

# Market Adoption Challenges for Thermal Energy Storage

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# Air-Conditioning, Heating, and Refrigeration Institute (AHRI)

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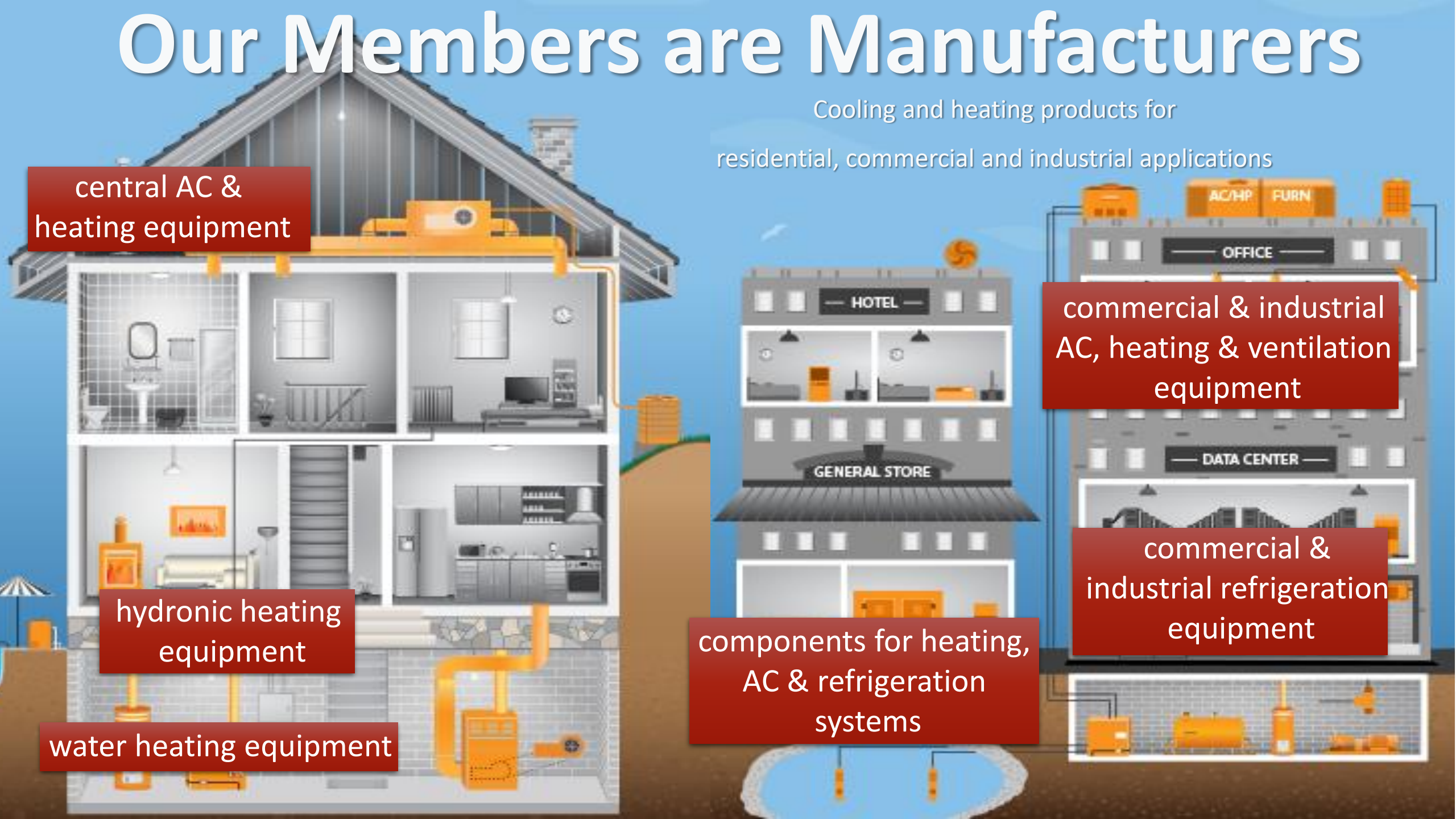
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# For Discussion Today

- Overview of thermal energy storage
- Incentives for thermal energy storage
- How federal, state, and local (utilities) entities and agencies can further incentivize thermal energy storage

# Overview of Thermal Energy Storage

- Educate policymakers and consumers about thermal energy storage
  - Grid asset and utility resource in addition to being an energy efficiency tool
  - Increase public knowledge about thermal energy storage
    - Electrical and thermal energy are used in buildings
- Increased renewable energy use and generation requires storage infrastructure
- Thermal energy storage complements other energy storage technologies, like lithium-ion batteries
- Storage allows load flexibility by moving demand and reduces peak demand



# Thermal Energy Storage Incentives

- Academic interest in thermal energy storage is high, but not as many technologies are scalable or ready-for-market
- Thermal energy storage must be integrated into an HVAC system, which comes with costs
  - Some planning and custom builds may be necessary
  - Retrofit installations can be challenging
- Inflation Reduction Act (IRA) of 2022 tax provisions available for thermal storage
  - Expansion of Investment Tax Credit (ITC) to include thermal energy storage
- Host sites need certainty their investments in thermal energy storage are good long-term
  - Host sites compensated for on-site energy use (time-of-use savings), but not always supported for the initial capital to fund installation or incentivized for value they bring to the grid

# Future Incentives for Thermal Energy Storage

- Need for DOE to develop a simple modeling system that can characterize optimized TES
  - Would allow demand limits to be set
  - Easy to understand models will show value to customers and utilities
- Recognition of the value gained from TES (utilities)
- Allow the market to pick technology winners