



Acadia
Center

Advancing the Clean EnergyFuture

CO-DELIVERY OF HEAT PUMPS WITH OTHER SUPPORTIVE MEASURES

CT CES Technical Session 2B
September 23, 2022

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Boston, MA • Hartford, CT • New York, NY • Providence, RI • Rockport, ME



WHO IS ACADIA CENTER?



MISSION

Acadia Center's mission is to advance bold, effective, and equitable clean energy solutions for a livable climate and a stronger, more equitable economy.

PROGRAMS

Acadia Center focuses on six areas of climate and clean energy, within which we prioritize consumer benefits, public health, economic growth, and equitable distribution of benefits:

Next Generation Energy Efficiency: Make Our Buildings Healthy, Efficient, and Climate Safe

Beyond Gas: Phasing Out Our Dependence on Fossil Fuels

Utility Innovation: Reform Utilities and Energy Systems

Transportation Climate and Equity Investments

Clean Energy and Climate Pathways

Public Engagement and Communications

SUPPORT

Acadia Center is funded by foundation grants and individual donations. It does not accept corporate or government funding.

Climate change is here. So are the solutions for a clean energy future.

Acadia Center's solutions will transition economies away from fossil fuels. We **look at the big picture** and identify regional, state, and local reforms that will dramatically reduce carbon pollution and improve quality of life when implemented through expert advocacy.

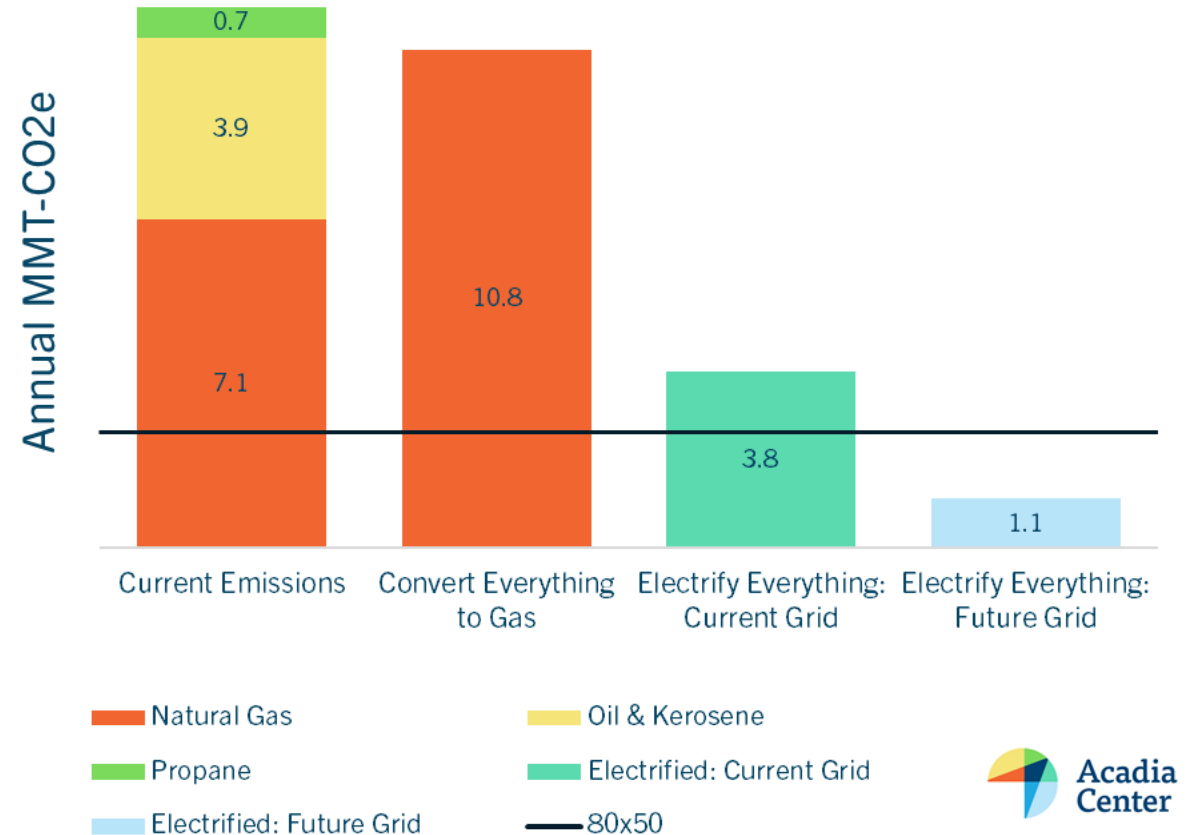
Acadia Center's informed vision for reformed energy systems has helped realize more than **\$30 billion of consumer energy savings** and reduced emissions **23% across the region** while state economies have grown.



THANK YOU, DEEP!

- **Electrification of buildings:**
 - Necessary to hit state climate goals
 - Health & Safety
- Electrifying only buildings that use oil or propane for heat will not be enough
- Need to electrify **gas** heated buildings
- Need to stop making more gas-heated buildings

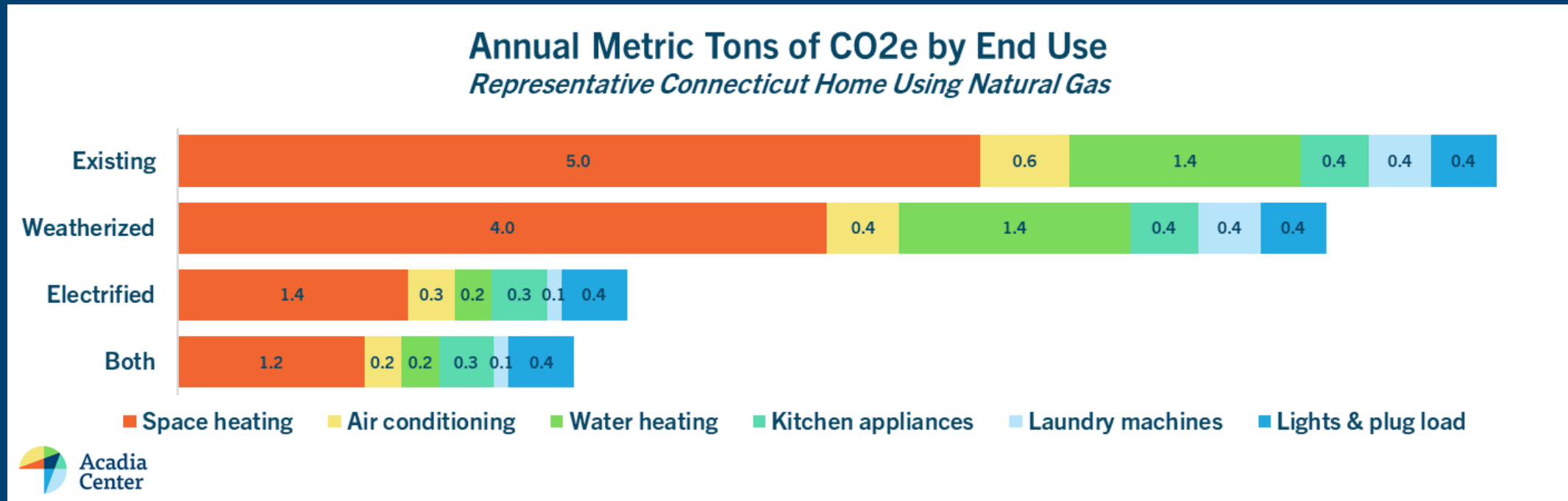
Connecticut Thermal Emissions in Buildings
vs. State Climate Goals



Source: EIA, ISO-NE

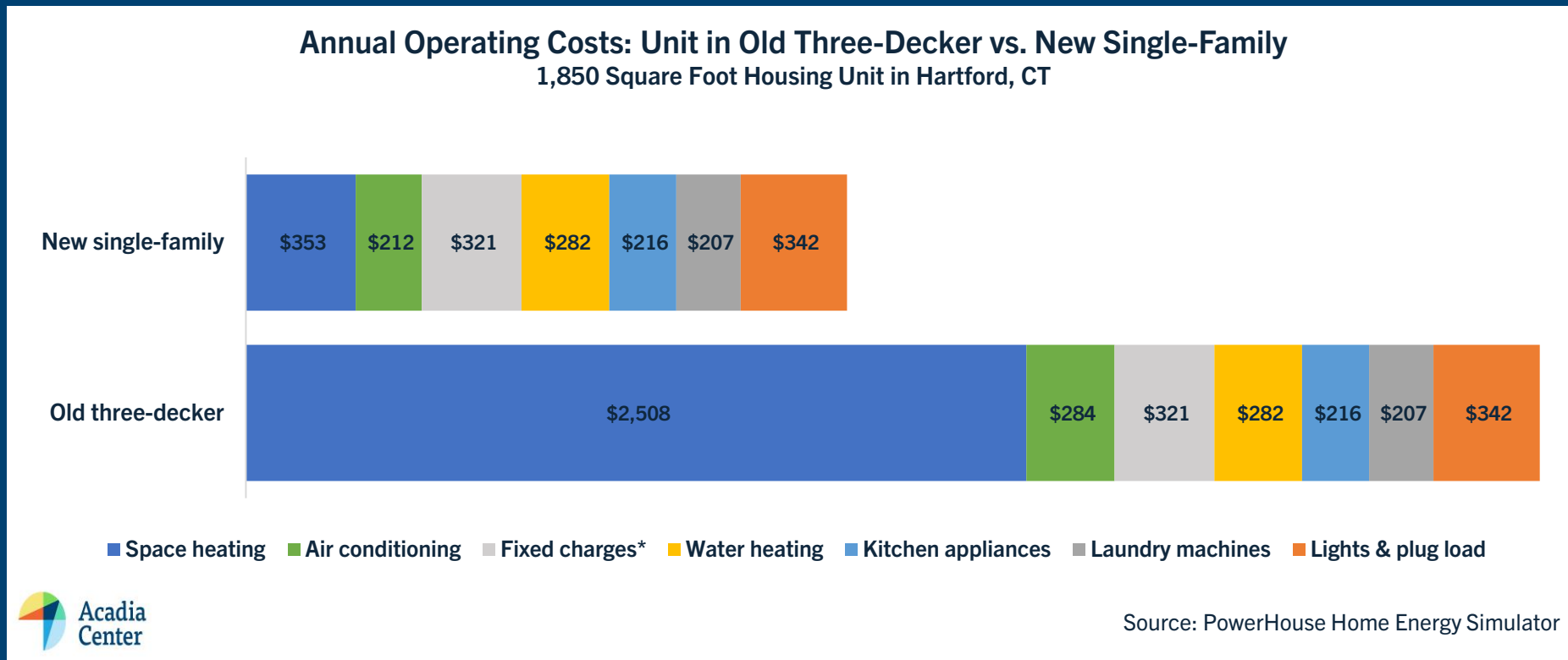
WHOLE-HOME ELECTRIFICATION

- Co-Delivery of HP, HPWH, appliances, EE, Wx and air sealing
- Reduces emissions in gas heated home by 66+% on day one
- Even more as grid gets cleaner



START WITH HIGH-EMITTING, LOW-INCOME HOUSING

25% least efficient: cost 5x more to heat, create 50% of GHG emissions
Tends to be “hard to serve” – renters, lower income, non-English, EJ



FOUR IMPERATIVES, FOUR STRATEGIES

Next Generation Energy Efficiency:

1. Prioritize investment in substandard housing
2. Maximize greenhouse gas mitigation
3. Promote whole-home electrification
4. Sustain high investment levels in efficiency

1. Get the **public** on board with educational materials, incentives, and heat pump-friendly electric rate design
2. Get the **workforce** on board with financial assistance for contractors who enter the heat pump installation business
3. Get serious about enforceable, statewide **targets**
4. Reform energy efficiency programs to more highly value **emissions reduction** and to systematically scale up treatment of the least efficient homes & in **EJ** communities



CT'S MAP TO SUCCESS

- Stop adding more gas
- Structure EE programs for success
 - Change BCRs, create GHG Mandates
 - Remove the budget caps
- Fund EE and electrification programs
- Prioritize High-Emitting, Low-Income Housing
- Whole Home Electrification
- Co-Delivery: Electrification + Weatherization + Controls
- Invest in Workforce!
- Climate and environmental justice are state priorities -
fund them



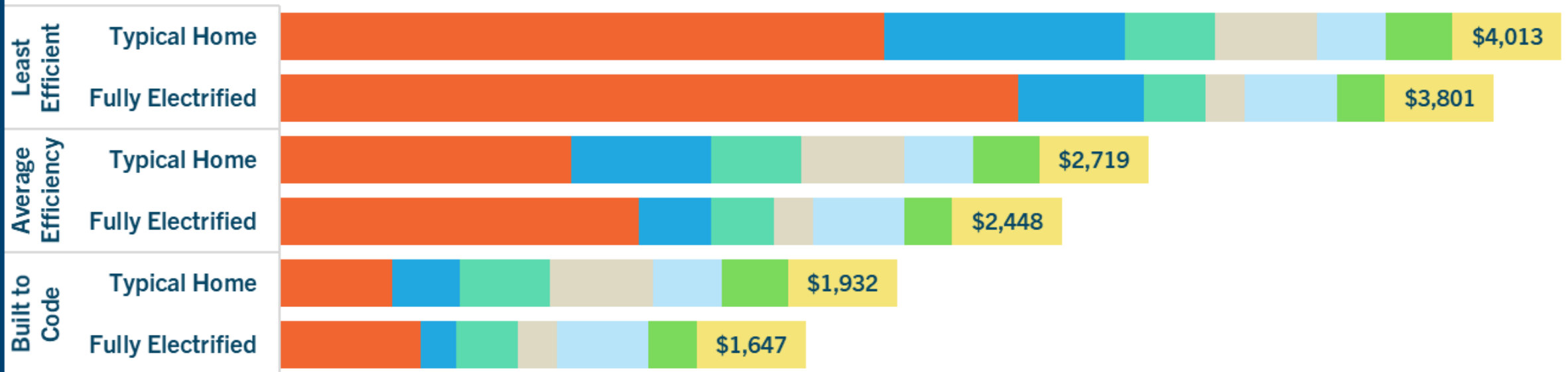
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START WITH HIGH-EMITTING, LOW-INCOME HOUSING

Electrification reduces bills
Weatherization reduces energy burdens

Annual Operating Costs by Building Shell Efficiency Level
Hartford, CT



Space heating Air conditioning Water heating Fixed charges* Kitchen appliances Laundry machines Lighting & plug load

ADDRESS WEATHERIZATION BARRIERS

- **Whole-home electrification of LI homes will include addressing health & safety barriers**
 - 2018: 23% of audited LI homes deferred from program
 - 2022: \$2M from LIHEAP toward H&S barriers
- **Need: seamless, effective path to use funds for low-income household weatherization and H&S barrier mitigation**
 - LIHEAP & WAP
 - Federal funding bills (ARPA, IRA)

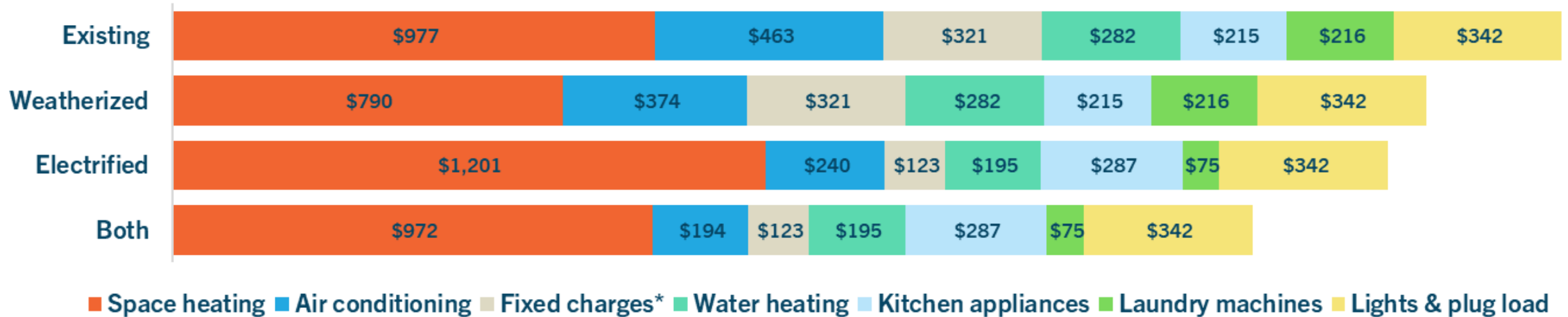


NEED TO ADDRESS RENTALS & UNDERSERVED

- Split incentive problem
- [MA Renter Plan](#): outreach, pre-weatherization, 100% weatherization, community partnerships & grants
- Make policy decision to focus resources in specific places
- Helped in MA: tie portion of PIM to electrification and EJ benefits

HELP CONSUMERS MORE: TREAT THE WHOLE HOUSE

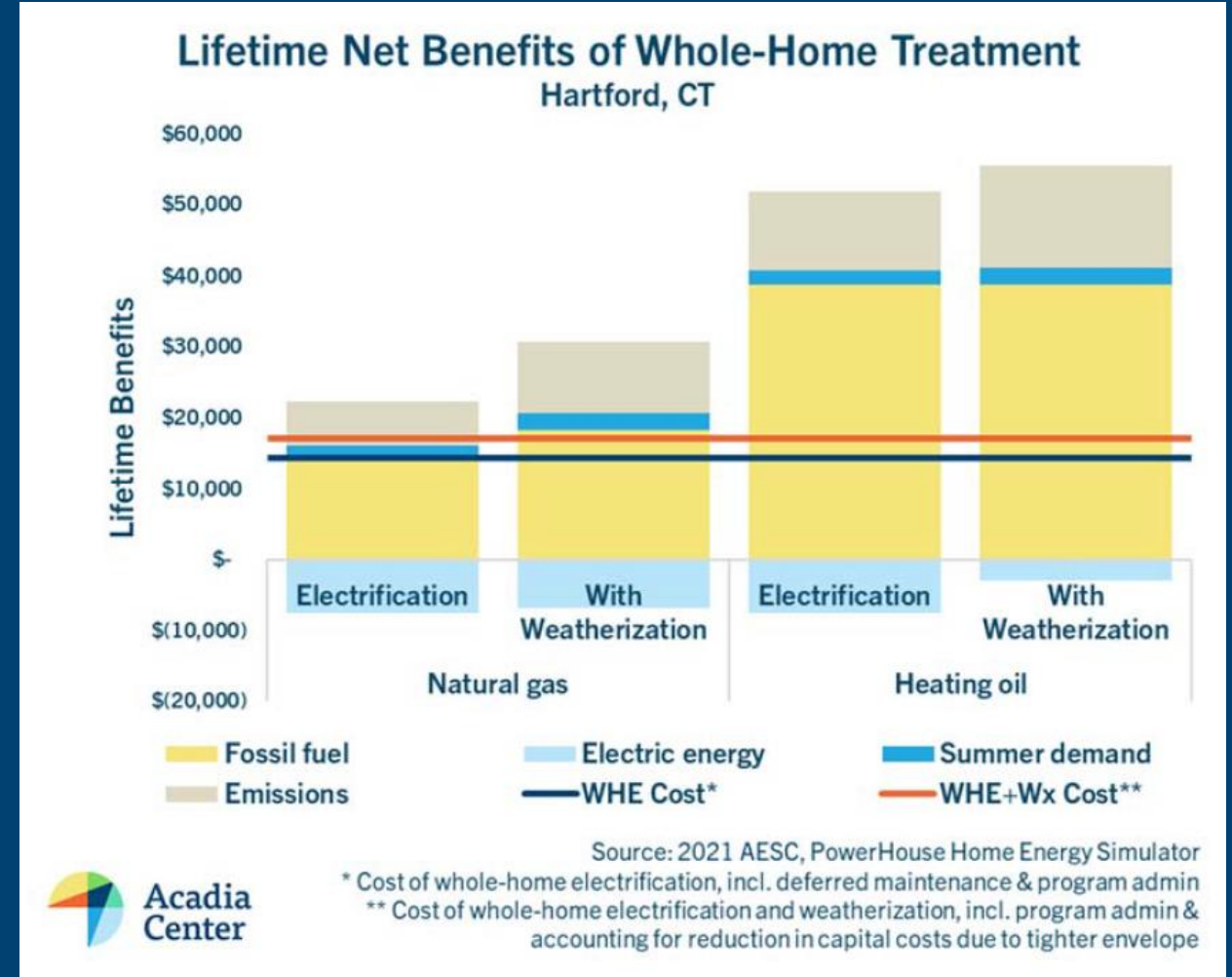
Annual Operating Costs by End Use
Representative Connecticut Home Using Natural Gas



* Electric and natural gas customers pay a fixed monthly charge on their bills. Homes that heat with gas pay both of these charges, while all-electric homes only pay the electric charge.

CO-DELIVERY OF ELECTRIFICATION & WEATHERIZATION

- Weatherize First: right-size heat pump, more savings
- Enhanced incentives in already weatherized bldgs
- Bundled Delivery: one-stop coordinated offering
- Enhanced incentives for HPs with controls (potential DR resource)



BUILD UP THE WORKFORCE

- **HPCⁱ biz: rigid & low-margin**
 - PAs set compensation
 - Non-program-supported weatherization work is rare
- **HPⁱⁱ less common than FFⁱⁱⁱ**
- **Ways to address:**
 - Reward home performance, not measure installations (more customization)
 - Tax breaks, wage subsidies
 - Training! Education! Support!
 - Engage supply houses
 - Better consumer incentives



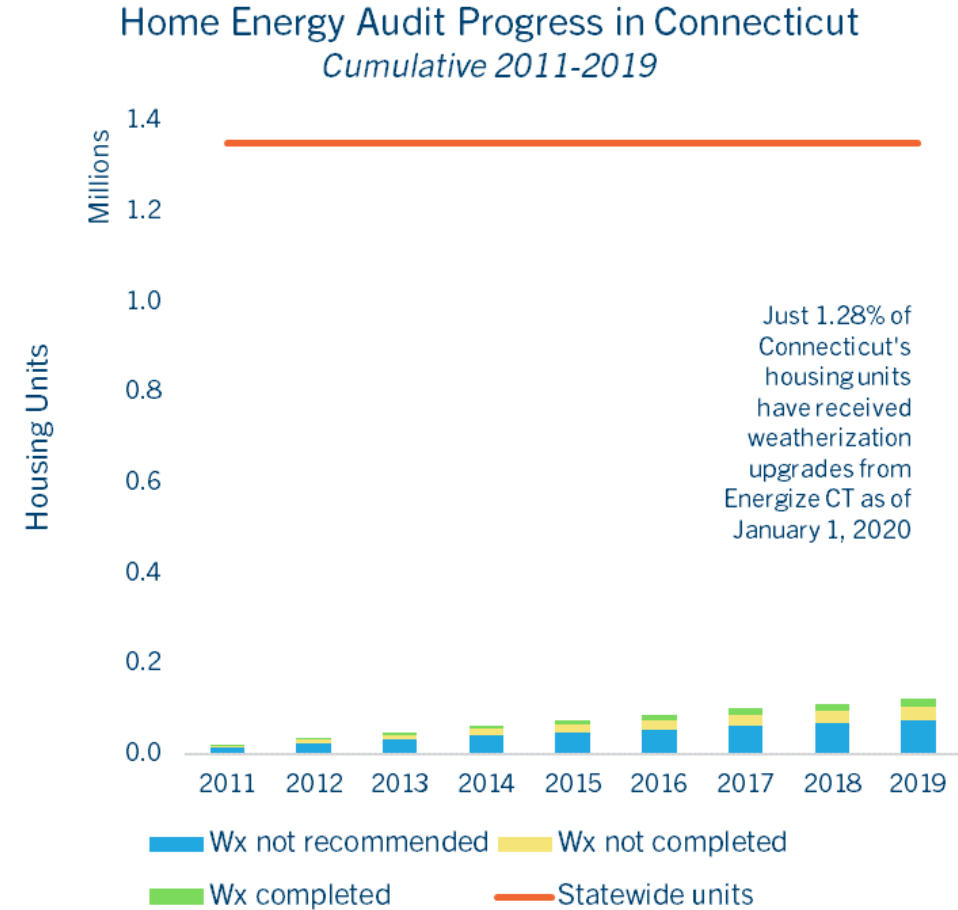
ⁱ Home performance contractor

ⁱⁱ Heat pump equipment

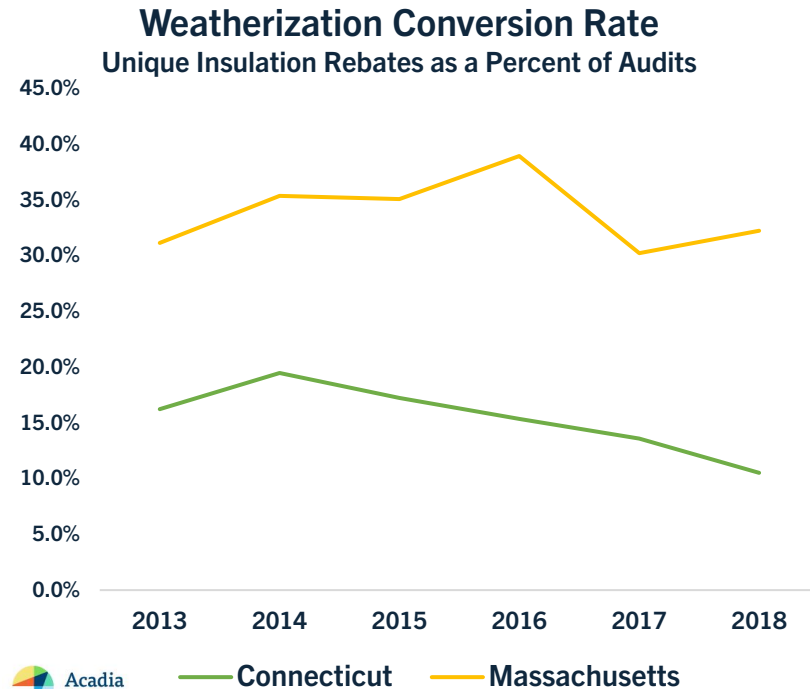
ⁱⁱⁱ Fossil fuel equipment

INCENTIVES @ ENERGY AUDITS WON'T BE ENOUGH

- Moving too slowly
- Go faster, improve closure rate
→ still need more
- GHG mandates for CL&M Plans
- Design programs to maximize energy/GHG savings per home
- More customizable offerings, integrate HVAC, P4P
- Statewide targets for heat pumps & weatherization, particularly for low-income housing

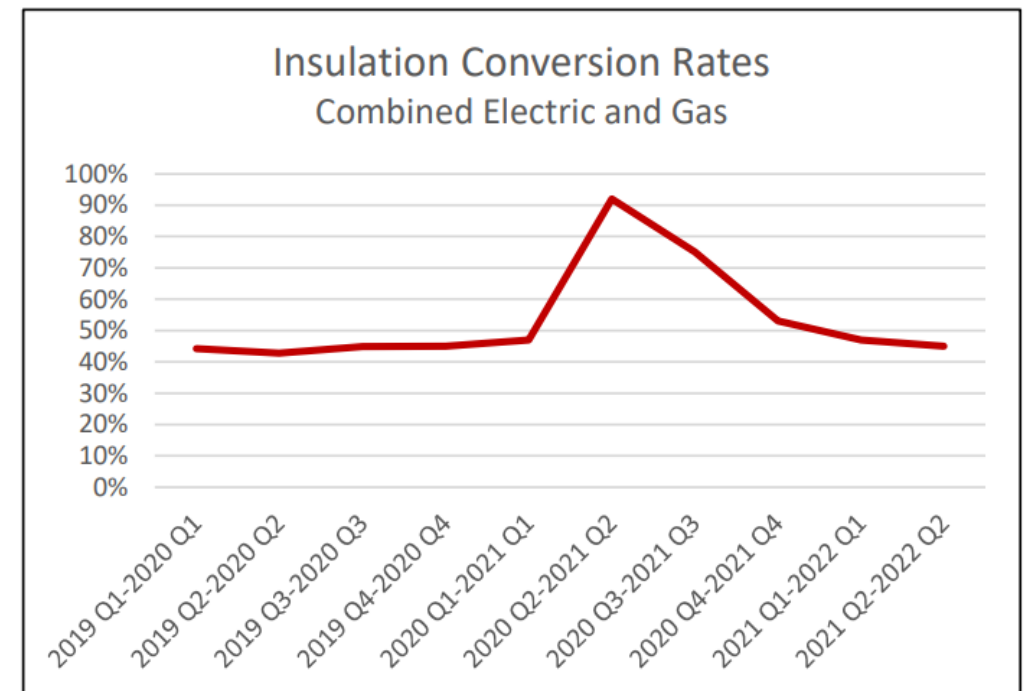


WEATHERIZATION CONVERSION RATES – LOOK TO MA?



- MA insulation rebates usually higher than CT
- During pandemic, 100% Wx incentive (normal~ 75%)

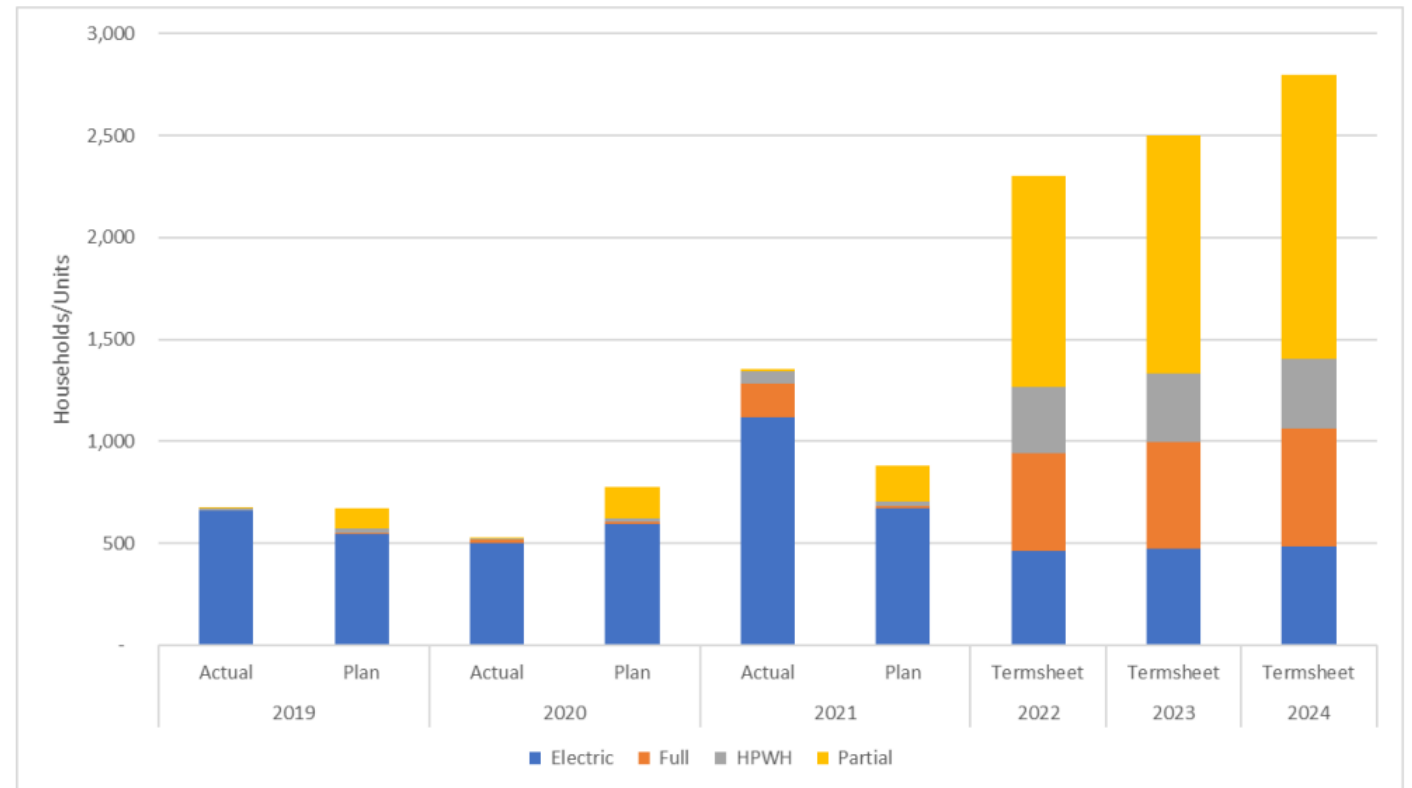
- Fill pipeline for when could get back to insulation work
- Demonstrable impact on closure rate, went away



OTHER LESSONS FROM MA

- Even if the program's not perfect, Start.
- Electric to HPs help build the workforce & market
- Ambitious goals can deliver results
- GHG mandates make all the difference
- This will be difficult. Keep going.

INCOME ELIGIBLE HEAT PUMP INSTALLATIONS





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Advancing the Clean EnergyFuture

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