



# New Hampshire State Energy Strategy: Policy Gap Analysis

*Presented to:*

*State Energy Advisory Council*



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**1. » Strategy Development Process Overview**



**2. » Gap Analysis Results**

- a) Gaps in Energy Efficiency
- b) Gaps in Fuel Choice & Availability
- c) Gaps in Power Generation Infrastructure



**3. » Energy Efficiency Policy Discussion**



**4. » Next Steps**



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a) Gaps in Energy Efficiency

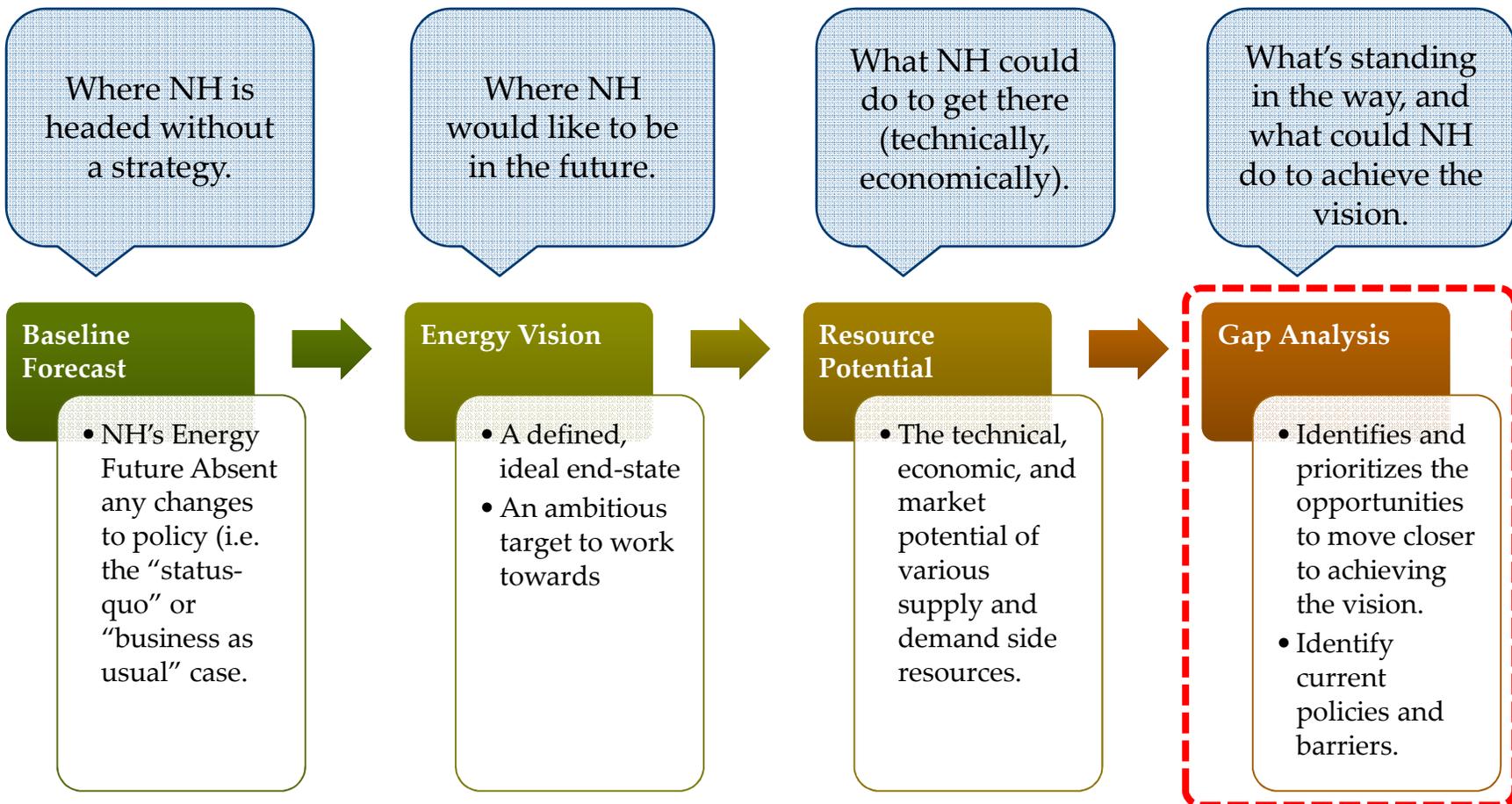
b) Gaps in Fuel Choice & Availability

c) Gaps in Power Generation Infrastructure

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To date, Navigant has prepared the BAU forecast, developed the energy vision, analyzed the resource potential and identified the biggest opportunities to move NH closer to achieving the vision.



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## Navigant built upon publicly available information to estimate the potential of 32 resources related to energy efficiency, thermal & transportation fuels, power generation, and energy infrastructure.

### Energy Efficiency

- Residential Electric Efficiency
- Residential Thermal Efficiency
- Commercial Electric Efficiency
- Commercial Thermal Efficiency
- Industrial Electric Efficiency
- Industrial Thermal Efficiency
- Light Duty Vehicle Fuel Economy
- Medium and Heavy Duty Vehicle Fuel Economy
- Avoided Vehicle Miles Traveled

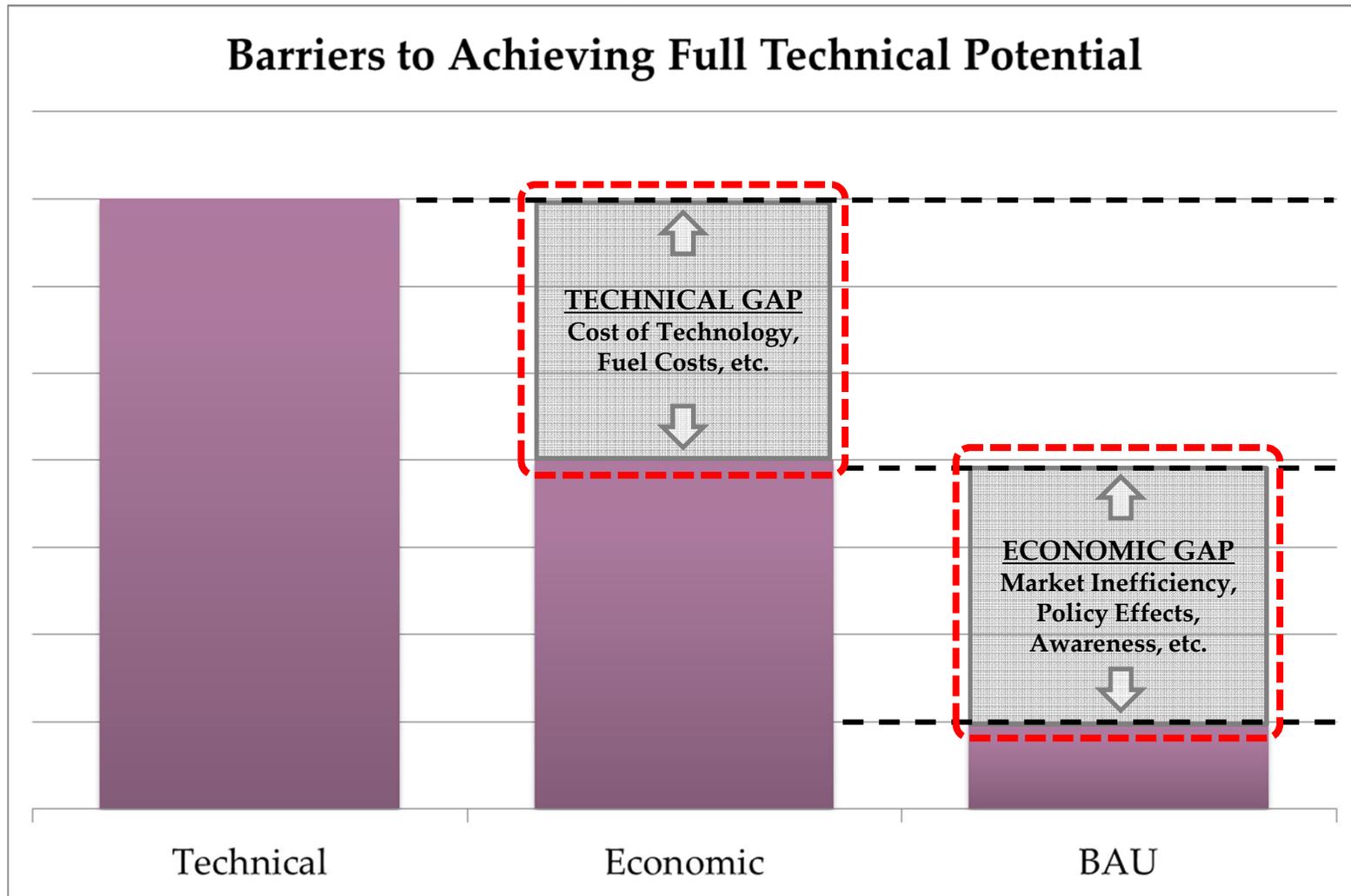
### Thermal & Transportation Fuels

- Residential Natural Gas Thermal
- Residential Biomass/Wood Thermal
- Residential Electric Thermal
- Residential Geothermal
- Residential Solar Thermal
- Commercial Natural Gas Thermal
- Commercial Biomass/Wood Thermal
- Commercial Electric Thermal
- Commercial Geothermal
- Industrial Natural Gas Thermal
- Industrial Biomass/Wood Thermal
- Industrial Electric Thermal
- Transportation Electrification
- Transportation Biofuel Consumption
- Transportation Natural Gas

### Power Generation & Energy Infrastructure

- Residential Scale Distributed Solar PV
- Utility / Commercial Scale Solar PV
- Onshore Wind Resources
- Offshore Wind Resources
- Biomass Resources
- Hydroelectric Resources
- Combined Heat and Power
- Electric Storage

The economic and technical gaps help identify the biggest opportunities in the electric, thermal, and transportation sectors.



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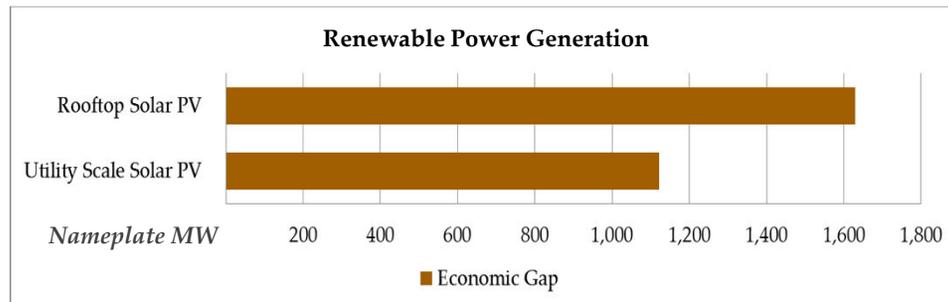
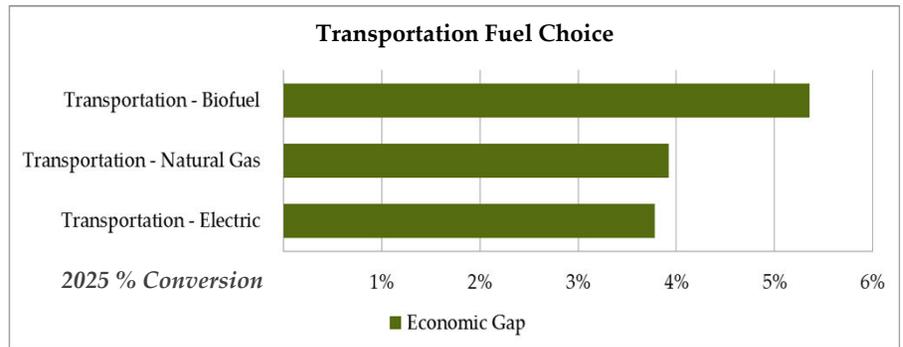
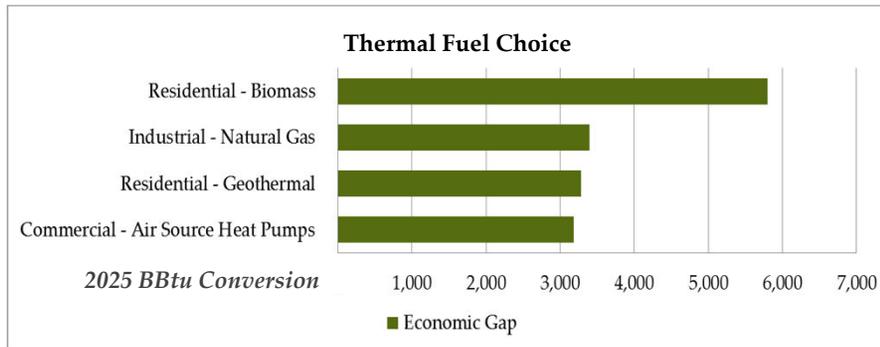
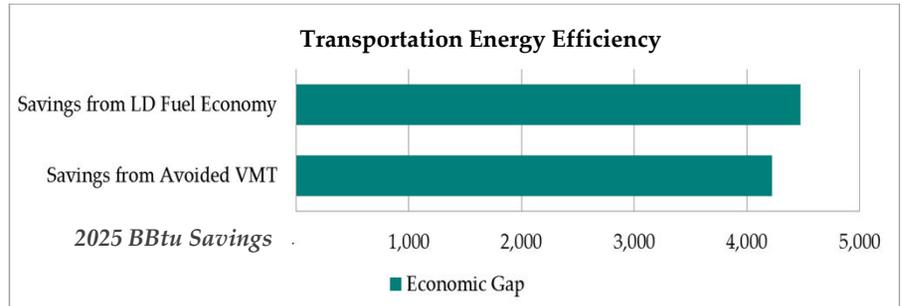
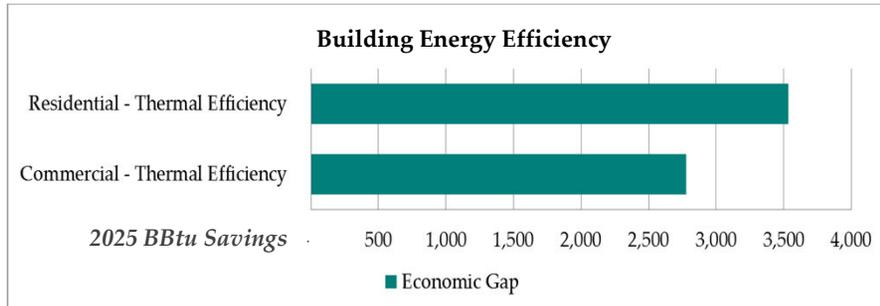
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**Based on findings from the revised resource potential study, Navigant identified the following resources as presenting the best opportunities for altering the course of New Hampshire’s energy future.**



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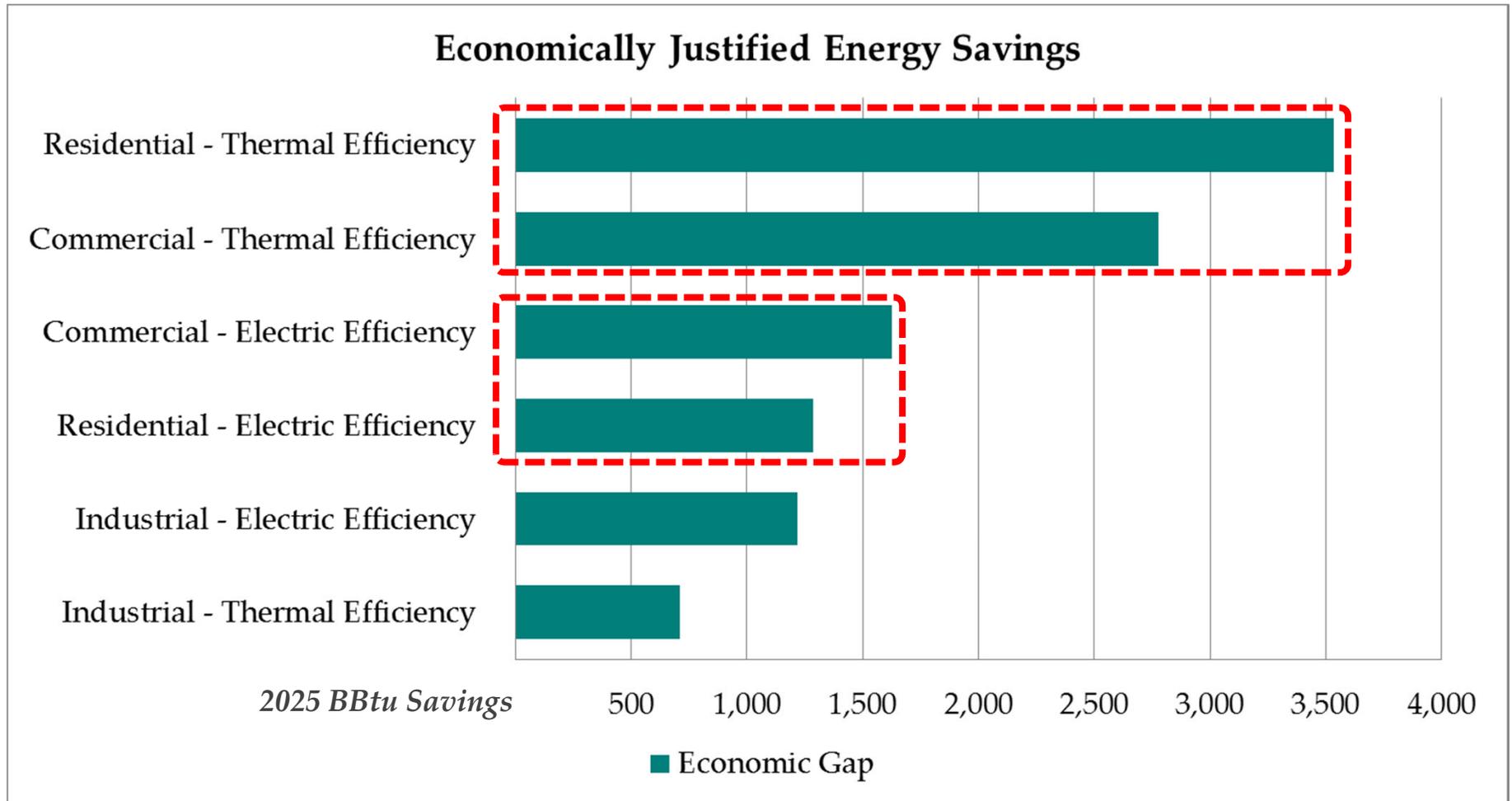
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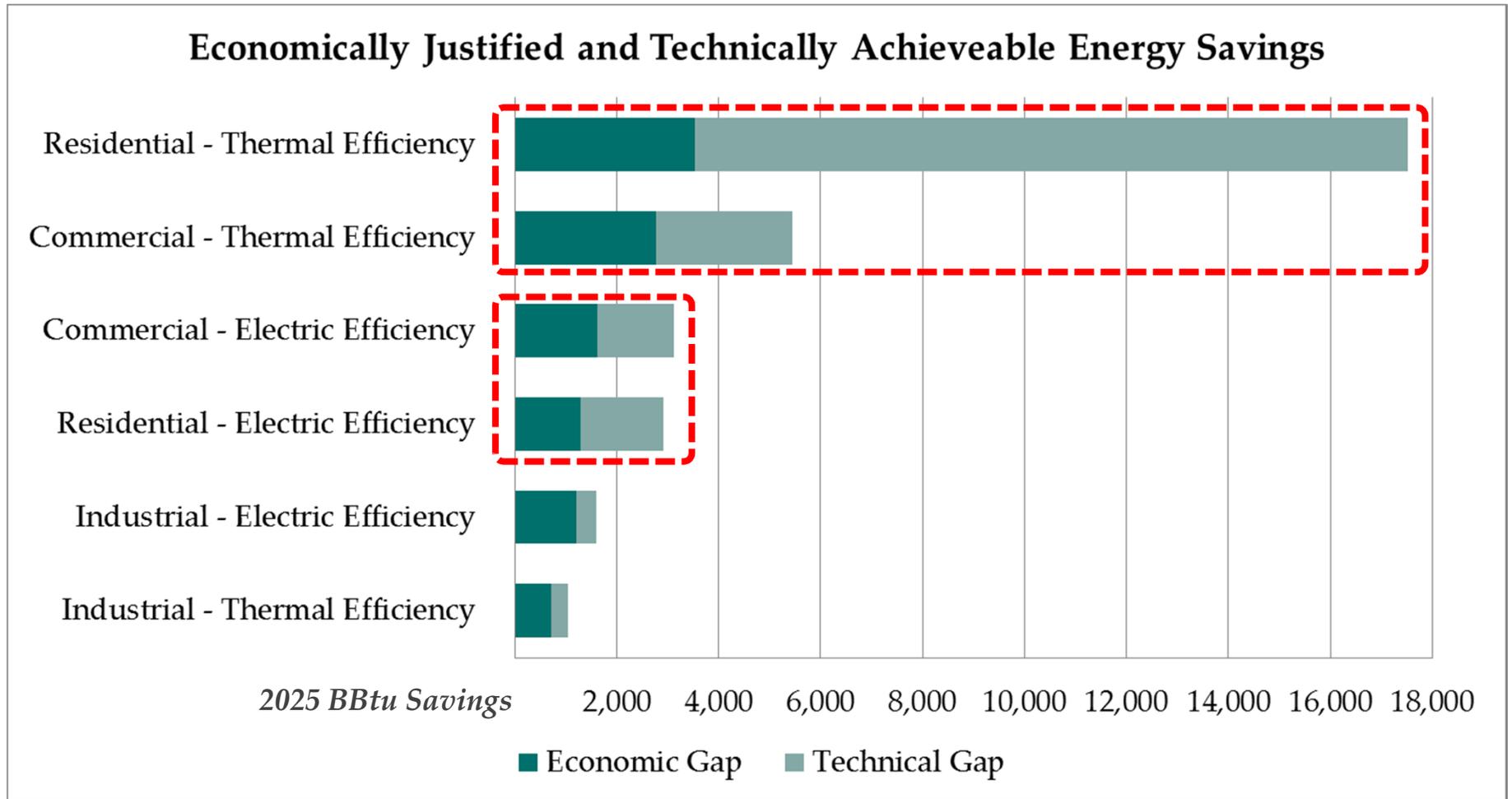
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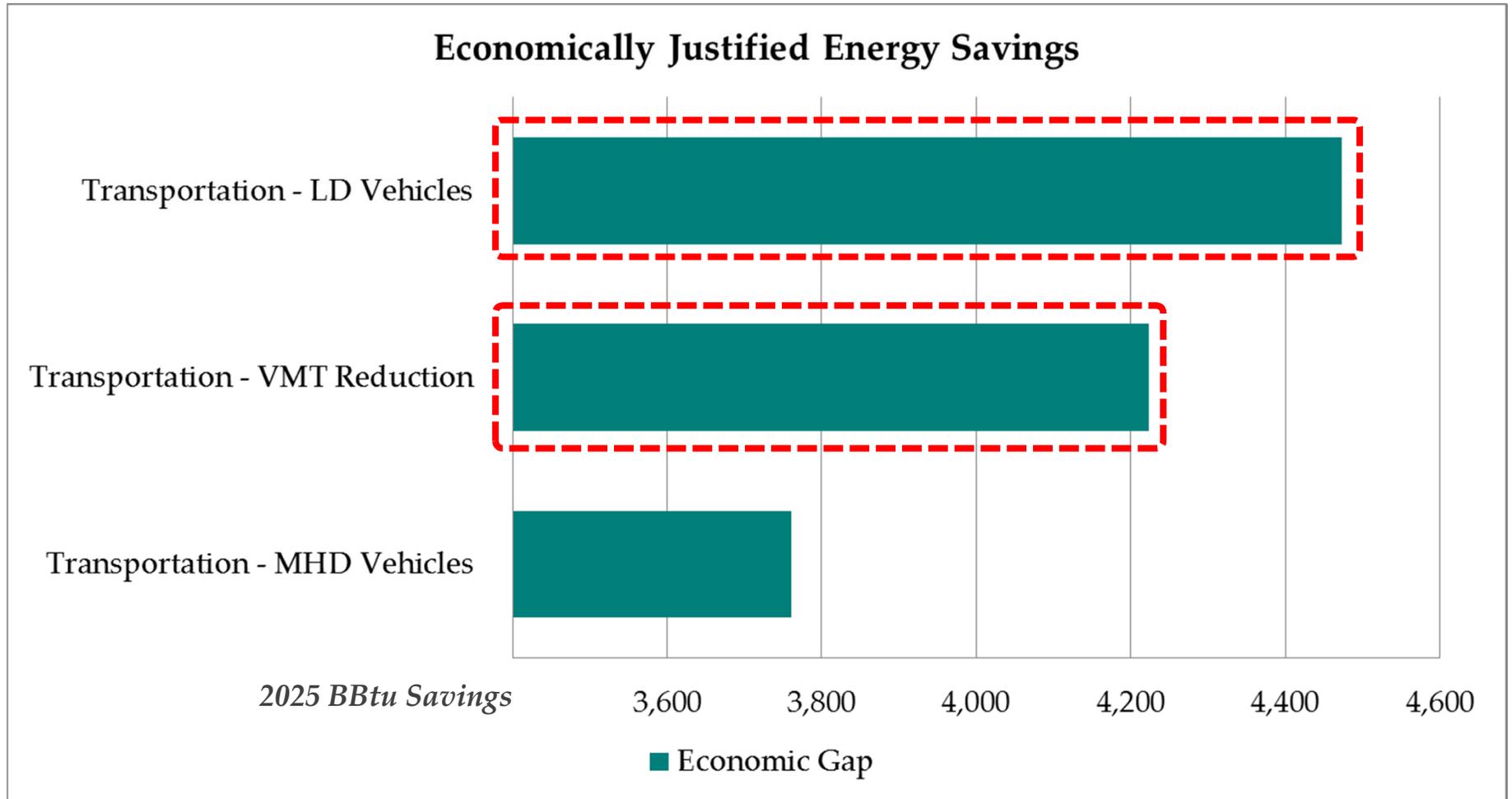
**Residential and commercial thermal efficiency measures present the greatest opportunity for economically justified savings to the consumer.**



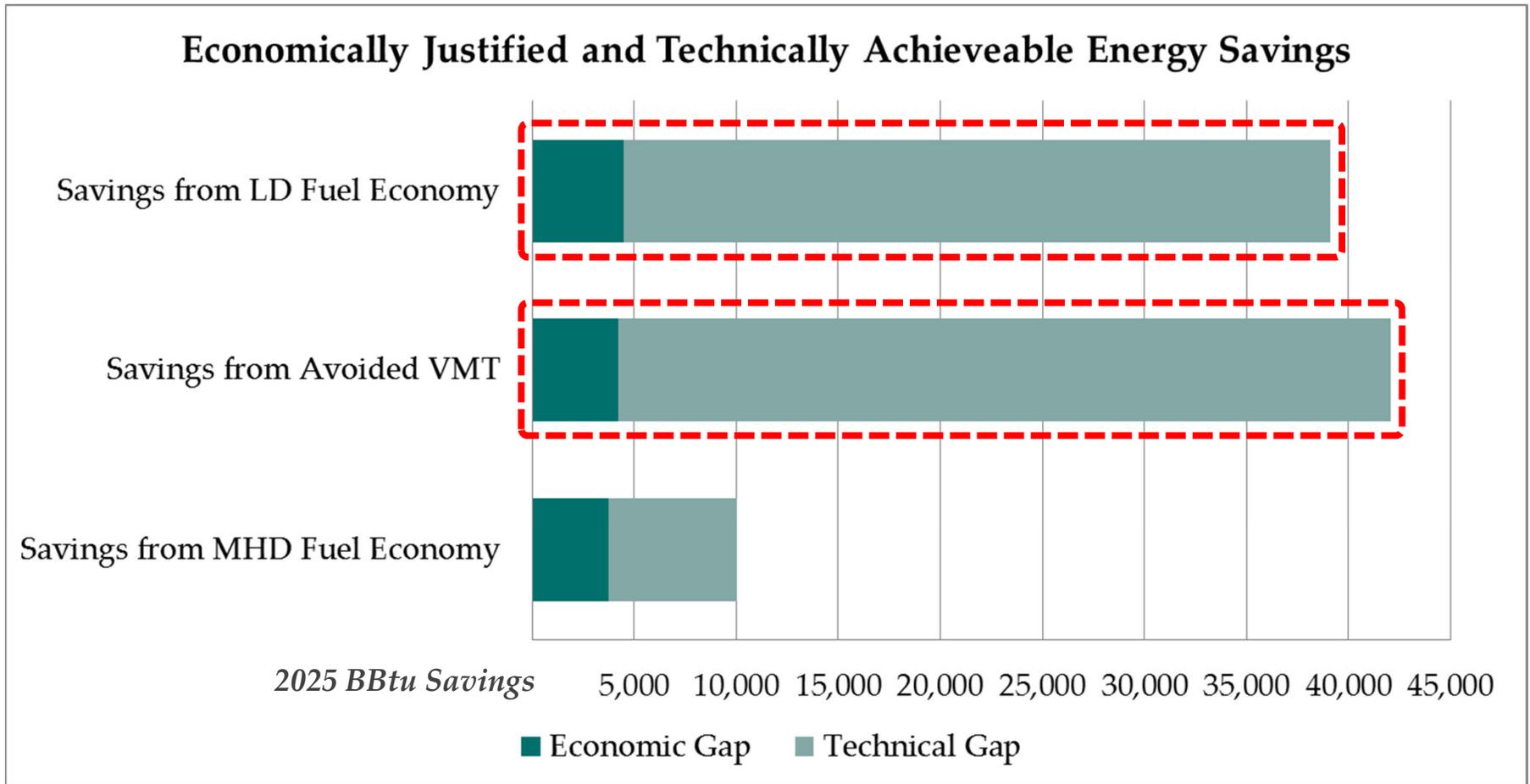
**The technical gap in thermal efficiency closes as the cost of fuel rises and energy efficiency measures become more cost effective, making these initiatives more attractive as long term savings strategies.**



**The economically justified savings from gains in efficiency in the transportation sector are on par with those from the residential and commercial thermal sector.**



**While the technical gaps in efficiency from increased passenger vehicle fuel economy and VMT reduction are large, it makes these initiatives attractive as long term strategies.**



LD = Light Duty Vehicles, MHD = Medium & Heavy Duty Vehicles, VMT = Vehicle Miles Traveled

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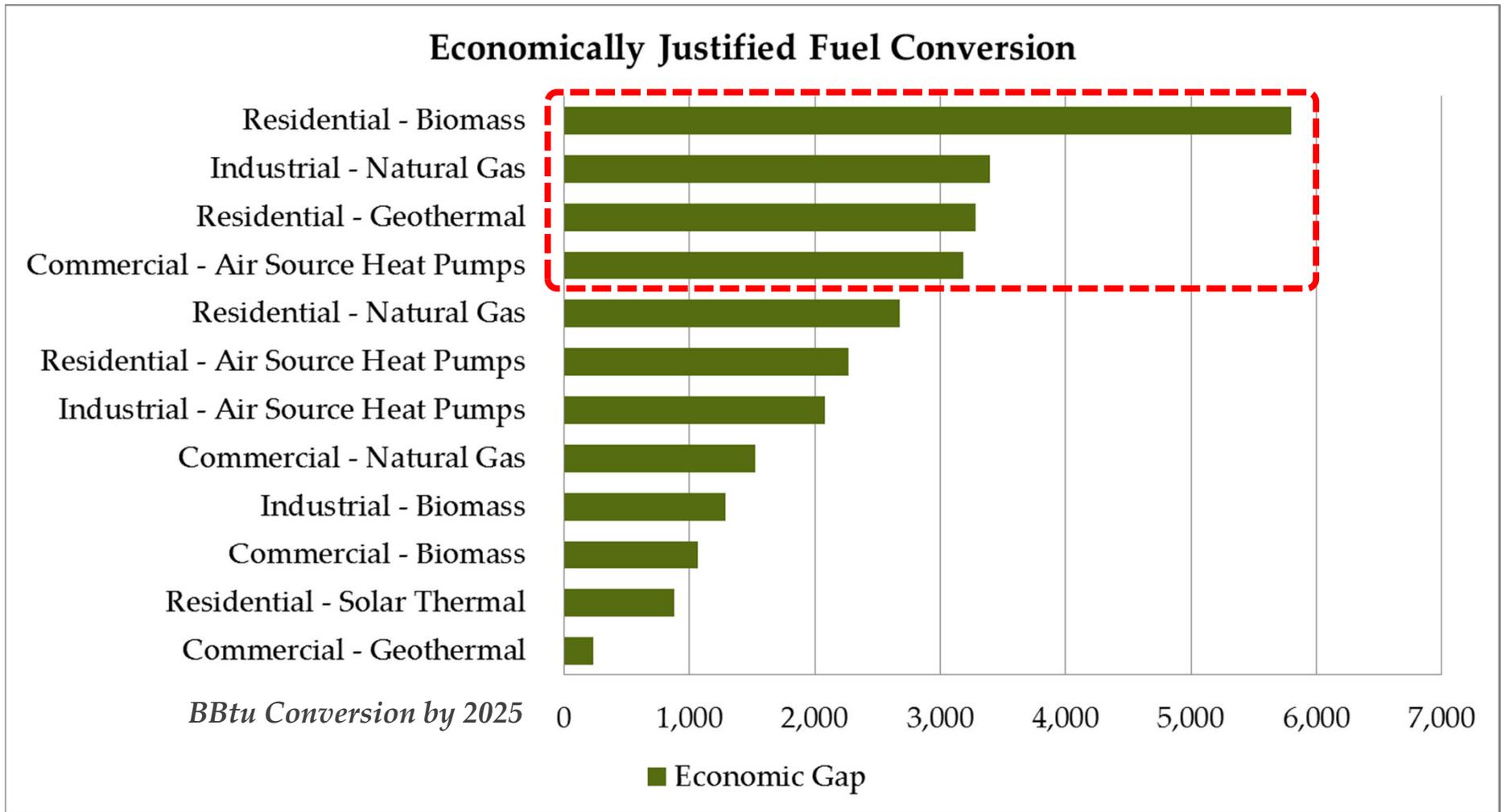
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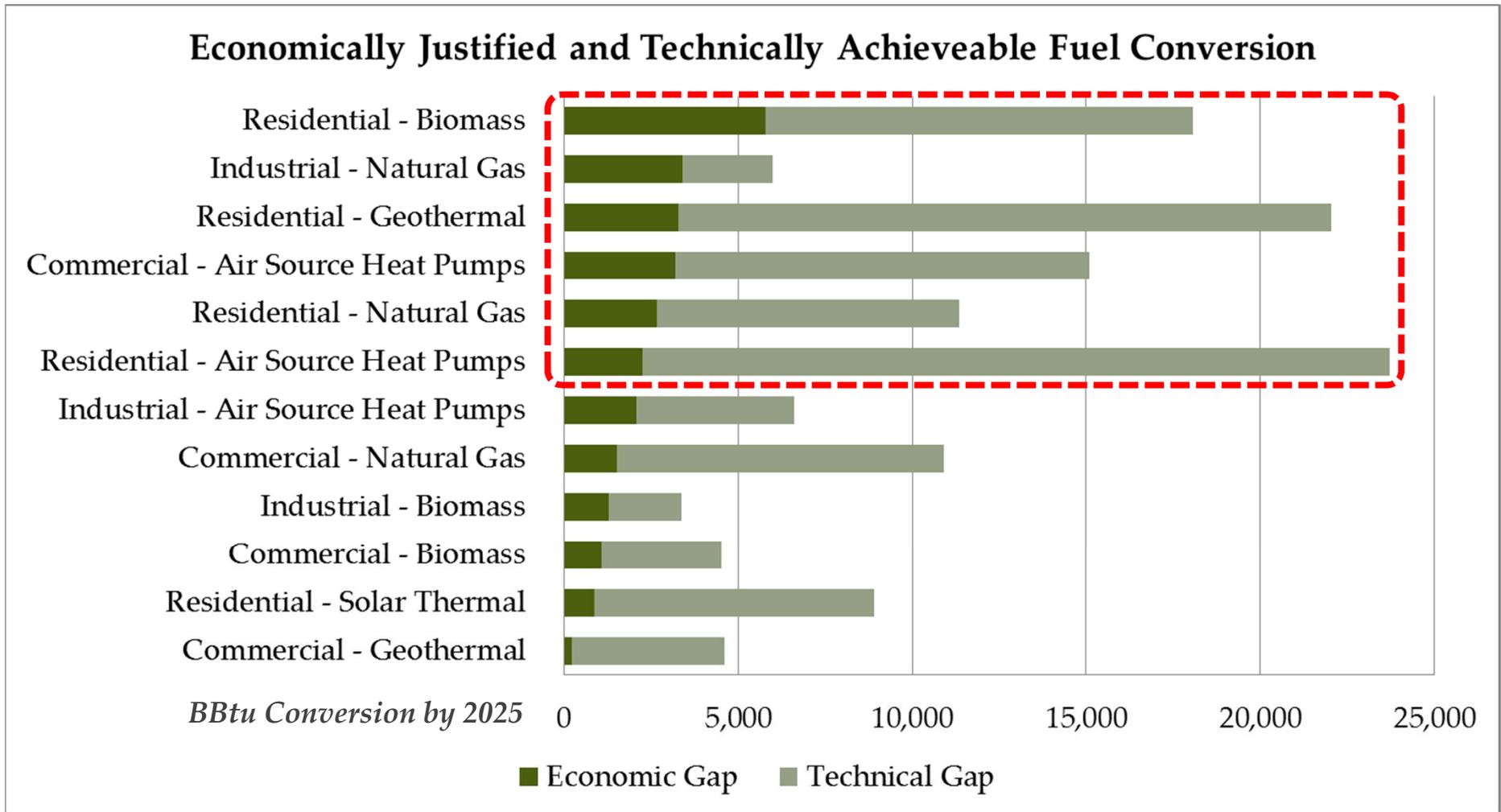
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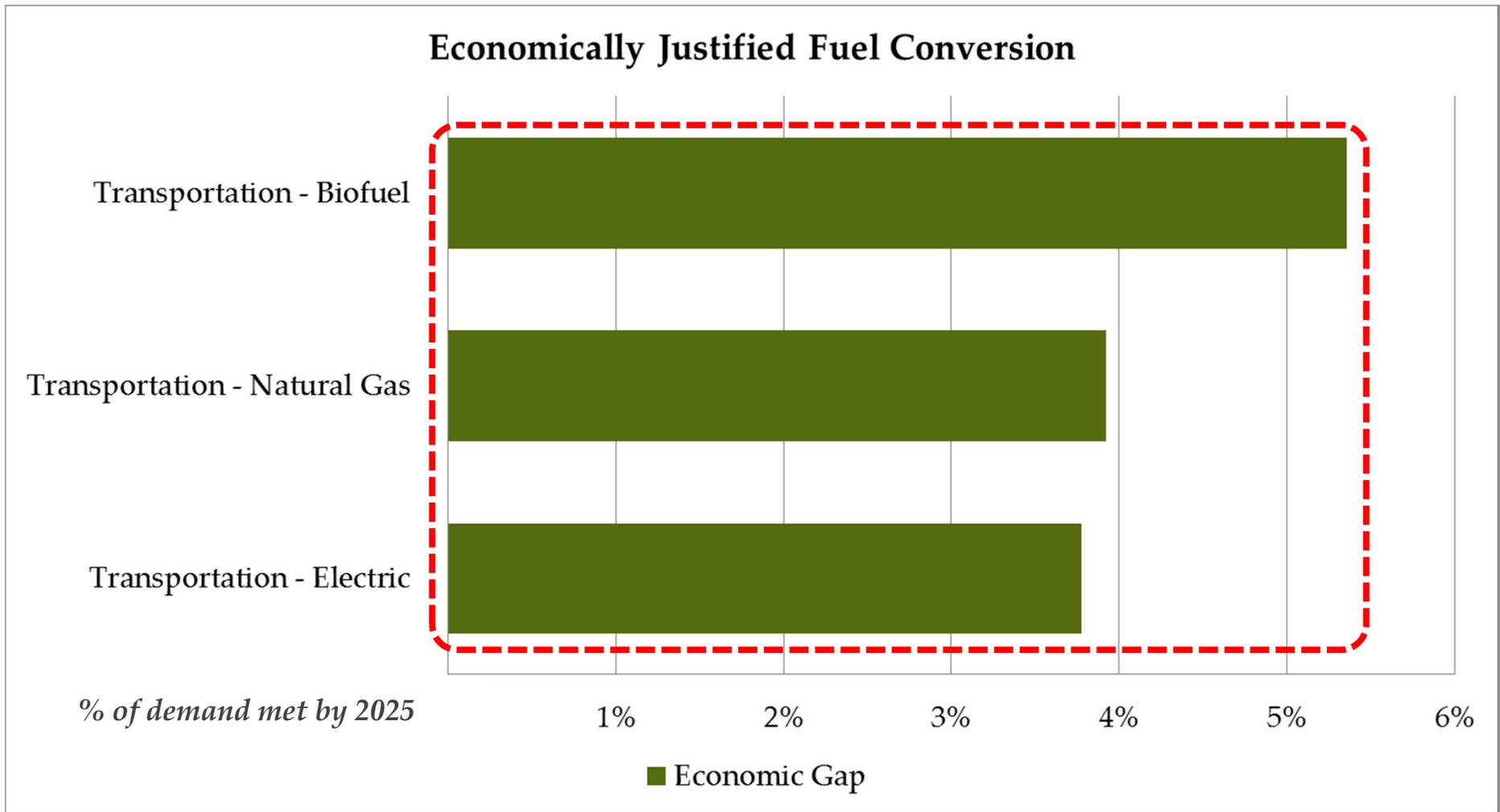
## Numerous fuels provide economic alternatives across the residential, commercial, and industrial sectors.



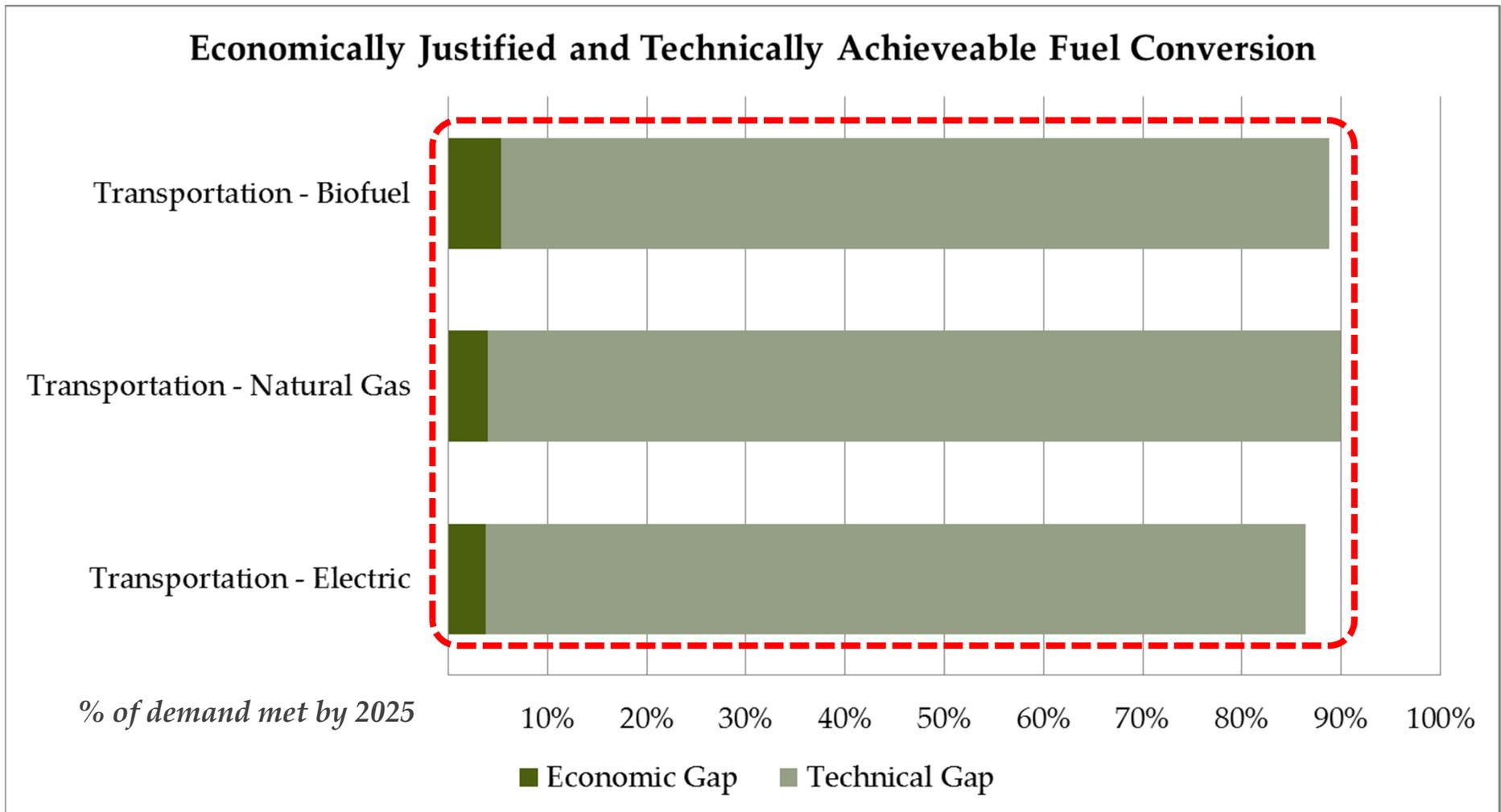
**For several fuels, the technical gap suggests additional opportunity with rising fuel prices and reductions in cost of the technology.**



**Alternative fuels in transportation are on relatively even footing in terms of their current economic justification.**



**Because the technical gap is so large, flexible policies that can adapt to changing AFV economics are critical to long term success.**



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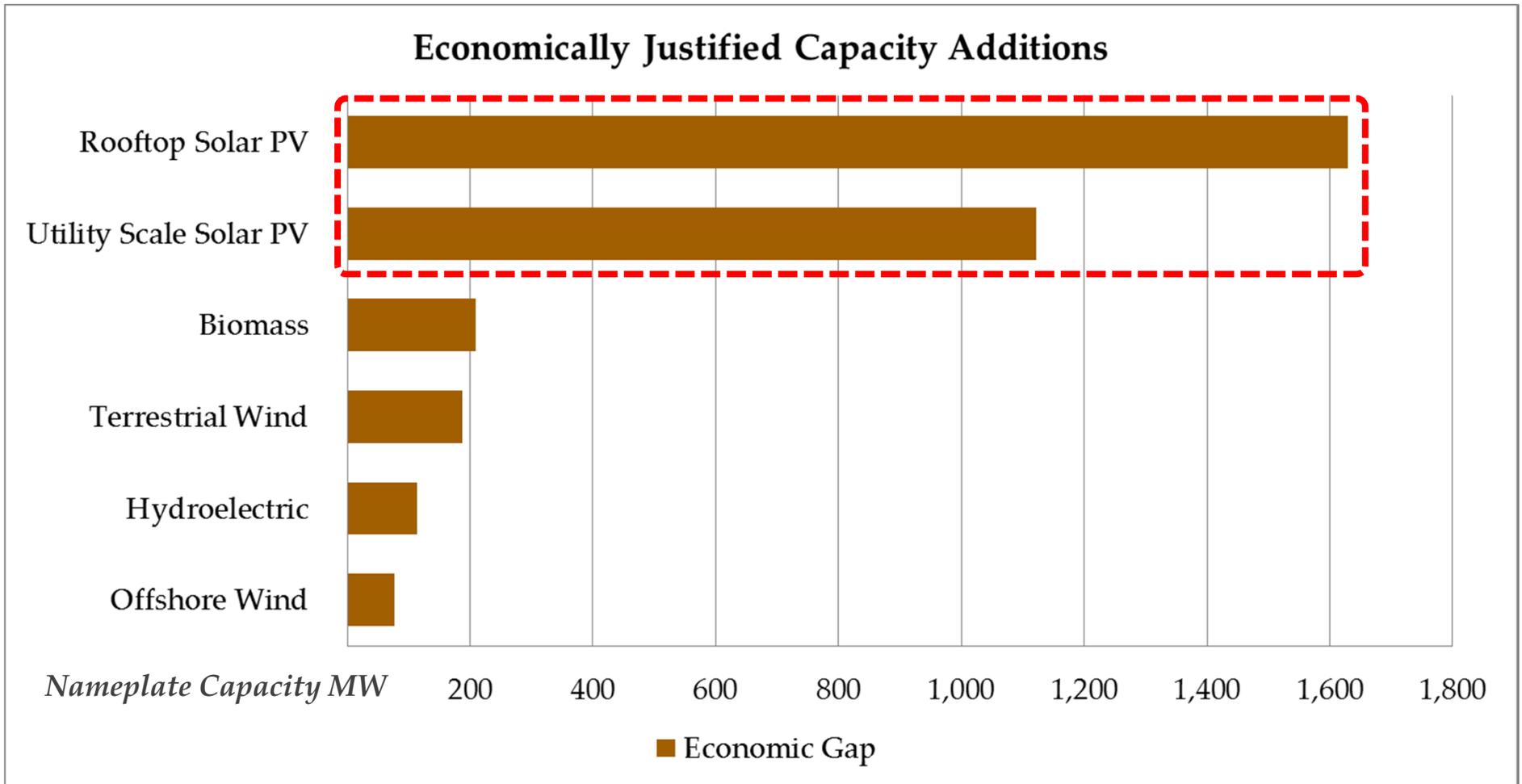


**c) Gaps in Power Generation Infrastructure**

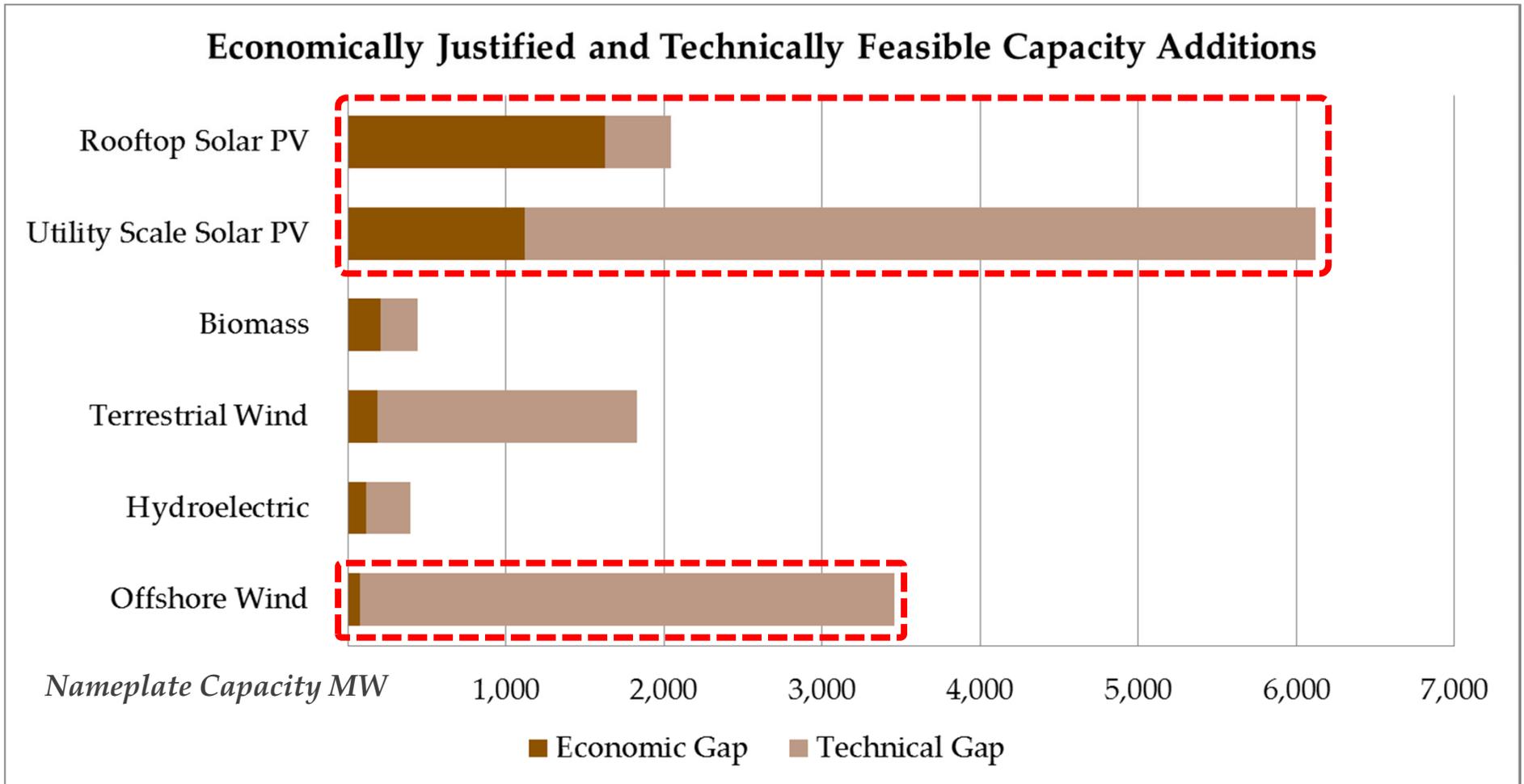
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**Rooftop and utility scale solar PV provide the greatest opportunity for expansion of renewable power generation.**

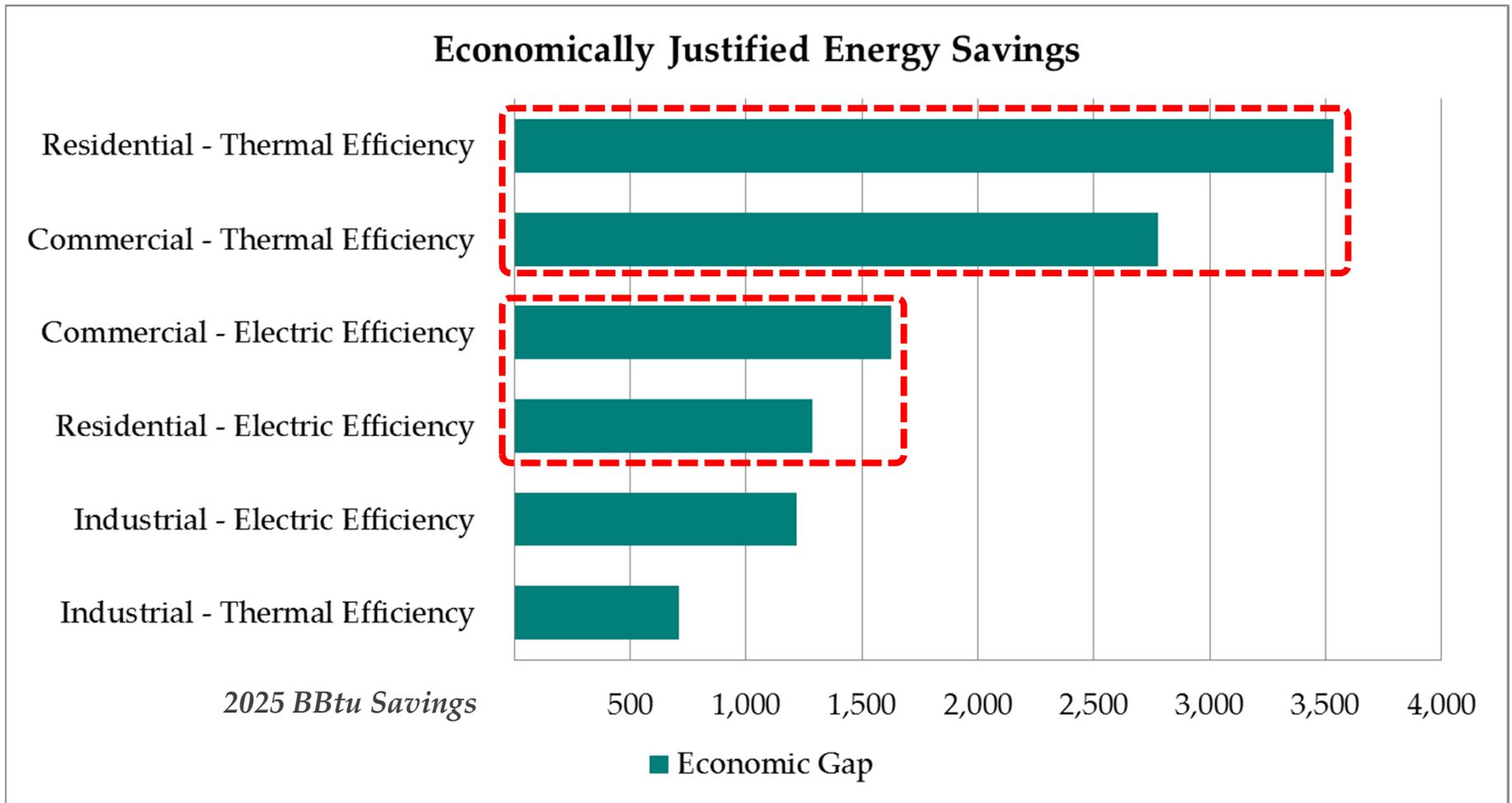


**The technical potential of offshore wind also makes it an attractive candidate as the costs of conventional power generation rise.**



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# New Hampshire's energy future can feature best in class efficiency measures to help lower bills and emissions.



## Strategies to improve energy efficiency may build on existing policies or borrow from the best-in-class initiatives of other states.



## New Hampshire offers rebates primarily through the utility-administered CORE Energy Efficiency Programs.

### CORE Energy Efficiency Programs/NH Saves

- Residential programs for:
  - Whole Home Weatherization (Additional separate program for low income customers)
  - Energy Star lighting, appliances, hot water, and HVAC rebates
  - New construction (Energy Star Homes)
- Rebates for lighting, occupancy sensors, thermostats, coolers, motors, variable frequency drives, compressors, etc.

### Target Sectors

- Residential, Small & Large Business, Municipalities

### Challenges / Barriers

- Requires sustainable and adequate funding source(s)
- Needs stronger focus on market transformation, financing options, goal setting
- Disincentives for utilities keeps a foot on the brake
- More education and outreach needed to drive change without rebates

### Best-in-class Program Elements

- Massachusetts, California, Oregon and New York are consistently ranked in the top 5 by ACEEE
- These states are spending more \$/customer and typically achieve more savings/\$

Regulatory  
Policy &  
Structures

Finance &  
Funding

Innovation &  
Expertise

Outreach &  
Education

Other

## Loan programs to improve building energy efficiency are available through various fragmented initiatives.

### Revolving Loan Programs

- Loan Programs
  - Enterprise Energy Fund (EEF)
  - Business Energy Conservation Revolving Loan Fund
  - Municipal Energy Reduction Fund (MERF)
  - Better Buildings Revolving Loan Fund
- On-Bill Financing

### Target Sectors

- Municipalities, Commercial, Industrial, and Agricultural Businesses, Non-profits, Residential

### Challenges / Barriers

- Requires sustainable funding sources (currently done in batches, with revolving funds yielding minimal or no returns)
- Requires longevity of funding agencies to be sustainable
- Need to focus more on leveraging private funds/traditional lending
- Consumer confusion due to number of programs available and lack of standardization

### Best-in-class Program Elements

- The Connecticut Energy Efficiency Fund and Clean Energy Finance and Investment Authority have set up a permanent loan program
- The MassSave loan program uses private banks, and funds 0% loans

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Other

## Property Assessed Clean Energy (PACE) funding is available in New Hampshire, and may provide inroads for private investment.

### PACE Financing

- NH has PACE on the books, current legislation to modify C-PACE
- Implementing PACE could provide for:
  - 100% financing of energy efficiency upgrades, paid back through property taxes
  - Financing from municipalities through municipal bonds, or by private party

### Target Sectors

- Commercial and industrial building owners

### Challenges / Barriers

- Bank loan vs. PACE lien positions create issues between banks, mortgage lenders and municipalities
- Run at a municipal level so it can be difficult to scale and hard to administer for disparate small municipalities.

### Best-in-class Program Elements

- Active PACE programs in 13 states, with ten programs in California
- Several programs make the lease a sub-lien (VT & ME) or involve the banks in the approval process (CT)

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Other

## No Energy Efficiency Resource Standard or other specific efficiency savings goal exists in NH, but these have been recommended.

### Energy Efficiency Resource Standards (EERS)

- EERS establish specific targets for energy savings that utilities or non-utility program administrators must meet through customer energy efficiency programs
- EERS can apply to either electricity or natural gas utilities, or both, and can be adopted through either legislation or regulation

### Target Sectors

- All sectors

### Challenges / Barriers

- Mixed incentives for utilities unless rate design is addressed
- Need strong oversight and frequent review of goals and progress

### Best-in-class Program Elements

- 26 States have enacted EERS, with the strongest requirements in Massachusetts, Rhode Island, and Vermont, which require almost 2.5% savings annually
- Procurement of all cost-effective energy efficiency as first-priority resource

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Other

## High efficiency building codes and appliance standards save energy in new construction, but municipalities need help with compliance.

### Current Energy Building Codes

- New Hampshire State Building Code for residential and commercial buildings is based on the 2009 IECC; 2012 IECC has not been adopted. (2015 coming soon)
- Building Energy Code Compliance Collaborative was established as part of the NH Energy Code Challenge, but as of June 2013 is no longer funded

### Target Sectors

- New construction and major renovations for all buildings

### Challenges / Barriers

- Lack of public awareness / market valuation of high efficiency buildings
- Lack of funding / staffing at local level for enforcement

### Best-in-class Program Elements

- Update to latest International Energy Conservation Code - MA
- Require that latest every new residential building must undergo performance testing - RI
- Code Assistance Center with a toll free # to provide assistance with the codes - VT

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## Modernizing utility rate design and economic incentives could prompt expansion of efficiency programs.

### Alternative Business Models for Utilities

- In NH, electric and natural gas utilities may propose rate design mechanisms to promote energy efficiency in rate cases on a case-by-case basis.
- Change rate design to reduce/eliminate “through-put incentive.”
- Reconciling rate adjustment mechanisms (either partial or full)

### Target Sectors

- Utilities

### Challenges / Barriers

- No clear incentive for utilities to propose restructuring rate design given lack of momentum on efficiency (chicken and egg dilemma)
- Need to ensure consumer protections

### Best-in-class Program Elements

- Decoupling would separate utilities profits from electricity or gas sales – removing conflicting incentive structures and opening the door for profitable energy efficiency programs

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## Which of the following options offer the best fit with NH's objectives?

**Expand upon  
existing CORE / NH  
Saves**

**Expand Loan  
Programs – Green  
Bank**

**Advance PACE  
Financing – Private  
Investment**

**Adopt an Energy  
Efficiency Resource  
Standard**

**Implement  
Building Codes &  
Appliance  
Standards**

**Promote Alternative  
Rate Design**

- *Does this target the biggest opportunities identified in the gap analysis?*
- *Does this approach fit well in NH?*
- *Does it effectively leverage private financing?*
- *Does it help address economic and energy disparities?*
- *Are there other considerations?*

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## **Navigant will continue the discussion of strategies addressing fuel choice, transportation options, power generation, and grid modernization in the upcoming meetings.**

### **Energy Efficiency Policy Road-mapping**

- Based on the today's discussion, Navigant will roadmap the highest priority initiatives, identifying key dates, stakeholders, and policy track ownership.

### **Fuel Choice and Transportation Options Policy Discussion**

- On April 11<sup>th</sup>, we'll continue our discussion of policy options focusing on thermal fuel choice and transportation.

### **Power Generation and Grid Modernization Policy Discussion**

- On April 21<sup>st</sup>, we'll return to continue the discussion of policy options focusing on power generation and grid modernization.

### **Draft Strategy Discussion**

- Draft Strategy Document Complete on May 1<sup>st</sup>.
- On May 16<sup>th</sup> we'll return with a presentation of the draft strategy.

# Key CONTACTS



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