9 million
Electric 1.3 million

UNY 1.7 million
LI 0.6 million
NYC 1.3 million

Our Plan: Net Zero by 2050

We aim to achieve net zero greenhouse gas (GHG) emissions by 2050, including our own operations and emissions that result from the sale of electricity and gas to our customers. We have developed a framework to achieve this by focusing our work on ten areas through 2050:

- Reducing demand through energy efficiency and demand response
- Decarbonizing the gas network with renewable natural gas and hydrogen
- Reducing methane emissions from our own gas network while working with the industry to reduce emissions through the entire value chain
- Integrate innovative technologies to decarbonize heat
- Interconnecting large scale renewables with a 21st century grid
- Enabling and optimizing distributed generation
- Utilizing storage
- Eliminating SF6 emissions
- Advancing clean transportation
- Investing in large scale carbon management

Role of the Gas Network in a Decarbonized Future

- Gas networks have an essential role to play in the clean energy transition. A hybrid approach is the most affordable and practical to reduce emissions
- Repurposing existing infrastructure reduces needed electric build-out, preserves customer choice, helps enable just and equitable transition
- Evidence and analysis in MA and NY shows hybrid pathway has significantly lower societal costs compared to “electrify everything.”
- National Grid estimates our approach will save customers \$110-200 billion in economy-wide costs compared to a high electrification approach.
- MA and NY acknowledge in their climate policy roadmaps (NY’s Climate Action Council Scoping Plan; MA’s Clean Energy and Climate Plan) that fuel will be consumed in buildings and industry in 2050, and that alternative fuels (RNG & H2) have an important role to play.

National Grid's Fossil-Free Vision

Pillar 1

Energy efficiency in buildings

We will continue to provide programs for our customers to accelerate energy efficiency improvements to buildings, including deep retrofits and measures that reduce peak gas and electric demand; and support more rigorous building codes for new buildings.

Pillar 2

100% fossil-free gas network

We will eliminate fossil fuels from our existing gas network no later than 2050 by delivering renewable natural gas and green hydrogen to our customers.

Pillar 3

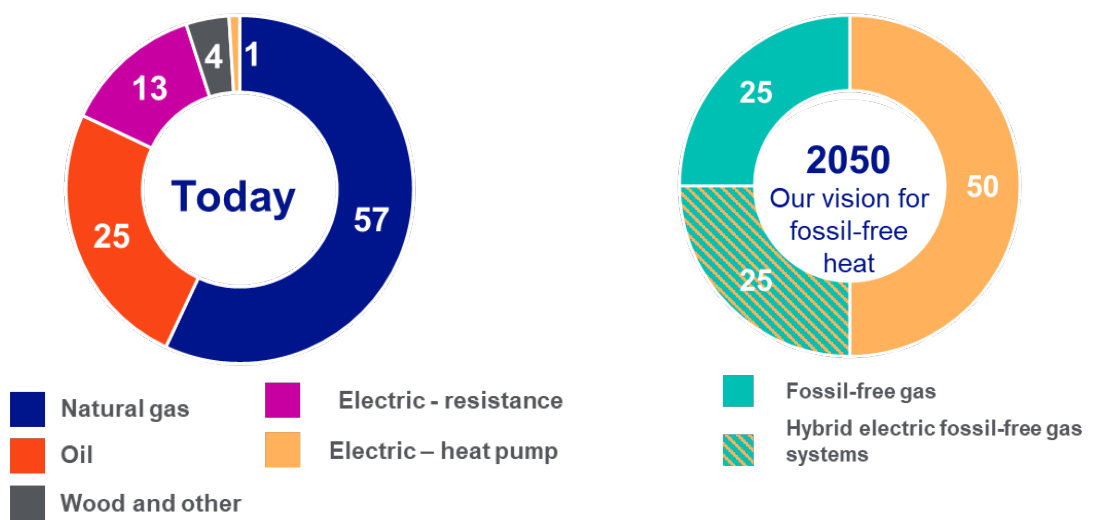
Hybrid electric-gas heating systems

We will support our customers by providing them strategies and tools to capture and maximize the benefits of pairing electric heat pumps with their gas appliance.

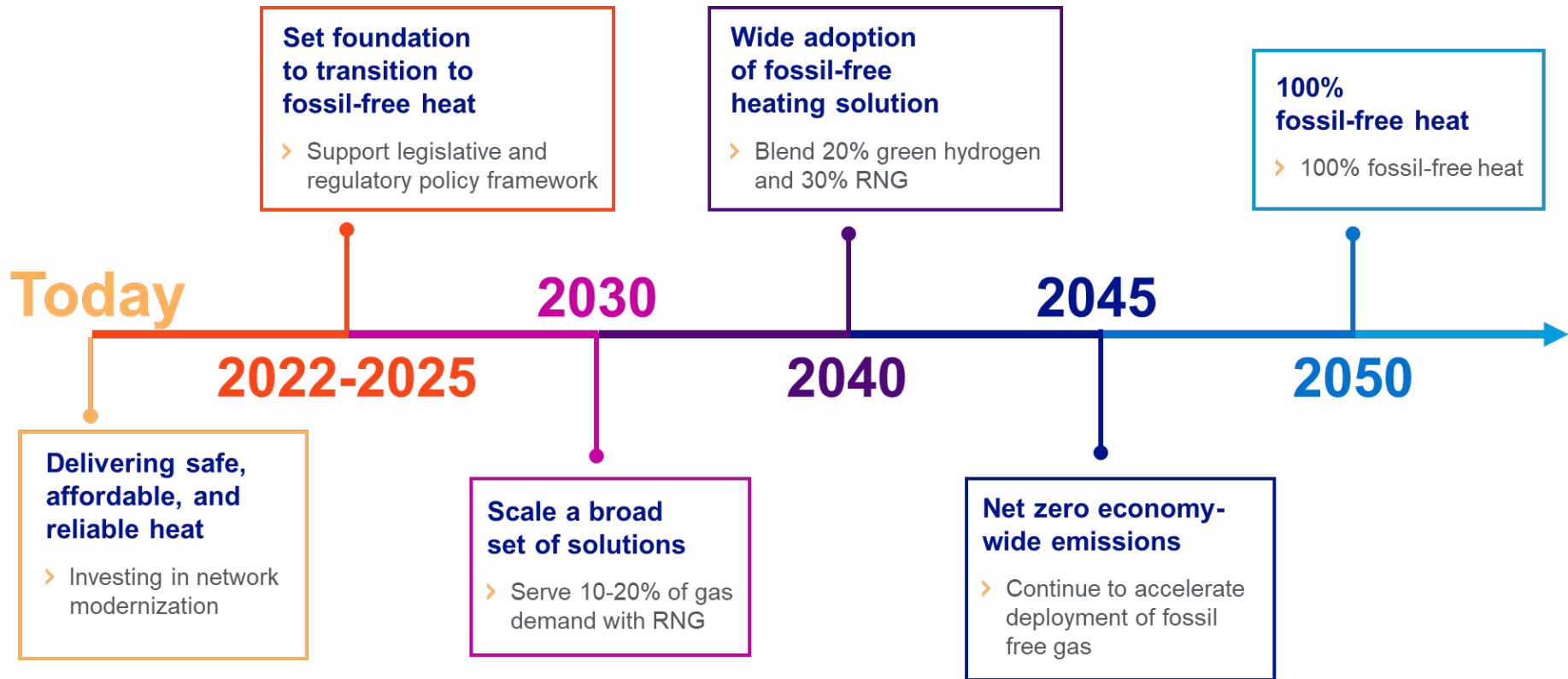
Pillar 4

Targeted electrification & networked geothermal

We will support cost-effective targeted electrification on our gas network, including piloting new solutions like networked geothermal. We will support customers who heat with oil and propane with strategies and tools to convert to heat pumps.



Our Pathway to a Clean Energy Future



Ongoing Pilots and Demonstrations



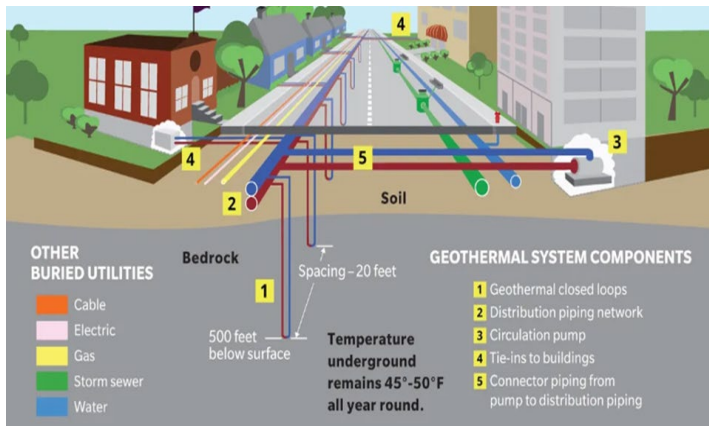
HyGrid hydrogen blending project on Long Island



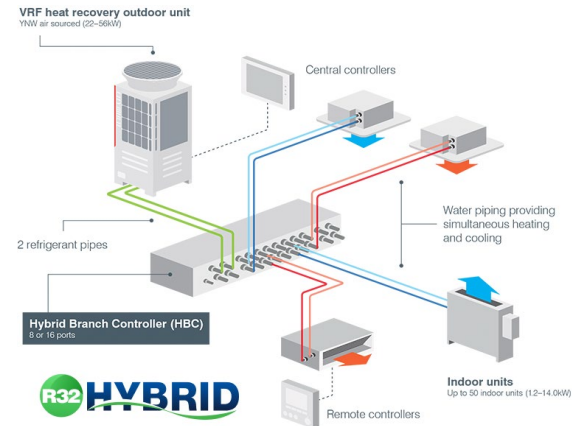
Newtown Creek RNG project



RNG Interconnections in NY



Geothermal Pilots



Hybrid Heating Studies

Gas Decarbonization Policy Priorities

New public policies will be necessary to decarbonize heat for buildings and industry, including:

Enable Fossil-Free Gas

- ✓ Enabling policy for utility procurement of alternative fuels (RNG & H2)
- ✓ Performance standard to require utilities to reduce carbon intensity of delivered energy, based on life-cycle analysis of GHG emissions
- ✓ Support for RNG & H2 supply projects, end-user pilots

Reduce Demand for Gas

- ✓ New mechanisms to expand heat pump adoption, energy efficiency/weatherization, and hybrid heating
- ✓ Efficient building codes
- ✓ Alternatives to new connections

Fossil-Free Network Policies

- ✓ Evolve gas network policy & regulation to deliver RNG and H2 and optimize ongoing investment
- ✓ Scalable networked geothermal model
- ✓ Modified depreciation of gas assets
- ✓ Changes to line extension policy/obligation to serve

Integrated Energy Planning

- ✓ Regulatory framework for integrated gas/electric planning
- ✓ Mechanism to implement targeted electrification

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