



2025 Energy Innovation Summit  
Springfield, MA  
September 25<sup>th</sup> – 26<sup>th</sup>, 2025

## Session 3

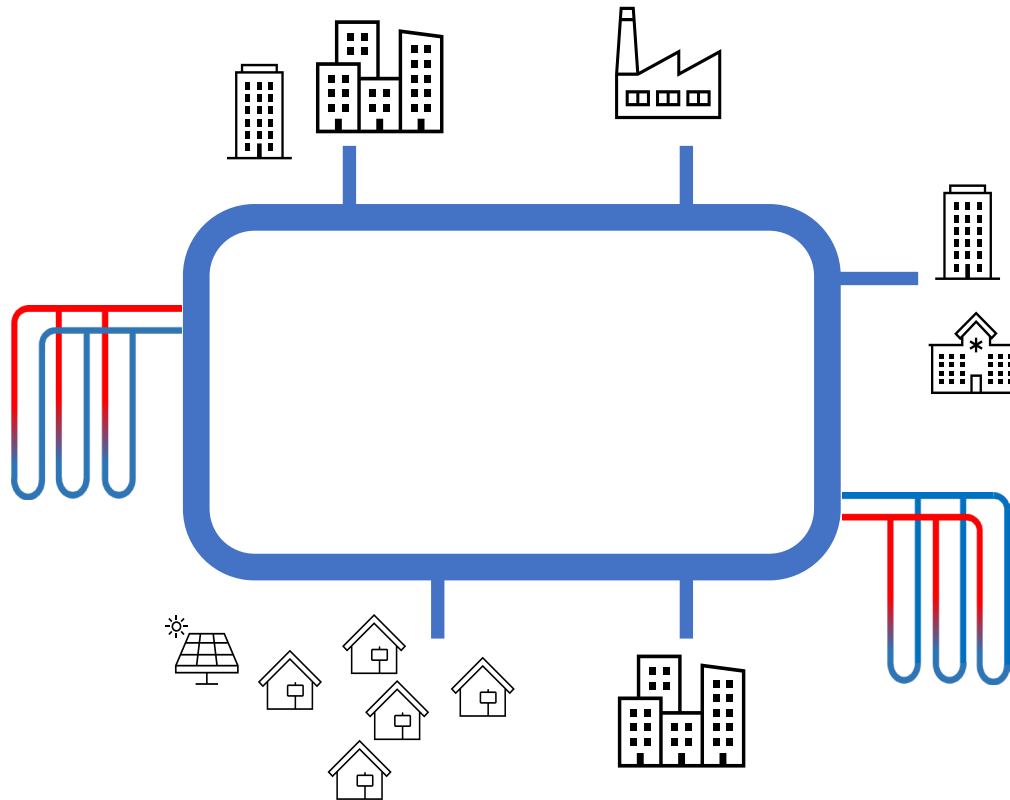
# Non-Pipe Alternatives Panel

**Panel:** *John Ciovacco, President, Aztech Geothermal*  
*Liam Needham, Director, Eversource*  
*Mike Sanchick, Section Manager, Con Edison*  
*Brian Welsch, Vice President, National Fuel*

**Moderator:** *Faye Brown, Engineering Director, National Grid*

# NGA Energy Innovation Summit

September 26, 2025



*Source: NYSERDA Community Heat Pump Program*



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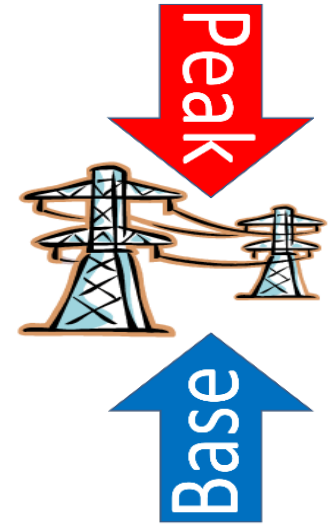
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# Geothermal Heat Pump Attributes

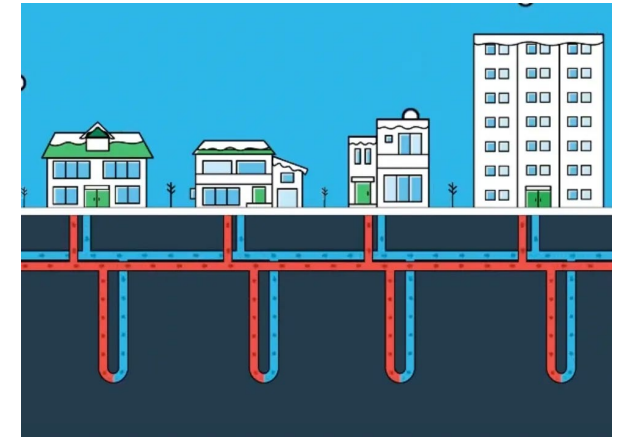


- *Commercial Federal Tax Credit Intact!*
- Hedge on Your Future Thermal Business
- Uninterruptable Renewable Energy
- Not Subject to Significant Price Volatility
- Lowers Peak Demand / Electric & Gas
- Transferable Skills with Existing Workforce
- Heating Cost Similar to Natural Gas
- Applicable to ~All Building Types
- Works Extremely Well in Cold Climates



# Thermal Energy Networks vs. Individual Building Systems

- Ideally a Thermal Energy Network would have the following 3 conditions:
  1. Commonly owned land & buildings
  2. Diversity of load – i.e., different types of buildings with different hourly loads
  3. Buildings are close to each other
- Generally speaking...
  - UTENs are often less practical to install or operate if at least 2 of the 3 above conditions are not present.



*Regulatory considerations may justify districts, even if none of the conditions are present!*

# NPAs vs. Utility Thermal Energy Networks (UTENs)

| NPAs                                                | UTENs                         |
|-----------------------------------------------------|-------------------------------|
| Favors ASHP                                         | Most are Geothermal           |
| Alternatives to Gas                                 | Utility Business Pilots       |
| ~BCA Requirement                                    | No BCA Requirement            |
| ~Need 100% Participation                            | Don't Need 100% Participation |
| ~Goal to Remove LPP                                 | ~Not a Goal to Remove LPP     |
| ~Driven by Regulation                               | ~Driven by Law (10 States!)   |
| <i>Both Popular with Environmental Stakeholders</i> |                               |

# NGA - Energy Innovation Summit Springfield, MA

September 25 & 26, 2025

- In December 2023, the Massachusetts DPU issued an Order laying out a set of regulatory principles that will guide future proceedings.
- LDCs will have the burden to demonstrate the consideration of NPAs as a condition of recovering additional investments in the gas distribution system.
- The Department broadly defined NPAs as electrification, thermal networked systems (e.g., geothermal), targeted energy efficiency and demand response, and behavior change and market transformation.
- The goal of the NPA analysis requirement is to identify alternatives to traditional natural gas infrastructure investments. However, the LDCs still must maintain safe and reliable service, and comply with all state and federal safety requirements (including replacing gas infrastructure).

# NPA– Stakeholder Process

- In Q3 of 2024 the 5 LDCs of Massachusetts convened a stakeholder group as ordered by the department, as well as a technical subgroup moderated by former Commissioner Matt Nelson
- Conducted 6 working group and 6 technical subcommittee meetings
- 31 participating entities in the stakeholder sessions including the 5 LDCs and 1 EDC representation
- Received **191 items of feedback** from stakeholders (including AGO, DOER, Unions, industry representation, and environmental groups)
- Companies discussed feedback and included relevant feedback into final NPA framework, which was filed in the Climate Compliance Plan (CCP) on April 1, 2025

## Non-Gas Pipeline Alternative Working Group

Working Group Meeting #5

February 5, 2025



### Key Themes from Technical Subcommittee Meetings



Call for utilities to establish processes for proactive NPA project identification and prioritization.



Emphasis on identifying capital projects with sufficient lead time to ensure NPAs can be realistically implemented.

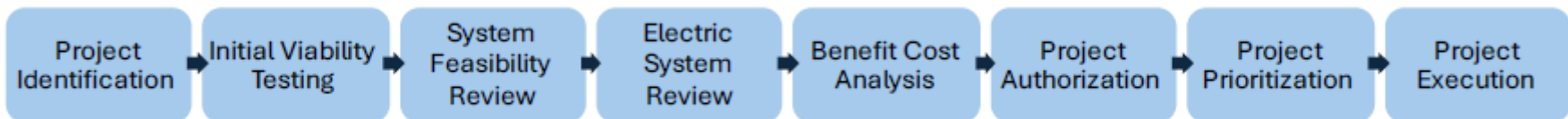


Importance of integrated system planning and coordination across gas and electric utilities, as well as municipalities.



Concerns with proposed LDC BCA framework being too restrictive.

# Proposed NPA Framework

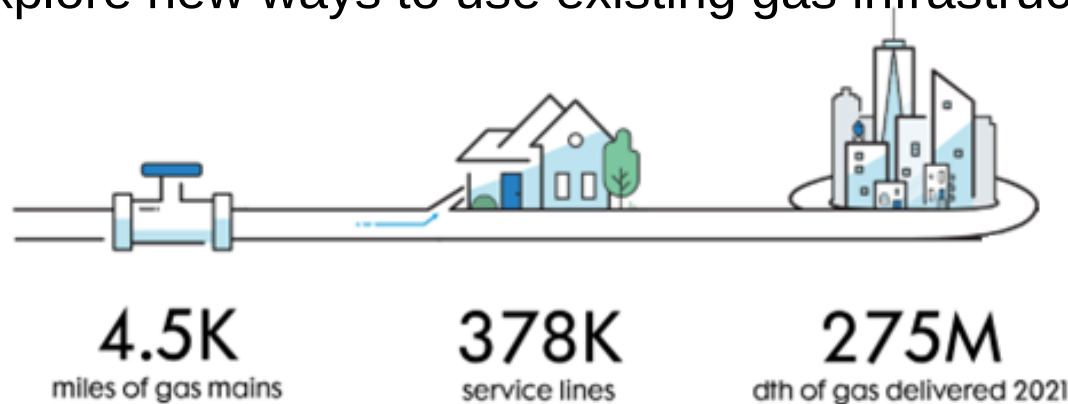


*Figure 27. Key Topics for NPA Framework Enablement*

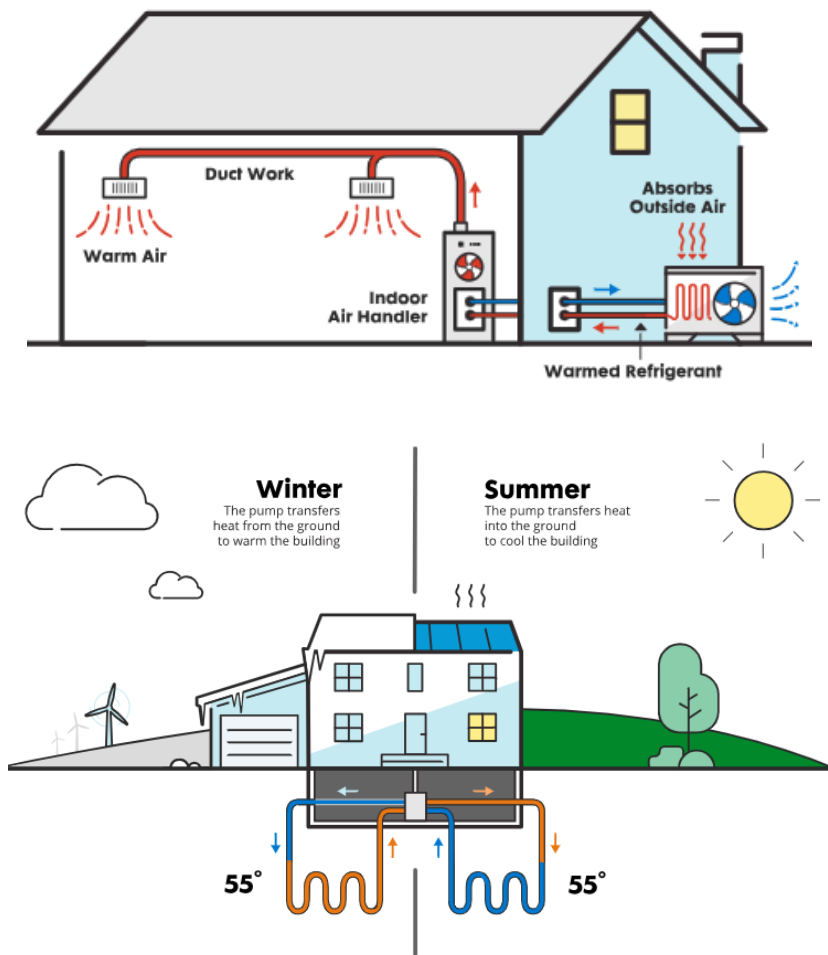
|                          |                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electric system upgrades | <ul style="list-style-type: none"><li>Ensuring electric reliability projects are not displaced by electric upgrades triggered by NPA projects, during the electric planning process.</li></ul>                                                                                                                                                                                                             |
| Cost allocation          | <ul style="list-style-type: none"><li>Establishing equitable cost allocation for the incremental costs of outreach, management of NPA, studies, and engineering. In particular the allocation of costs between non-affiliated companies and with MLPs.</li></ul>                                                                                                                                           |
| Customer                 | <ul style="list-style-type: none"><li>Customers in Massachusetts have come to expect customer choice and obligation to serve. Clarification will be needed on how these apply within the NPA Framework and how the Company addresses non-gas customers within an NPA project area.</li><li>Customer data sharing is currently governed by the data waiver provisions outlined in D.P.U. 20-80-D.</li></ul> |

# Con Edison

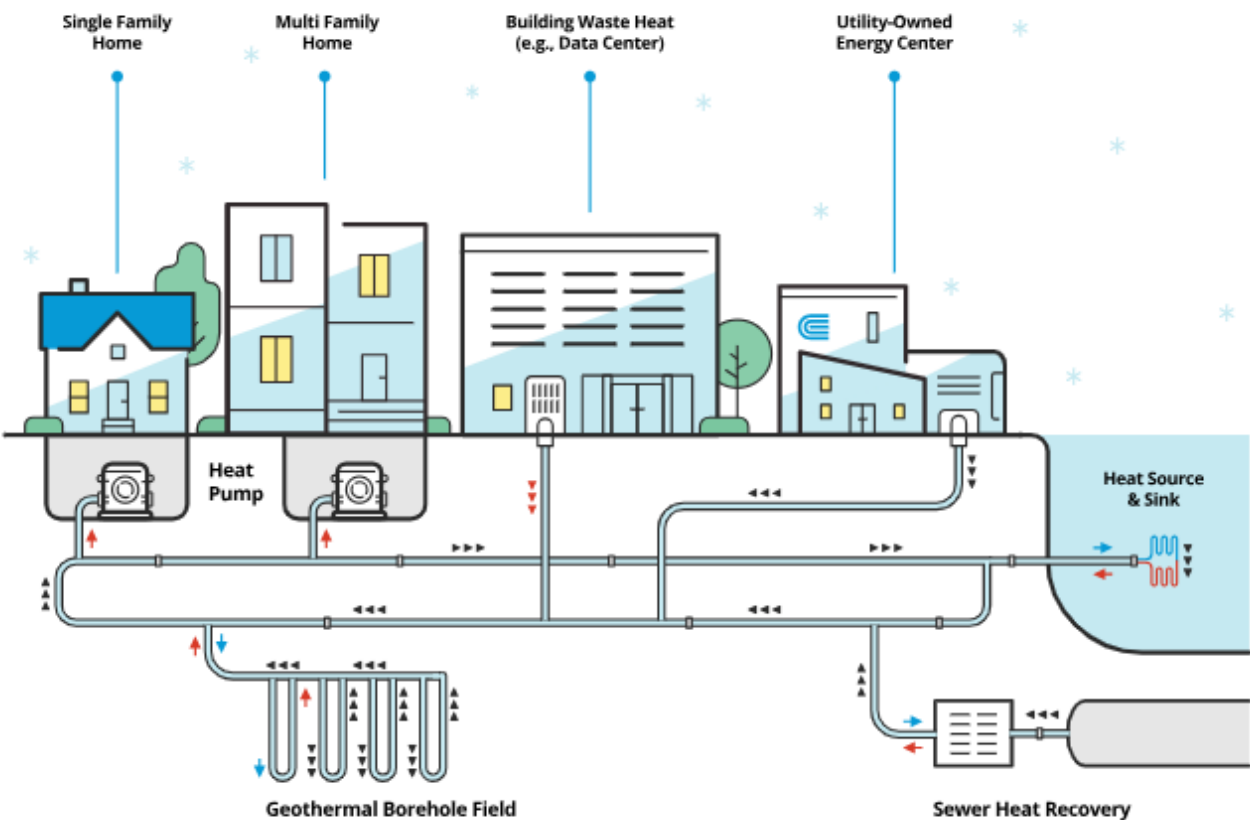
- 604-square-mile service territory covering New York City and Westchester County
  - 3.6 million electric customers
  - 1.1 million gas customers
  - 1,500 district steam energy buildings
- Clean Energy Commitment
  - Support decarbonizing & reducing the use of fossil natural gas
  - Explore new ways to use existing gas infrastructure



# Con Edison: Electrification Programs



NYS Clean Heat Program

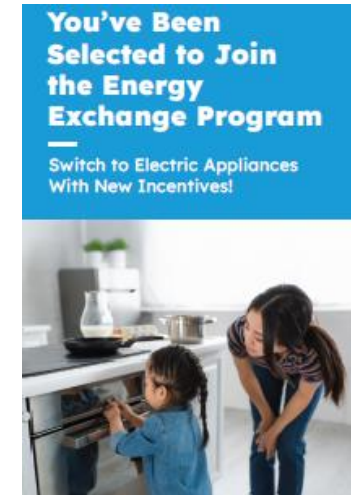
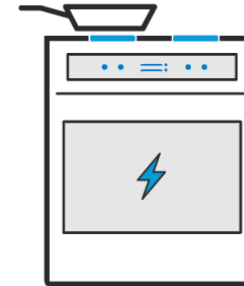
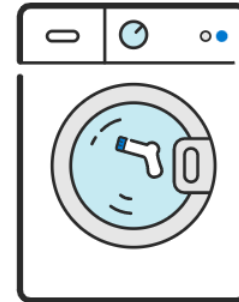
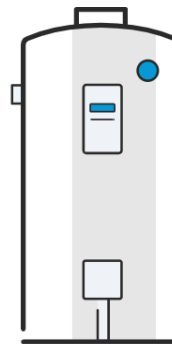
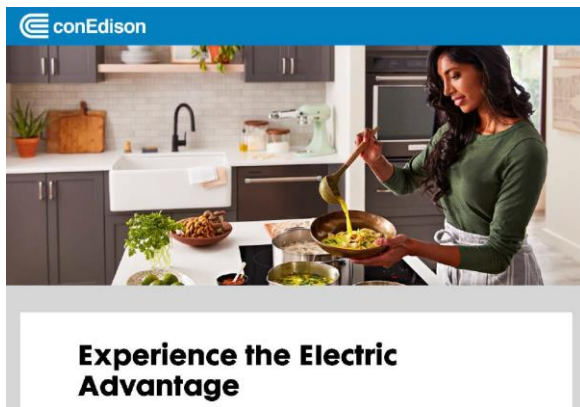


Utility Thermal Energy Networks

# Con Edison: Non-Pipe Alternative Programs

Use customer-sided solutions to avoid gas infrastructure investments

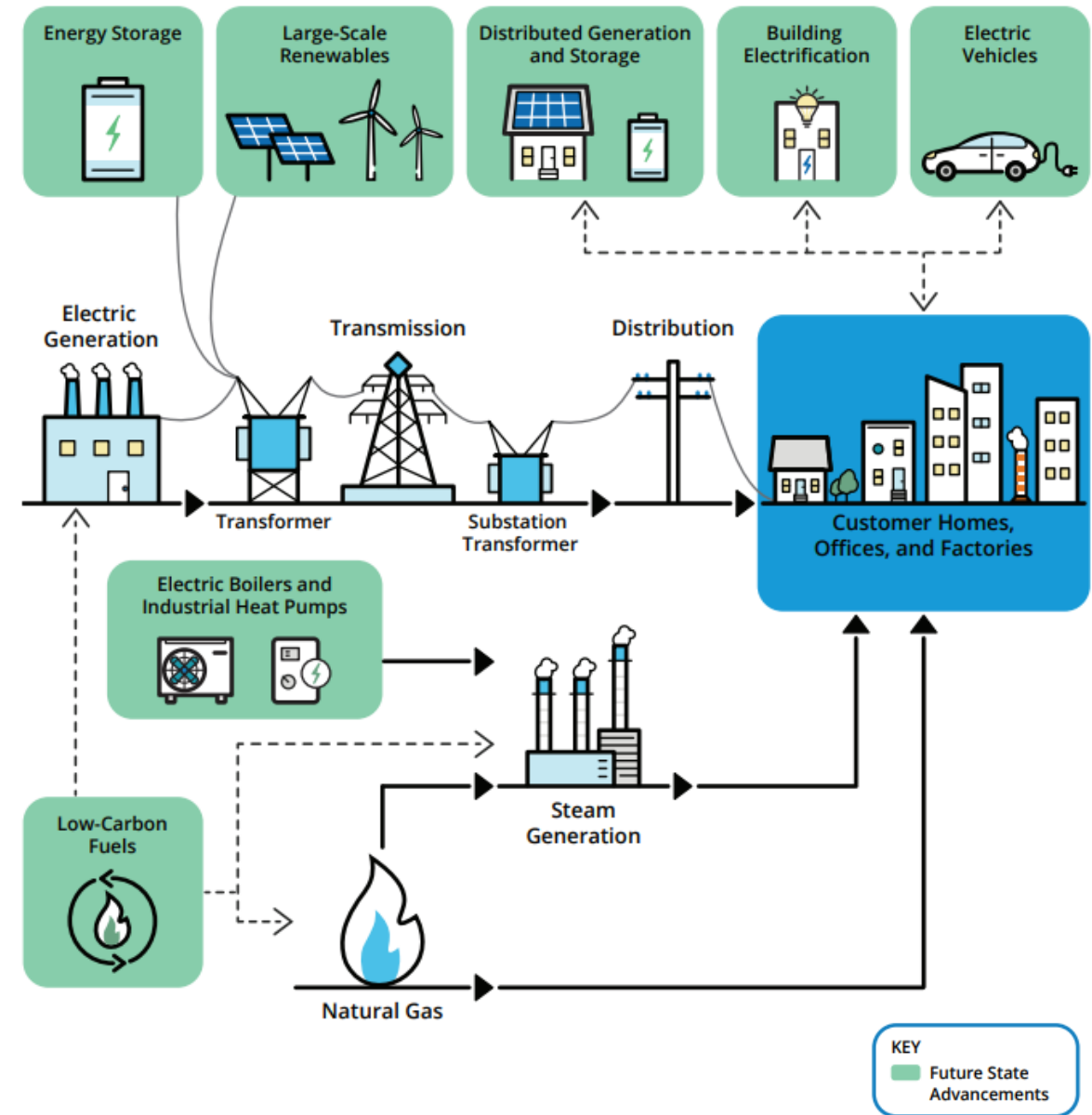
- Traditional Solution: **Gas main replacement**
- Alternative: **Electric Advantage Program**
  - Goal: Abandon leak prone mains and gas services
  - Target: Specific radial gas main segments
  - Offer: 100% of weatherization and electrification costs
- Traditional Solution: **Gas service replacement**
- Alternative: **Energy Exchange Program**
  - Goal: Abandon aging gas services
  - Target: ~40k buildings with pre-1972 services
  - Offer: Up to \$20k for electrification of gas appliances



### Key messages

- Multiple decarbonization pathways
- Coordinated electric, gas & steam plan
- Affordability and reliability remain key

# Integrated Long-Range Plan





# NGA Energy Innovation Summit

**Brian Welsch, Vice President**

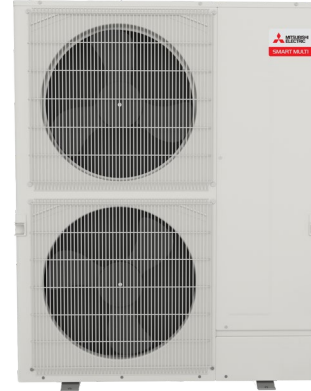
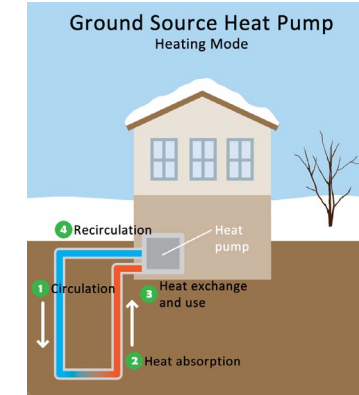
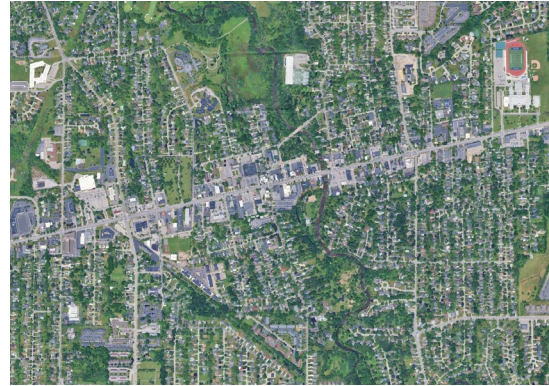
National Fuel Gas Distribution Corporation

# NPA: Avoiding Traditional LPP Replacement

## National Fuel NPA Project | Highland Drive | Village of Williamsville, NY

### Project Background

- Replace ~10,000 ft low pressure LPP
- Install medium-pressure plastic main
- 176 homes / services
- Total cost **\$1,550,000 (~\$8,800 per home)**
- No upstream capacity constraints or issues



### NPA Bid Options

- Electrification via ccASHP
- Electrification via GSHP
- Delivered fuels (e.g., propane)
- Other

### NPA Solicitation

- Invited 233 vendors to Bid Meeting
- **Received 1 final bid for electrification via ccASHP**

### NPA Analysis

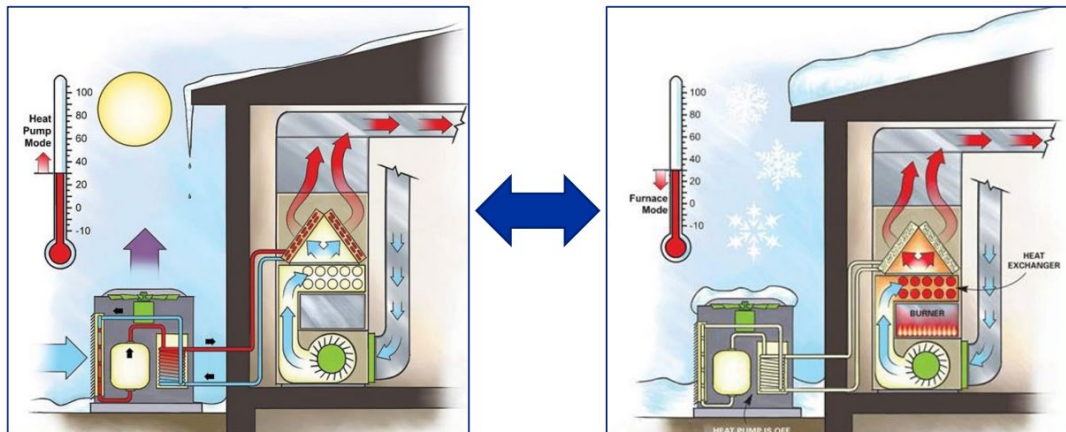
|                          |                   |
|--------------------------|-------------------|
| Total Cost               | \$6.8MM *         |
| <b>Avg Cost per Home</b> | <b>\$38,500 *</b> |
| Societal Cost Test       | 0.49              |
| Utility Cost Test        | 0.27              |
| Ratepayer Impact Measure | 0.29              |

\* Excludes electric grid upgrades, weatherization, and assumes 100% customer conversion

# NPA Alternative: Hybrid Electrification

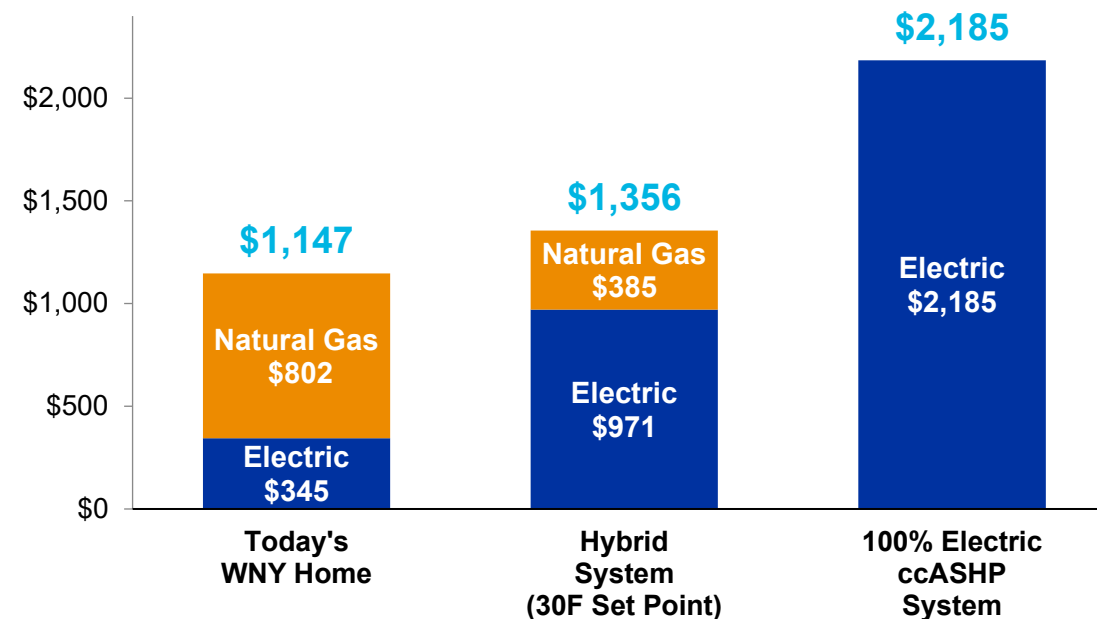
## Traditional Hybrid Heating

- ASHP paired with High Efficiency Furnace
  - System change over 30-40 F
  - Reduces customer emissions by 31%-57%<sup>(1)</sup>
  - Lower upfront and operating costs
- Use controls to optimize emissions reductions and lower energy costs
- Facilitates customer acceptance of ASHPs



## Residential Hybrid vs. All-Electric: Cost Comparison<sup>(2)</sup>

Average Annual Household Utility Costs (HVAC Usage Only)



| WNY Home Heating & Cooling: Avg. Annual Energy Usage                          |           |           |            |
|-------------------------------------------------------------------------------|-----------|-----------|------------|
| Gas                                                                           | 82 Mcf    | 39 Mcf    | 0 Mcf      |
| Electric                                                                      | 1,900 kWh | 5,300 kWh | 12,000 kWh |
| WNY Upfront HVAC Equipment Costs (before incentives / credits) <sup>(3)</sup> |           |           |            |
|                                                                               | \$9,500   | \$15,000  | \$32,000   |

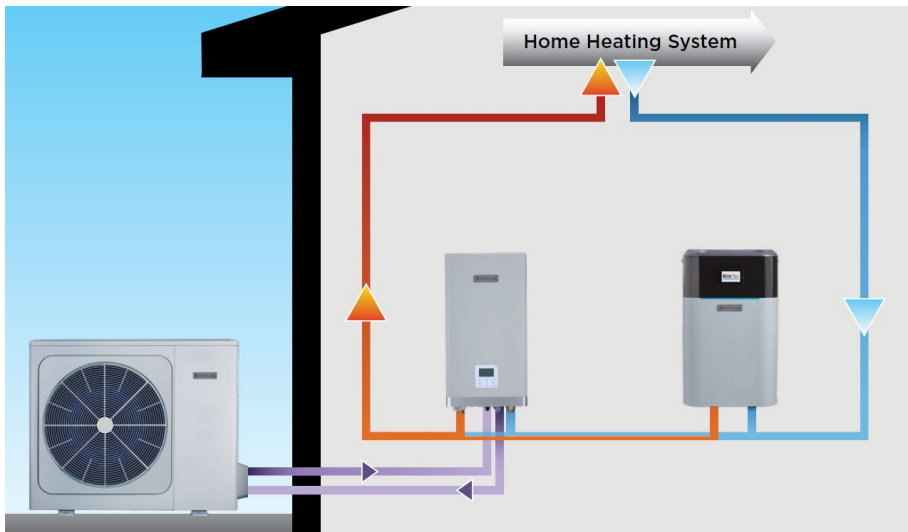
(1) \*Based on GTI Hybrid (Dual-Fuel) Heating Emissions and Cost Comparison Tool for Buffalo, NY 1980 Vintage Home with a 30F to 40F changeover set point. Zero Emissions grid assumed

(2) Source: CJ Brown analysis. Assumes retail electric price of 18¢ /kWh and retail gas price of \$9.79/Mcf (Twelve-month average ending July 2025 for WNY).

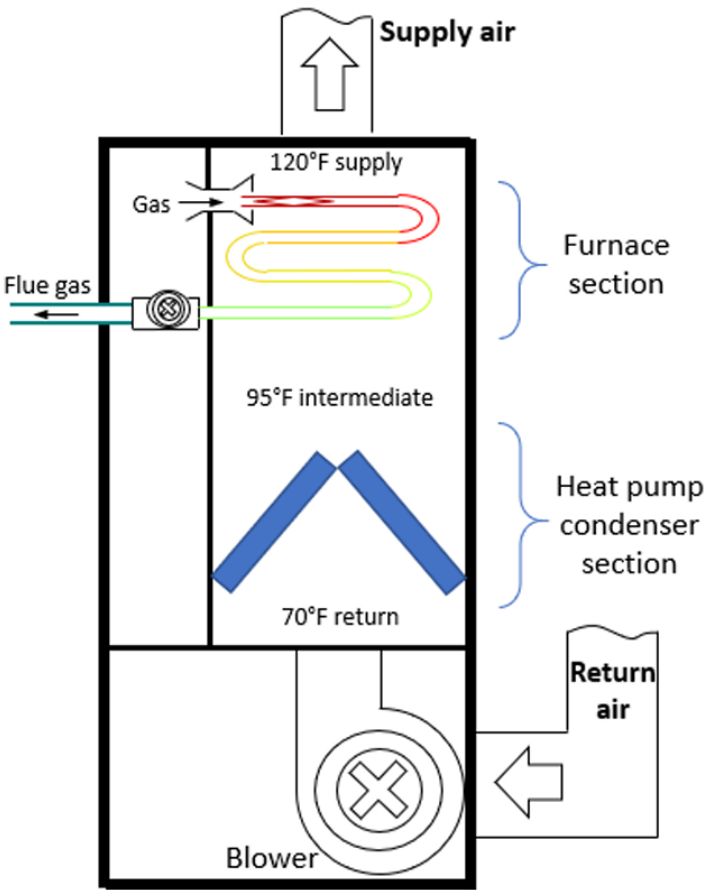
(3) Installation costs assume electric panel and airflow upgrades are required for a ccASHP. Weatherization costs and current available utility incentives or tax credits are not included.

# Hybrid Heating – New and Emerging Technologies

## Hybrid Boiler Heating



## Simultaneous Operation Forced Air Hybrid Heating



## Residential Gas Absorption Heat Pumps





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