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# It's Electrifying! What is Realistic? Vehicles, Homes or Everything?

## An Economic Perspective on Residential Electrification

New England Energy Conference and Exposition

June 5, 2018

# ICF Energy Solutions



- IT and Cyber Security
- Gas Customer Acquisition Analytics
- Risk and Vulnerability Analysis
- Environmental Compliance
- E&P Permitting

# Policy-Driven Electrification of Residential Heating Loads

Discussion of residential electrification as a way to reduce GHG emissions is widespread.

However, the public policy debate on residential electrification has been incomplete.

Public  
Policy  
Discussion

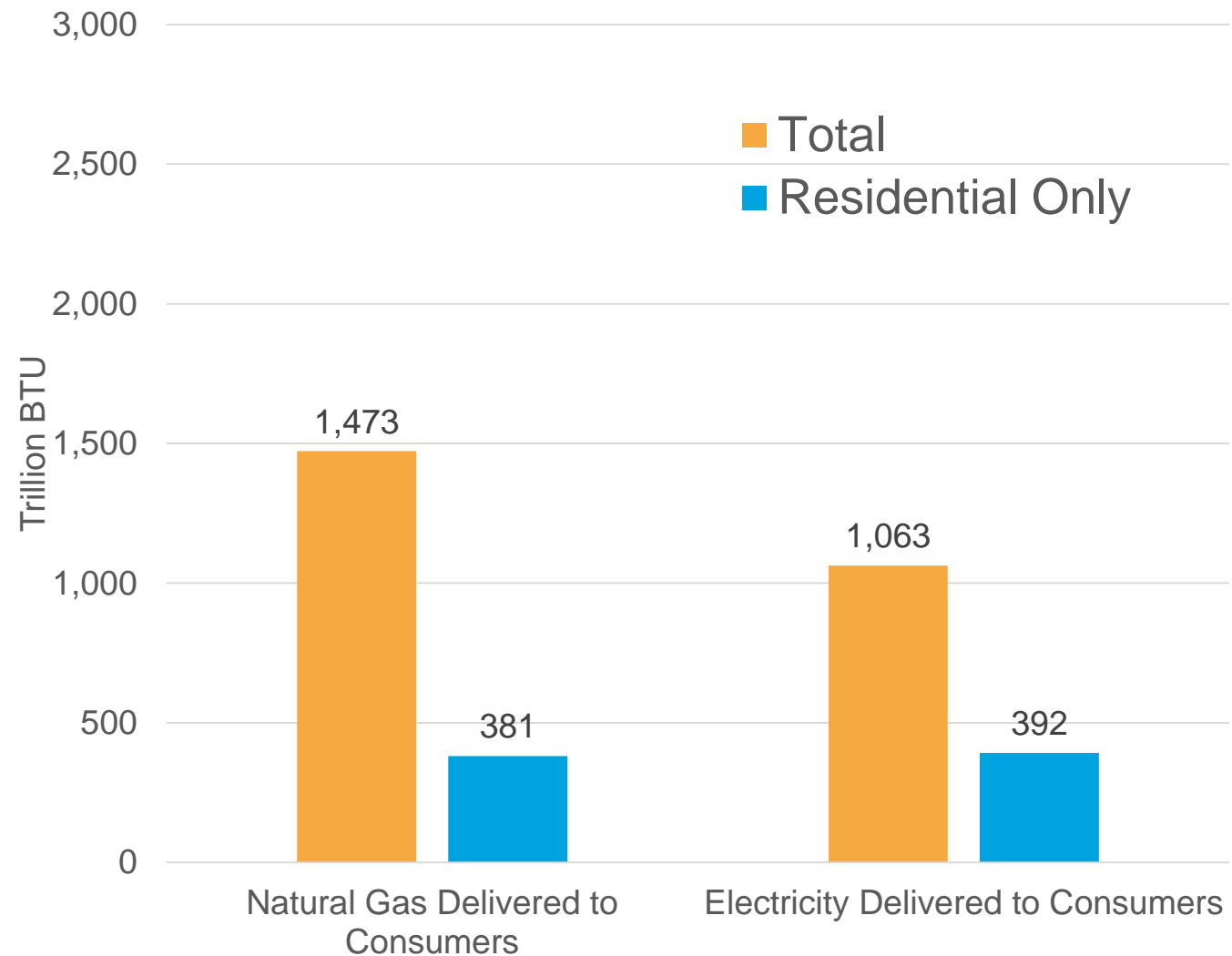
# Policy-Driven Electrification of Residential Heating Loads

## Key Questions To Be Answered Before Setting Policy

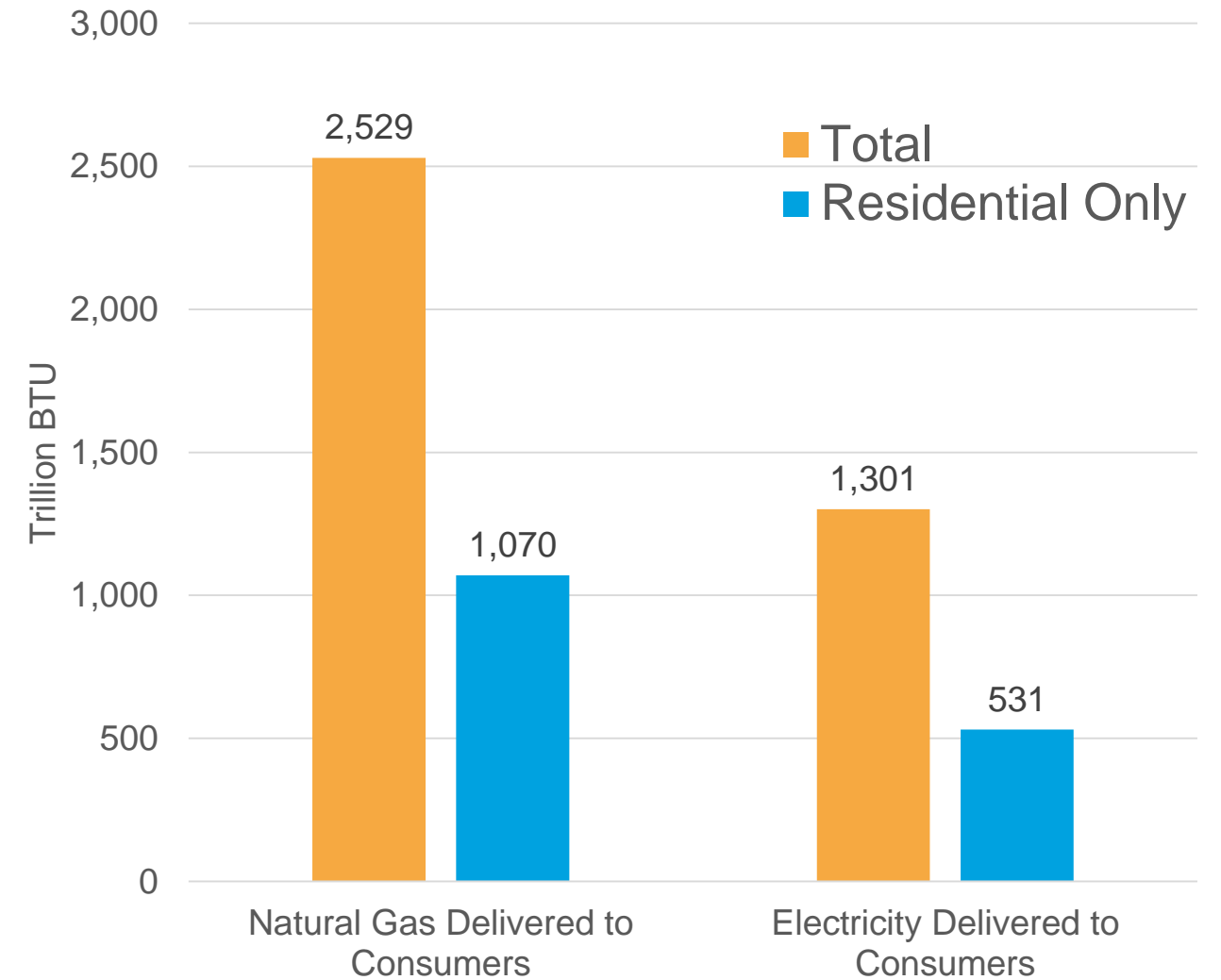
- Would it actually reduce emissions?
- How would it impact the electric grid?
- What would the impacts be on consumers?
- Are there better (more effective, lower cost) approaches to reducing emissions?

# Natural Gas' Role is Critical in Both Total and Peak Energy Delivery

## Average Monthly Energy Delivery



## Peak Month Total Energy Delivery



# Impacts of Residential Electrification in the Northeast

- 1. In the Northeast, residential electrification could increase GHG emissions.**
  - Depending on power generation policy.
  - Reduction potential is less than 1% of annual GHG emissions.
- 2. In the Northeast, Policy-Driven Electrification would double individual customer energy costs from \$2,300 per household per year to:**

**\$4,600 per household**



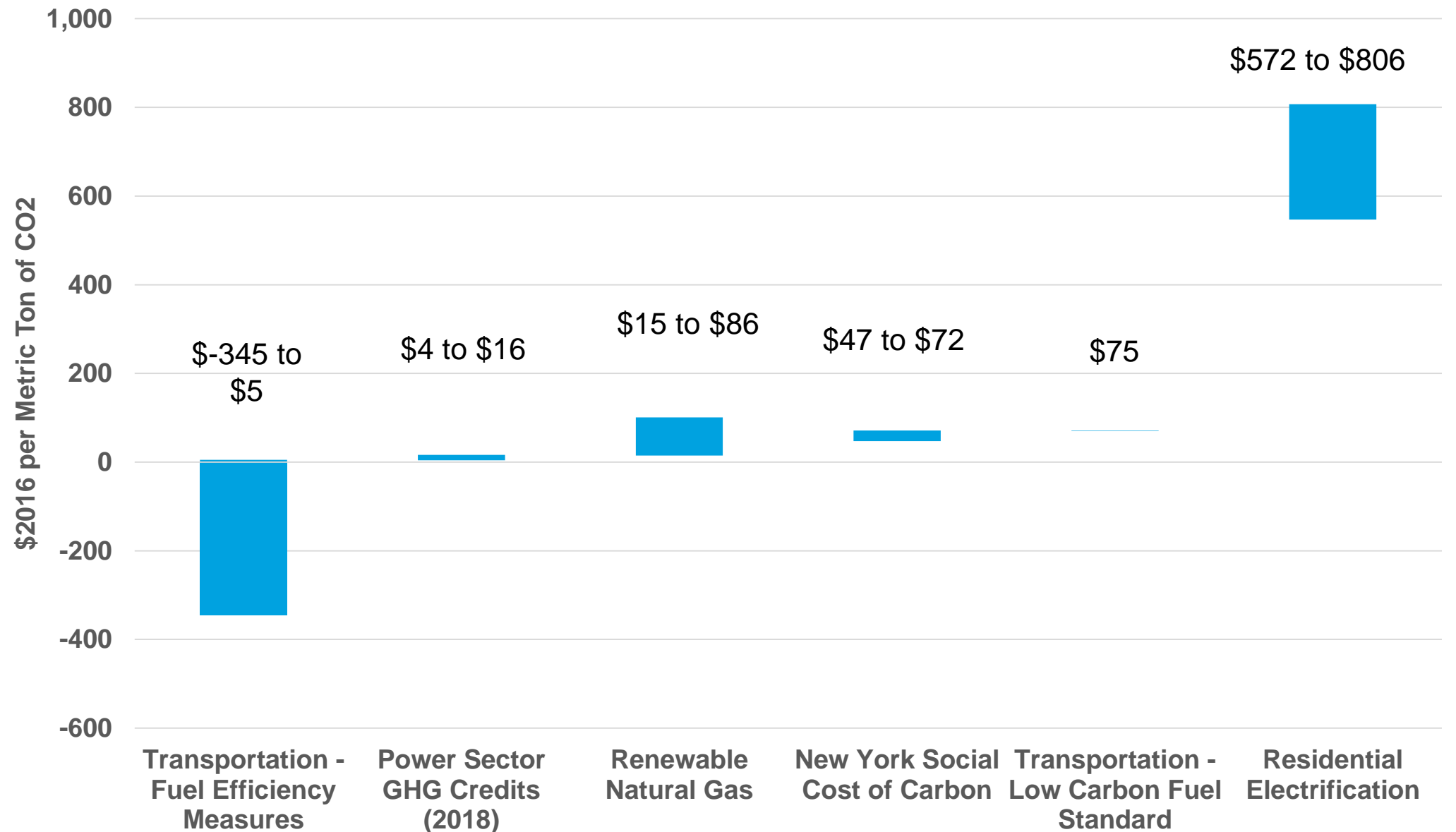
# Impacts of Residential Electrification

3. **And to the economy**— The total increase in energy costs in the Northeast range from **\$393 Billion to \$417 Billion** (real \$2016)
4. **With significant impacts (and costs) on the electric sector:**  
**\$ 115 to \$138** billion in investment in new generating and transmission assets.



**Residential Electrification is a Much More Expensive Approach to Reducing Emissions than other Available Alternatives**

## Emissions Reductions Costs for Alternative Approaches to Reducing CO2 Emissions





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