Leading by Example Council Agenda
May 10, 2022

- Welcome
- LBE Updates: Staffing and Decarbonization
- 2022-2024 Efficiency Plan
- DCAMM Zero Carbon Initiative
- DHCD Heat Pump Study
- Clean Energy Workforce Development
- LBE Updates: Feasibility Study Grant and EV/EVSE Resources

Welcome to the Central Mass Transportation Center!

Thomas Emerick, MassDOT District 3 Operations Engineer

Staffing Update: LBE

So long Chelsea…

See you in September Catie…

Welcome to the team Leona!

DOER
Massachusetts Department of Energy Resources

Staffing Update: EEA

- Secretary Theoharides stepped down as of May 6
- Beth Card, undersecretary of environmental policy and climate resilience, now serving as Secretary

Beth Card's resume includes:

- Chief environmental advisor to Secretary at EEA
- MWRA Director of Environmental and Regulatory Affairs
- MassDEP Deputy Commissioner for Policy & Planning, and Assistant Commissioner of Bureau of Water Resources

- The work continues
  - 2025/2030 Clean Energy and Climate Plan due July 1, 2022
  - Stretch energy code hearings summer 2022, finalize fall 2022
  - 1600 MW offshore wind contracts finalized

Glimpsing at the Decarbonized Future

- Renewables met close to 100% of CA demand for first time
- 2/3rds (12.4 GW) from solar
- 6.2 GW from wind, geothermal, other renewables

Source: Desert Sun

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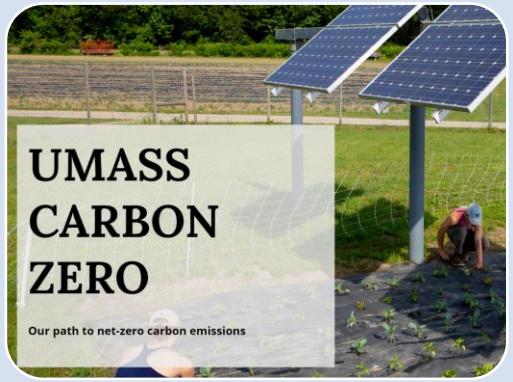
Massachusetts Department of Energy Resources

Towards Decarbonization: State Entity Actions and Commitments



UMass Amherst announced goal to achieve net-zero GHG emissions by 2032

MassPort unveiled agenda to achieve net-zero emissions by 2031

UMass Lowell incorporating decarbonization roadmap into projects, moving towards net zero by 2050

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Massachusetts Department of Energy Resources

Meeting Spotlight: The 2022-2024 Three-Year Energy Efficiency Plan

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Maggie McCarey

Lead by Example

May 10, 2022

mass save

Energy Efficiency Plan Update: 2022-2024

WE ARE MASS SAVE®:

BERKSHIRE GAS An AVANGRID Company

Cape Light Compact

EVERSOURCE

Liberty

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Topics

Policy Framework & Context

Program Offerings and Changes

Training and Resources

Policy Framework

How We Got Here

October 2021

Plan narrative

November 2021

Final plan submitted

December 2021

Formal hearing

January 2022

DPU order

April 2022 and beyond

Compliance filings

Through conversations with legislators, stakeholders, etc., **it is clear that the focus in energy efficiency going forward is GHG reduction**

Gov. Baker signs climate legislation to reduce GHG emissions, protect environmental justice communities

Law will combat climate change while **growing the economy**

The Commonwealth of Massachusetts has set a goal to reach **net-zero emissions by 2050**

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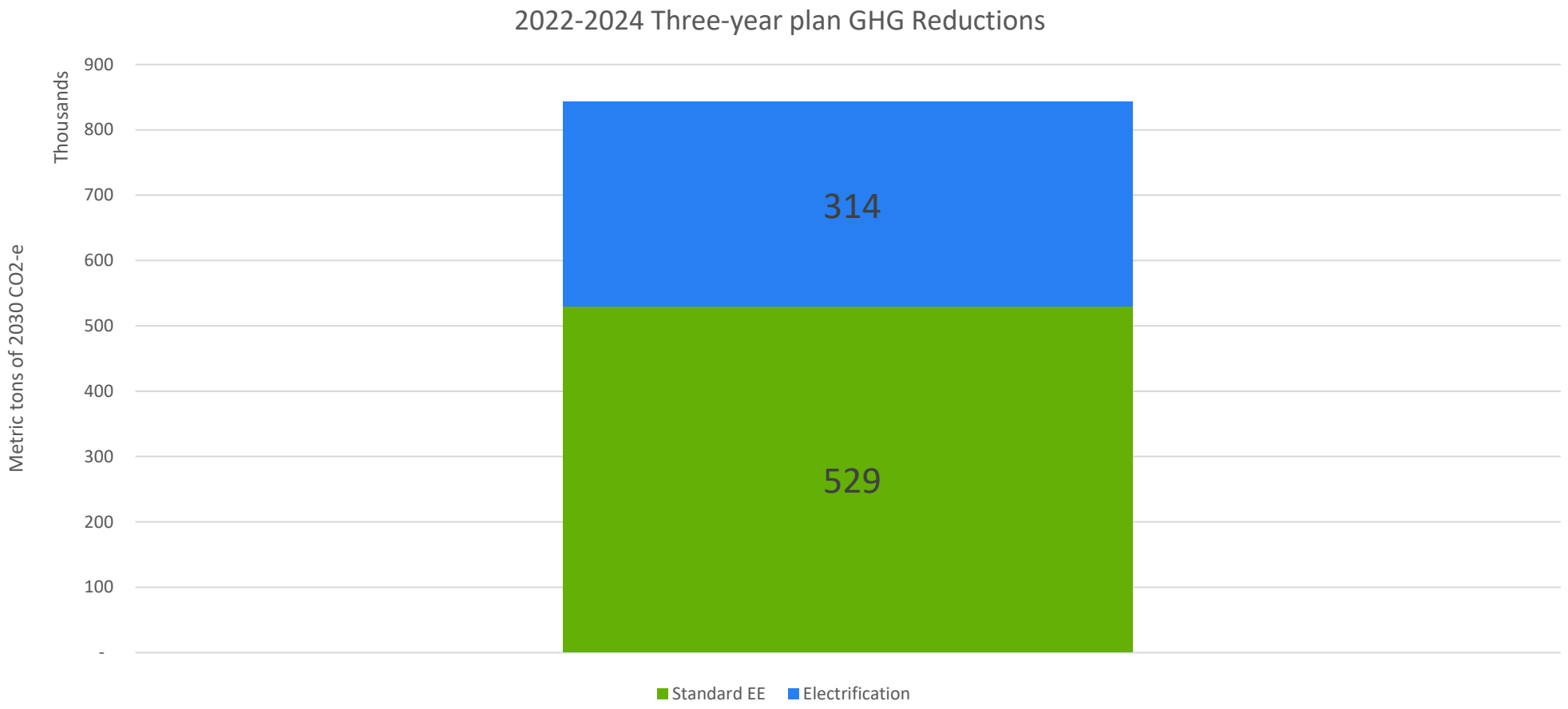
Pathway to Statewide Goals

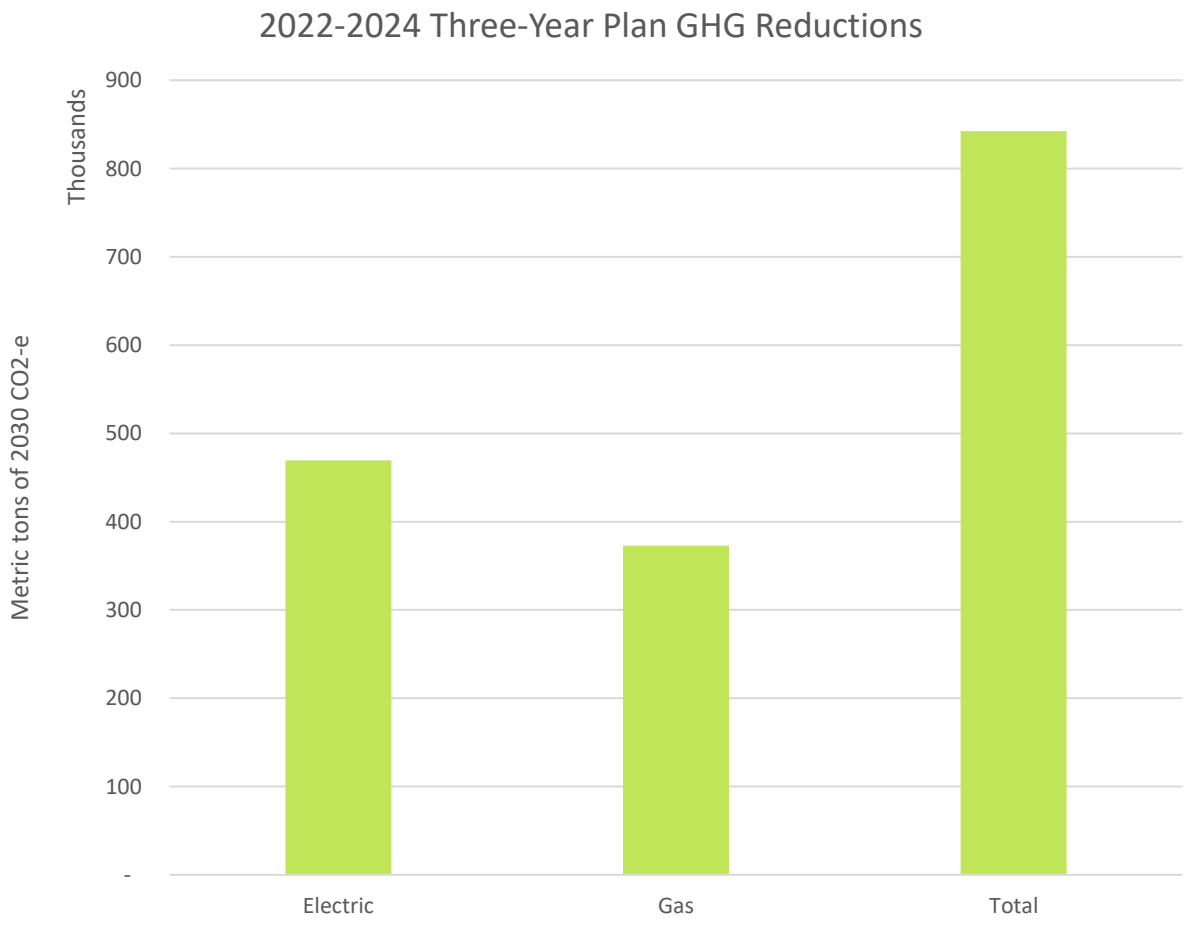
Building electrification is primary path for incremental GHG reductions.



Significant Contribution from Gas Savings

The plan relies on a large amount of **savings from gas**.

We are positioning ourselves to assist customers **deeply committed to sustainability**.



Common commercial EE systems & opportunities

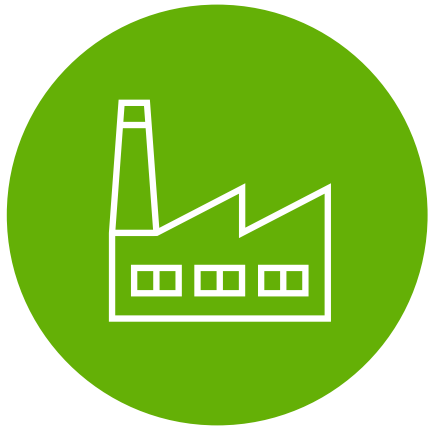
- HVAC
  - Boilers, furnaces, water heaters
  - Heat pumps
  - Chillers & air conditioners
  - Controls & EMS installations
- Variable frequency drives (VFD/VSD)
- Lighting systems & controls
- Kitchen equipment
- Retro-commissioning
- Process equipment

Program Offerings & Changes

Electrification

Conversion from fossil fuel to electricity

Aligned with a shift toward a cleaner electrical grid



Path to reducing GHG emissions

Electrification encompasses more than just the energy efficiency programs, but electrifying Massachusetts' built environment is a significant step in achieving the commonwealth’s goals.

How Do We Get There?

Installation of heat pumps is important to reach these electrification targets set by the commonwealth.

Some plans include:

- Increase incentives and pair with customer education
- Contractor/vendor trainings
- Workforce development Investments
- Increased technical assistance and financial support for new and existing buildings minimizing overall energy consumption

Emphasis on Commercial Heating Systems

Development of prescriptive heat pump incentives for most commercial installations.

- Expanded equipment eligibility
- Increased incentives

Greater engagement across the entire heat pump supply chain

Additional Electrification Efforts

Examples of additional efforts by the Sponsors, where cost-effective, include:

- Heat pump water heaters
- Induction cooktops
- Heat recovery chillers
- Electric vehicles and charging equipment
- Lawn equipment

Streamlined Heat Pump Pathway

Fuel reduction/displacement

- Integrated controls or EMS sequences to manage operation
- Recommended switchover temperature of 30°F or below
- Pathway is “fuel-blind”

Simplified savings estimates

- Smaller projects in existing buildings
- Project threshold: 150 tons total capacity

For more info and application go to:

MassSave.com/CI-HVAC

New Incentives/Offers for C&I Installations

Air Source Heat Pumps

Includes single- and multi-head split systems, as well as central and RTU systems

$2,500/ton

Air Source Variable Refrigerant Flow (VRF)

Includes systems larger than 5.4 tons that meet AHRI Standard 1230

$3,500/ton

Ground Source Heat Pumps

Includes both closed and open loop systems

$4,500/ton

When to Utilize the Custom Pathway

Project-specific engineering estimates will still be appropriate for many heat pump applications, especially:

- New buildings
- Large systems
- Complex internal distribution layouts

Weatherization

Streamlined pathways for weatherization

Improving the performance of the building shell is important:

- As a stand-alone energy efficiency investment, regardless of fuel type
- As an enabling investment in conjunction with electrification

- Three-tier pathway for commercial projects
  - “Prescriptive” approach for very small commercial buildings
  - “Custom-express” approach for medium-to-large buildings
  - “Custom” approach for large/complicated projects

New Buildings & Major Renovations

Net Zero/Low EUI Buildings: Path 1

Performance-based offer

Engage during feasibility/ conceptual design through post occupancy

Simplified Process

Establish target EUI with Mass Save Sponsors

We work with your design team’s energy model

Technical Assistance

Expert net zero support assists with:

- Load reduction analysis
- HVAC system selection support
- Lifecycle cost analysis
- Other project specific support

Path 1 Incentives

Require low design-based predicted EUIs

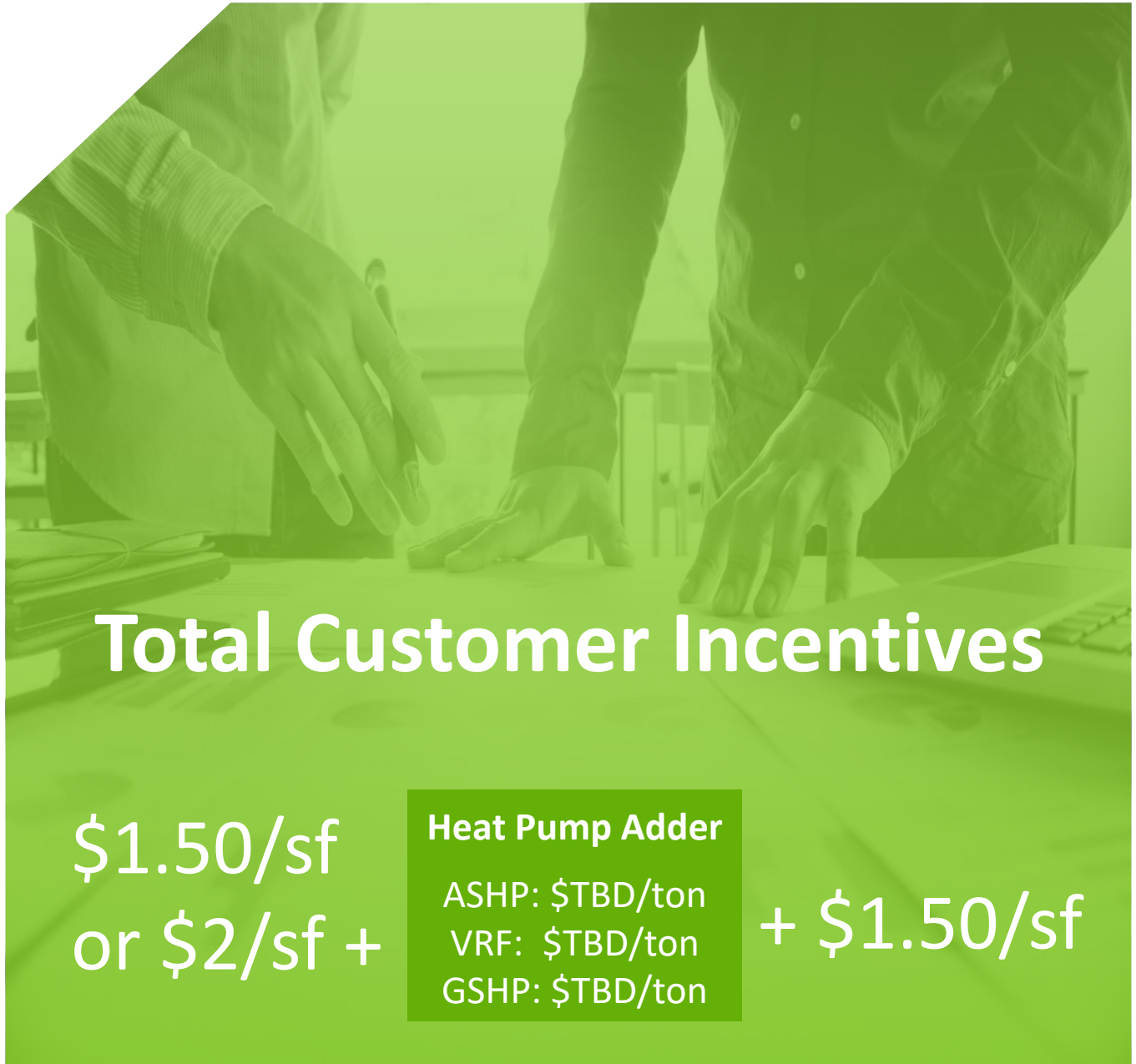
- Now more than 1 incentive tier available
- Highest Construction Incentive is $2/sf

Promote electrification

- Heat pump adders offered on per ton basis

Maintain focus on post occupancy performance and project outcomes

- Additional $1.50/sf available if building performs at the target EUI



Total Customer Incentives

$1.50/sf
or $2/sf +

Heat Pump Adder

ASHP: $TBD/ton
VRF: $TBD/ton
GSHP: $TBD/ton

+ $1.50/sf

Value of Setting Early EUI Target

- Centers team on a clear goal
- Serves as a touchstone for decision making throughout design
- Encourages thought about building operations considerations
- Prevents value engineering of energy-saving equipment and systems
- Allows owner to check performance against the target over time (and relative to other buildings)

Whole Building EUI Reduction: Path 2

Design-based offer

Engage before end of Design Development

Requires EUI target setting

Incentives based on percent EUI reduction over Mass Save baseline

Technical Assistance

Energy charrette in early design

Mid design review/feedback

Final report/model

Incentives

Range from $0.35/sf to $1.25/sf plus the heat pump adder (same as Path 1)

Offer greater support for lower EUIs

Promote electrification

Non EUI-Based Participation Pathways: Paths 3 and 4

- Mass Save Sponsors assist in identifying energy conservation measures
- Incentives provided for each measure
- Electrification still supported on a $/ton basis
- Streamlined process
- Less lucrative versus Paths 1 and 2

Active Demand Response

Active demand reduction

- Targeted Dispatch:
  - 1-8 events/summer, 3 hours each
  - $35/kW-summer (avg. performance)
  - *Eversource & CLC: $100/kW-summer battery storage*
- Daily Dispatch:
  - 30-60 events/summer, 2-3 hours each
  - $200/kW-summer (avg. performance)
  - *Eversource-only: $100/kW-summer thermal storage*

Important changes for 2022

- 2022 will be the last year for inclusion of generation assets in the targeted dispatch offer
- Generation is no longer included in the daily dispatch offer

Training and Resources

Unfamiliar technology for many customers & contractors

Installation & operational cost considerations

Energy efficiency competes with other business priorities

Sponsors will be building awareness through increased marketing, outreach, and education

Potential Topics

Heat Pumps

- Benefits of electrification
- Understanding basics of equipment
- Leveraging incentives
- How to discuss energy costs/savings

Weatherization

- Pairing weatherization with heat pumps
- Weatherization options
- Identifying opportunities for weatherization

Other Resources

Training opportunities are also available through:

- Manufacturers
- ASHRAE
- Massachusetts Energy Efficiency Partnership – MAEEP
- MA Clean Energy Center

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Cape Light Compact

EVERSOURCE

Liberty

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mass save

Thank you

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DCAMM
ZERO
CARBON
INITIATIVE

Climate Change is a Global Issue

United Nations: COP26

United States

MA Climate legislation

EO 594

DCAMM

MA 2050 Goal:

Reduce Fossil Fuels by 95%

Gov. Baker signing Executive Order 594, April 2021

DCAMM's Mission

We are stewards of the Commonwealth's assets. We care for the people of our state and the future of our planet.

Planning

Design and Construction

Facilities Management

Energy and Sustainability

Real Estate Services

Leasing

Access & Opportunity

Legal

We work with state agencies to create and manage forward-thinking, sustainable buildings to meet the needs of the Commonwealth's citizens and help achieve a zero-carbon future.

We are partners with fellow agencies to help them meet their strategic needs with fiscally responsible building and real estate solutions.

We support the growth of the Commonwealth's economy and actively engage with private sector partners to make it easier to do business with the Commonwealth.

We work to expand access, opportunity, and equity to create more inclusive services, planning and outcomes for all the citizens of the Commonwealth.

ZERO CARBON INITIATIVE

Fossil Fuel Free	Efficiency	Infrastructure	Collaboration
Plan, design, and build fossil fuel free new buildings Install renewable energy	Reduce operational carbon in existing buildings Energy efficient operations	Invest in low carbon infrastructure for heating and cooling	Support the goals with best practices, policies, and education

Efficiency + Electrification + Clean Electricity

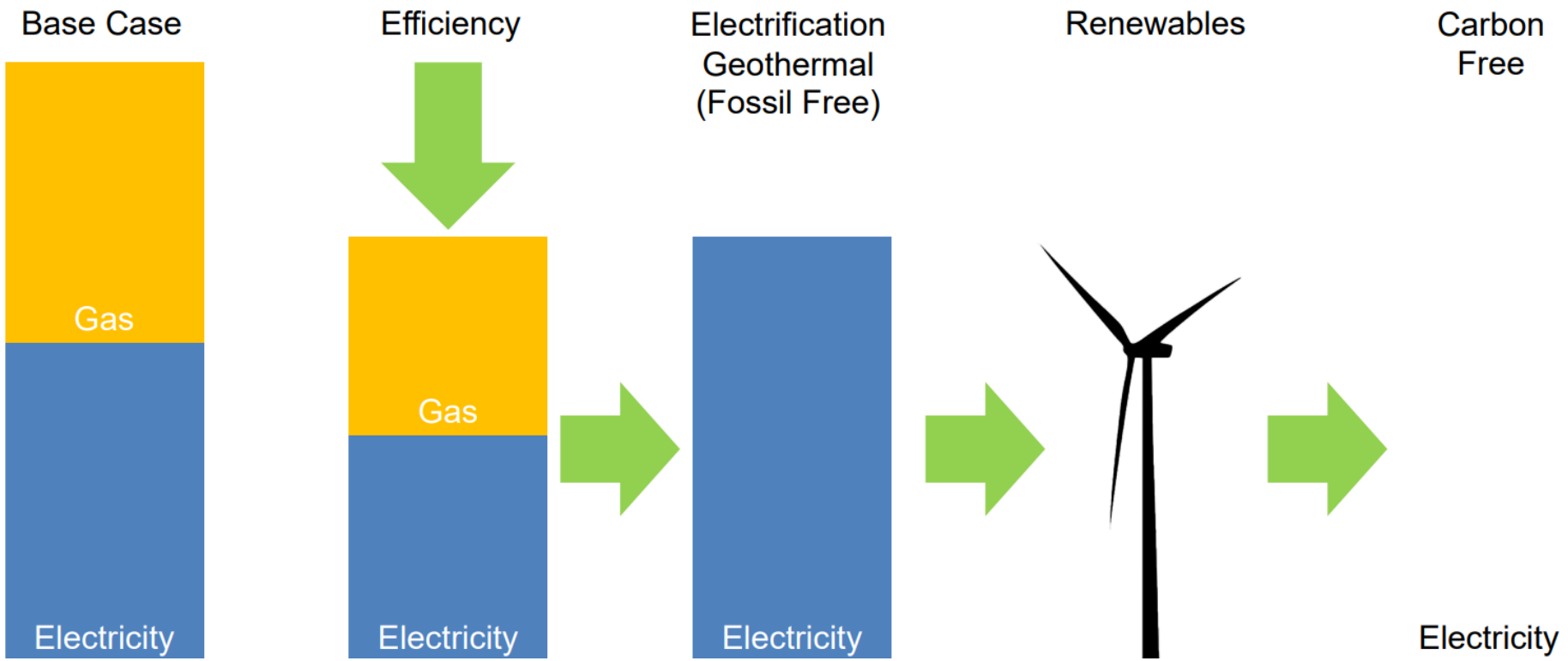
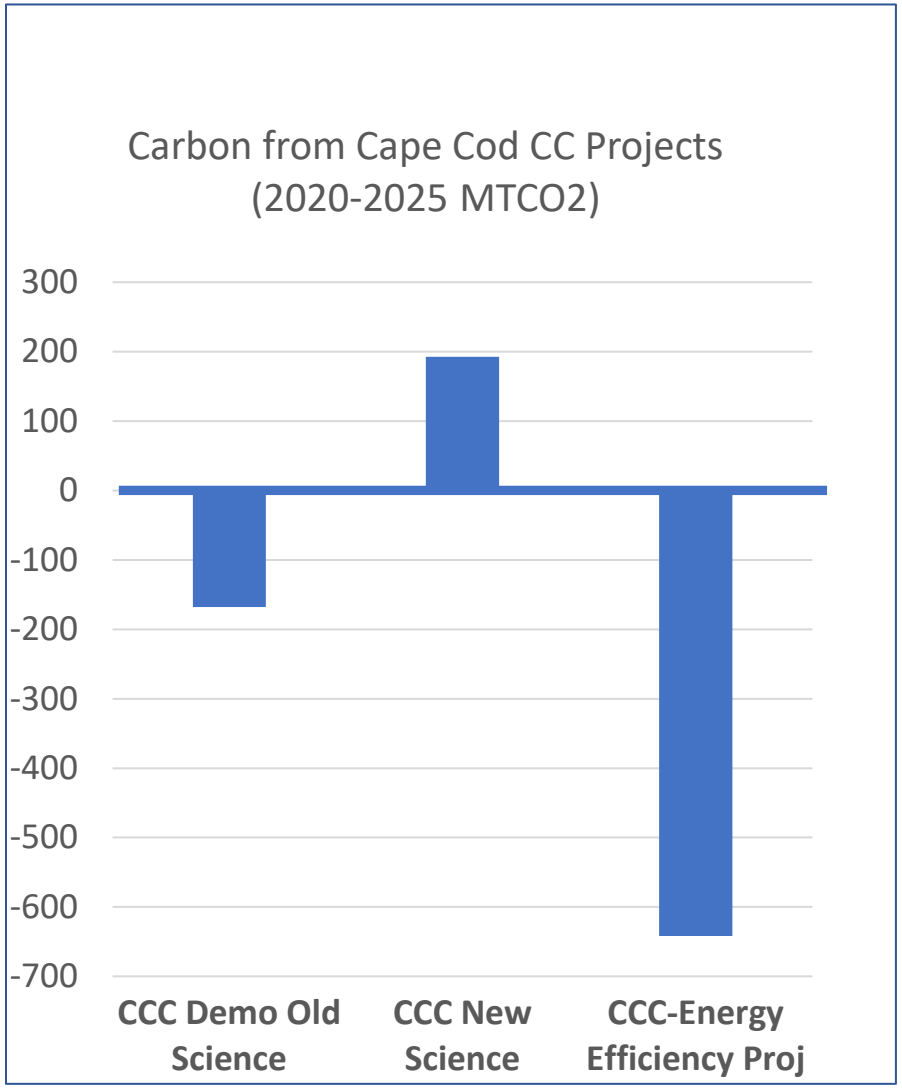


Image based on Boston University presentation:
ttps://www.bu.edu/cpo/files/2019/12/19.12.03_Student-Town-Hall-Slide-Deck-_v1.pdf

Fossil Fuel Free

Mass Bay Community College

New Project	Approx. SF	Applicable EO	Status	Features
Soldiers' Home in Chelsea	250,000	484	Construction	LEED Gold GSHP
Mass Bay CC Health Science Center	70,000	484	Construction	LEED Gold GSHP
Cape Cod CC Science Center	30,000	484	Construction	LEED Silver/Gold Air to Water HP
DCAMM Facilities	8,000	484	Construction	Passive House GSHP
Bunker Hill CC Student Success	55,000	484	Final design	LEED Silver GSHP
Soldiers' Home in Holyoke	325,000	484	Design	LEED Gold GSHP
Mass Maritime	30,000	594	Pre-Schematic	LEED Silver or better No fossil fuels



Efficiency

- Utility Vendor programs
- Comprehensive Energy Projects
- Operations
- Energy and water data tracking
- Commissioning

Lowell Justice Center

Cape Cod Community College Science Building

Mass Bay Community College

Chelsea Soldiers' Home

Bristol Community College Allied Health Center

Efficiency

Best-in-class energy efficiency is a standard

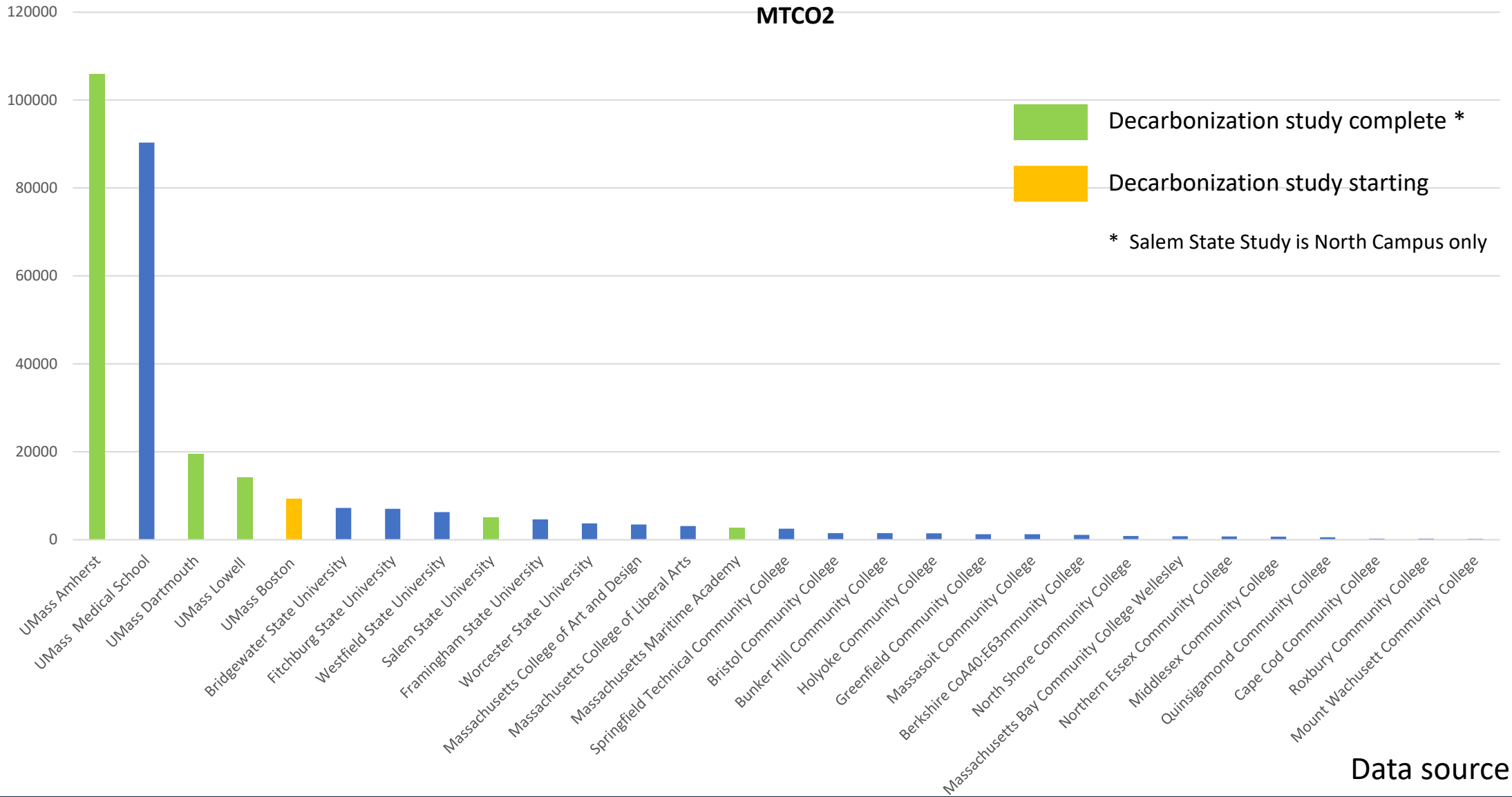
Energy Use Intensity (EUI) is Energy/Square Foot and is tracked on major projects.

Projects In Planning and Construction	EUI
• Bunker Hill Community College Student Success Center	29
• Cape Cod Community College Science	56
• Chelsea Soldiers' Home	55
• DUA Brockton	44
• Facilities Maintenance Building	29
• Mass Bay Community College Health Science Center	28
• Westfield State Parenzo Hall	29
Completed	
• Bristol Community College Allied Health Center	50
• Fish and Wildlife Field Headquarters	45
• Lowell Justice Center	35
National Median (for comparison)	
• Higher Ed (average all buildings)	87
• Courthouses	101

Infrastructure

- Transition **infrastructure** to low carbon fuels:
  - Demonstration project(s)
  - Target sites:
    - Emissions
    - Other investments
    - Age/condition
    - Location
    - Resilience risk
  - Portfolio-wide

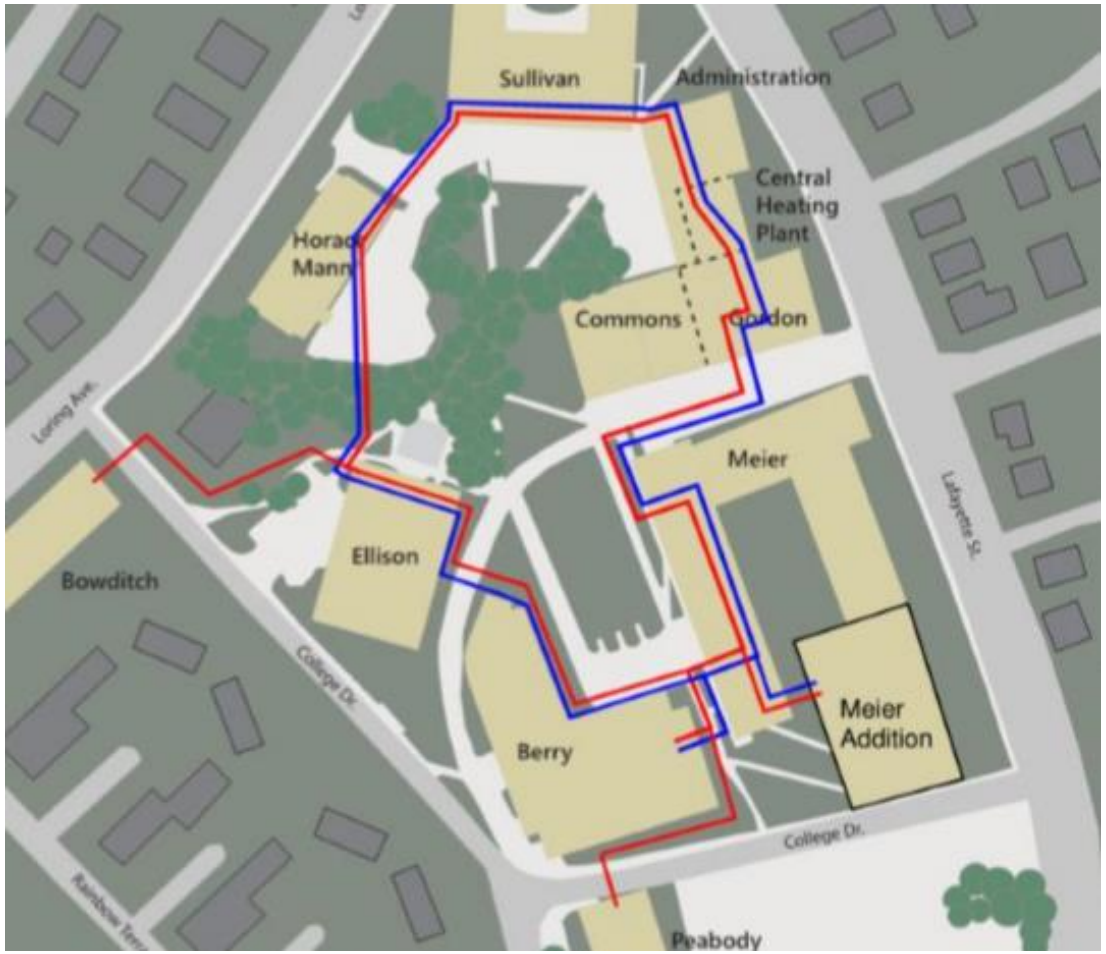
Fossil Fuel Emissions at Higher Education Facilities



Data source: DOER

Study Outcomes:

1) Efficient buildings
2) Low carbon fuels
3) Infrastructure investment



Salem State North Campus Proposed Energy Loops

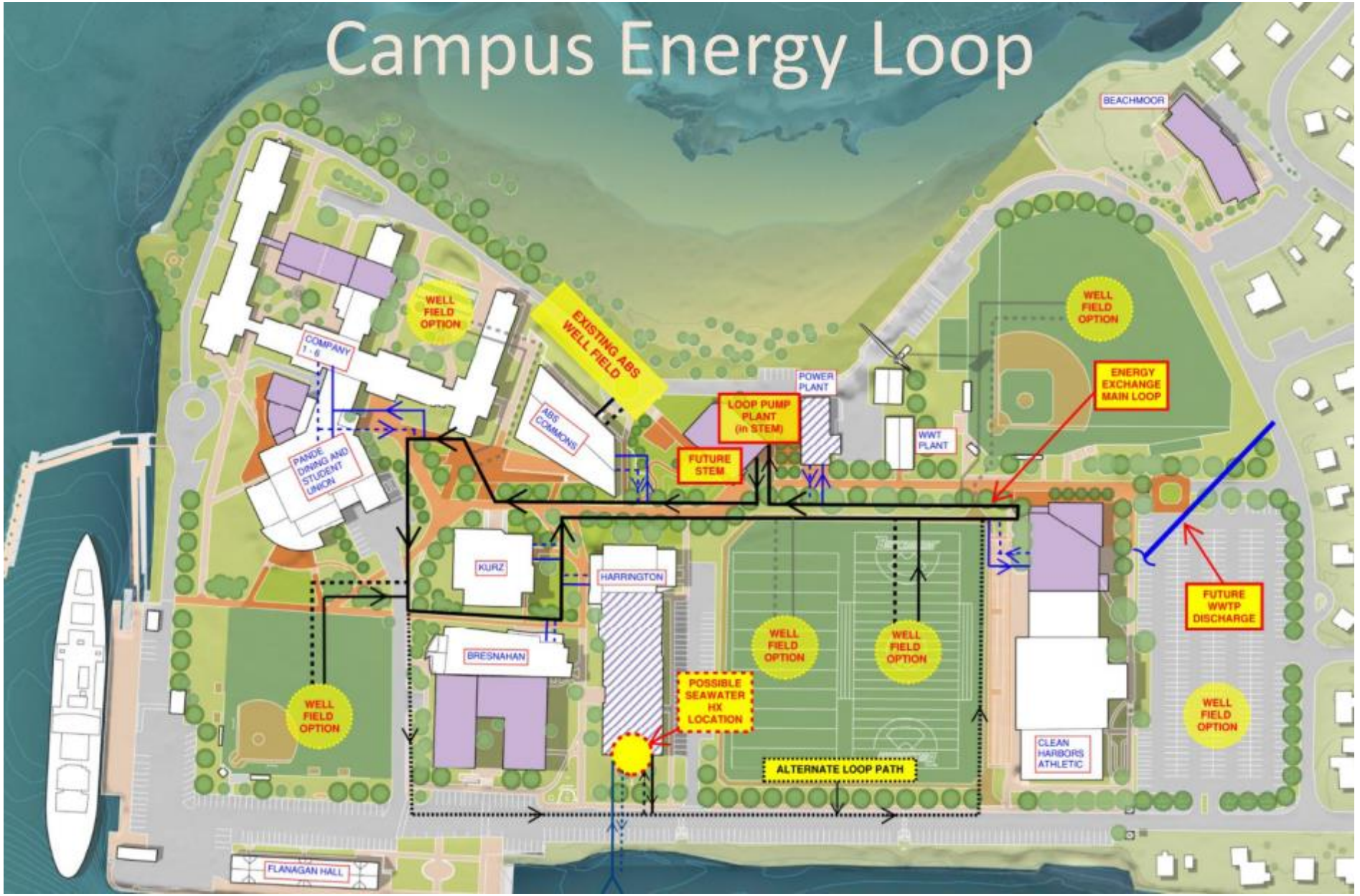


Image from MMA Decarbonization Study: Sasaki/van Zelm

Decarbonization Roadmaps and Action

2026	2030/2032	2040	2050
6-8 sites 10% of GHG	15% of GHG	50% GHG	90% of GHG
• State Universities • Roadmaps for Higher Ed and 50% of DOC	• All major facilities have roadmap • Funding plan • Implementation at additional sites	• Most 2020 central plants will be at end of their life • Replace with low carbon technology	

From: https://aerialdancepoleexercise.com/small-steps/

Collaboration

- Leading by Example
- Design Teams
- Construction industry
- Client agencies
- Mass Save
- DOER, EEA, DPU, etc

DOER
Massachusetts Department of Energy Resources

Mass DHE

mscba

AIA 2030 Commitment

Zero Carbon Initiative: Funding

Fossil Fuel Free	Efficiency	Infrastructure	Collaboration

DCAMM Project Budgets
Clean Energy Investment Program
Utility Incentives
Incentives for Renewables
Bond Funding

Meeting the Climate Imperative in Massachusetts State Buildings and Infrastructure

HEAT PUMP STUDY FOR LOCAL HOUSING AUTHORITIES

Massachusetts Department of Housing and Community Development

Greg Abbe

Sustainability Program Developer

Project Lead: Todd R. Holland, PE

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HEAT PUMP BASICS

- **Interchangeable terms**
  - Air-Source Heat Pump (ASHP)
  - Mini-split
  - Ductless mini-split
  - Cold climate heat pump

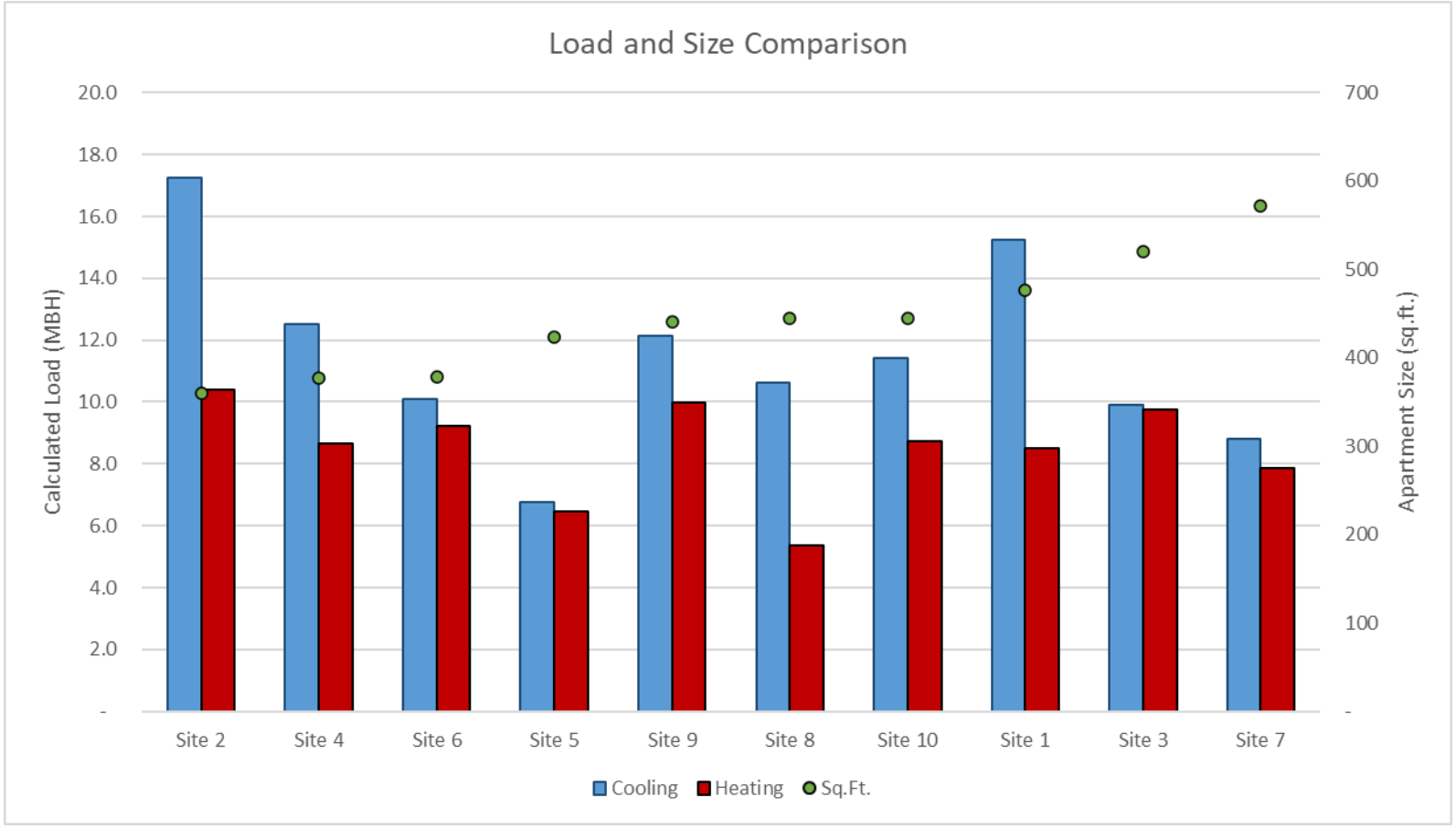
LOOKING FOR THE SMOKING GUN

- **Process**
  - **Utility Billing**
  - **Calculate Loads**
  - **Site Review**
    - System Size
    - Manufacturer
    - Layout
    - Details
  - **Interview**
    - Maintenance Staff
    - Tenants

- **Results**
  - **Saving energy and emissions**
  - **Load calculation was iffy**
  - **Problems not related to**
    - System Size
    - Manufacturer
    - Layout
  - **Problems were related to**
    - Operational practices
    - Installation details

SIZING A HEAT PUMP SYSTEM

- **Heat losses (winter)**
  - Conduction
    - Roof, walls, floor
    - Windows & doors
  - Infiltration
- **Heat gains (summer)**
  - Conduction
    - Roof, walls, floor
    - Windows & doors
  - Infiltration
  - Solar gain (windows)
  - Internal loads (lights and people)



Note: Sites sorted by apartment size, smallest to largest.

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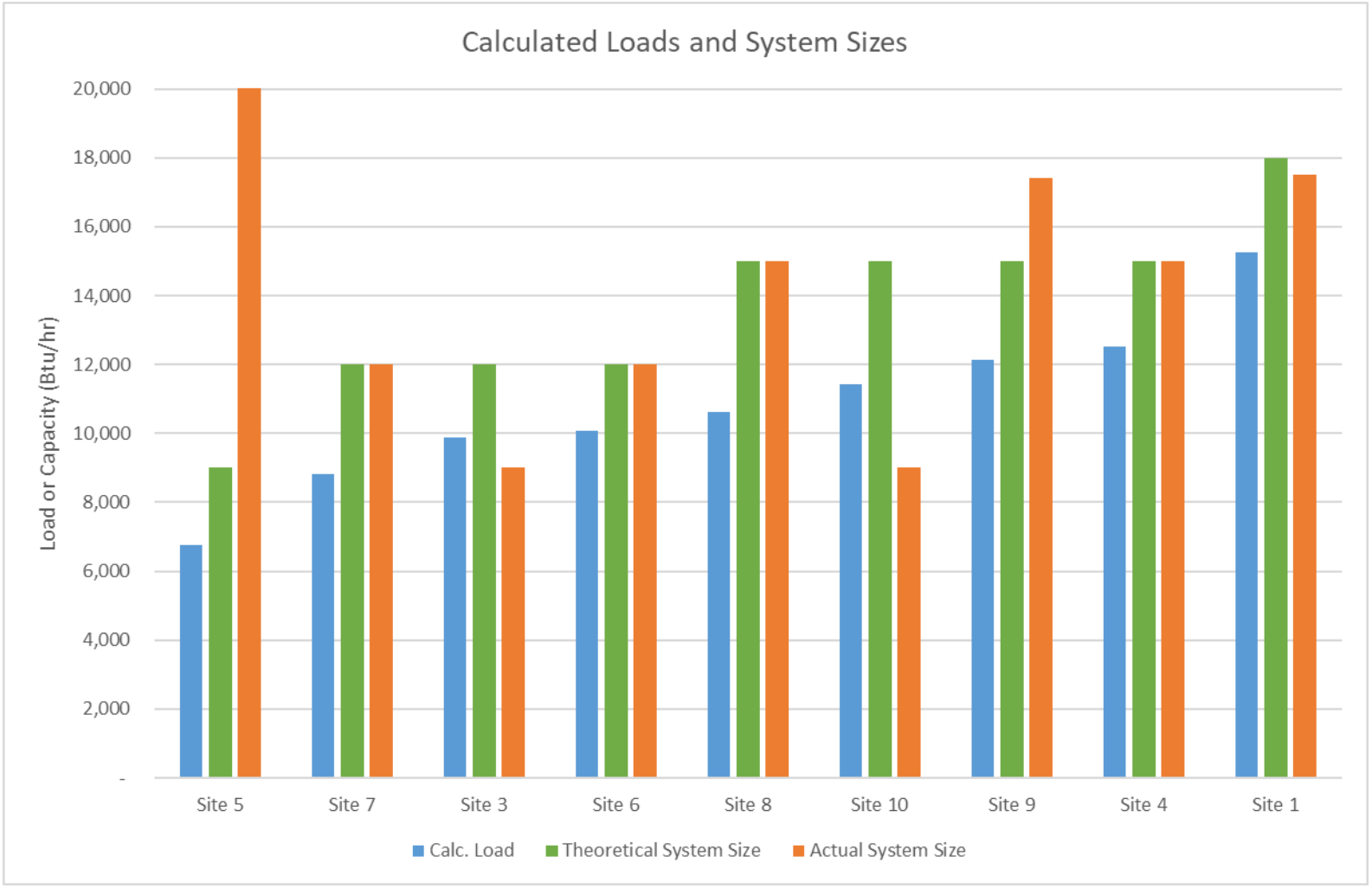
SIZING A HEAT PUMP SYSTEM

- **No correlation**
  - Heating load with Sq.Ft.
  - Cooling load with Sq.Ft.
  - Heating load with cooling load
  - Load with system size



Notes:
1. Sites sorted by calculated load, smallest to largest.
2. Theoretical system size = next largest size from calculated load.

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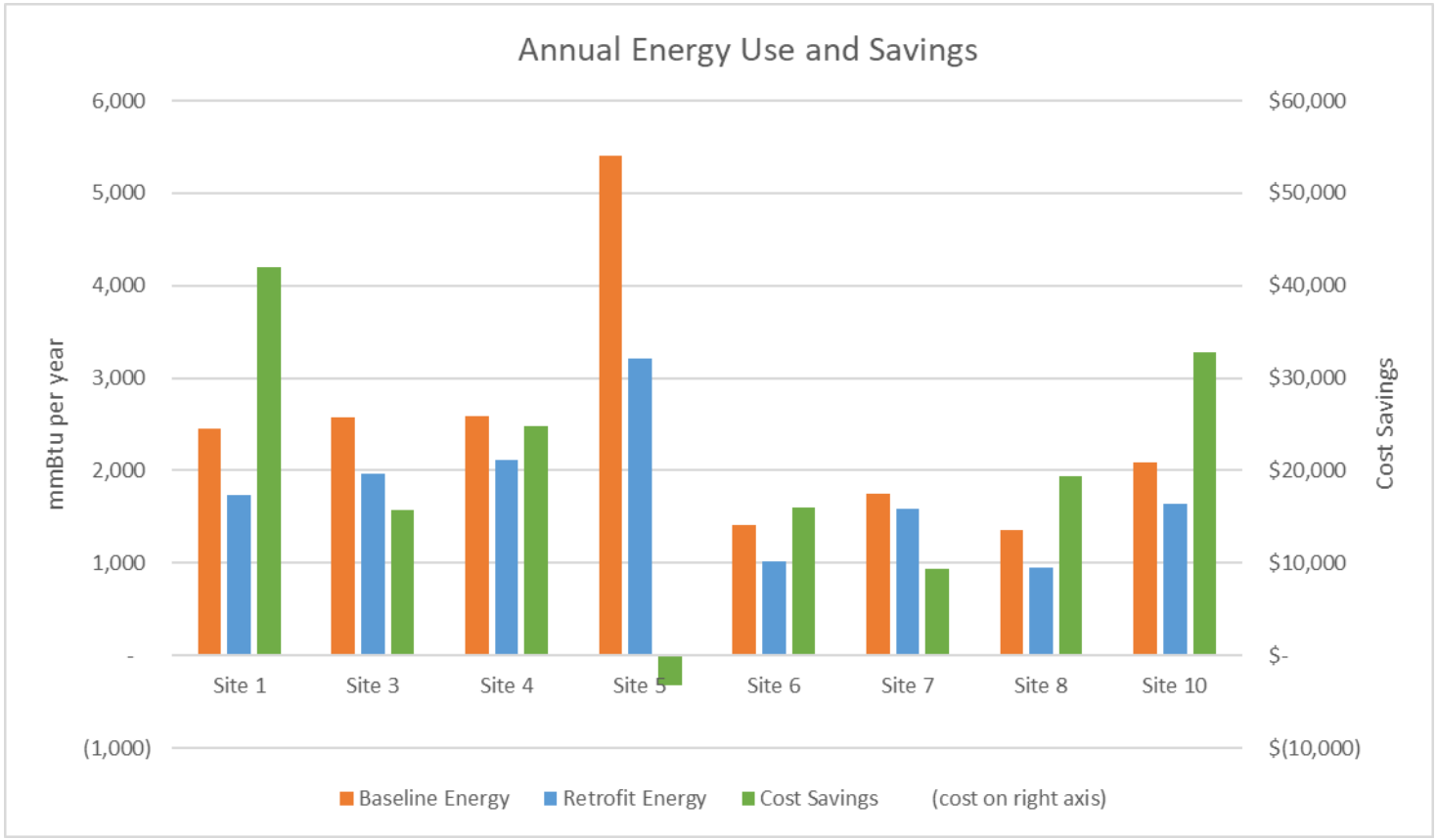
UTILITY BILLING ANALYSIS – ENERGY AND BUDGET SAVINGS?

- **All sites saved energy**
  - One site had no baseline data
  - One site had no billing data
  - Most sites had electric heat
  - Savings between 10% and 41%
  - Average energy savings 25%

- **Most sites saved money**
  - One site had a slight cost increase (this site saved the most energy!)
  - Savings between $9,300 and $42,000
  - Average cost savings $19,600



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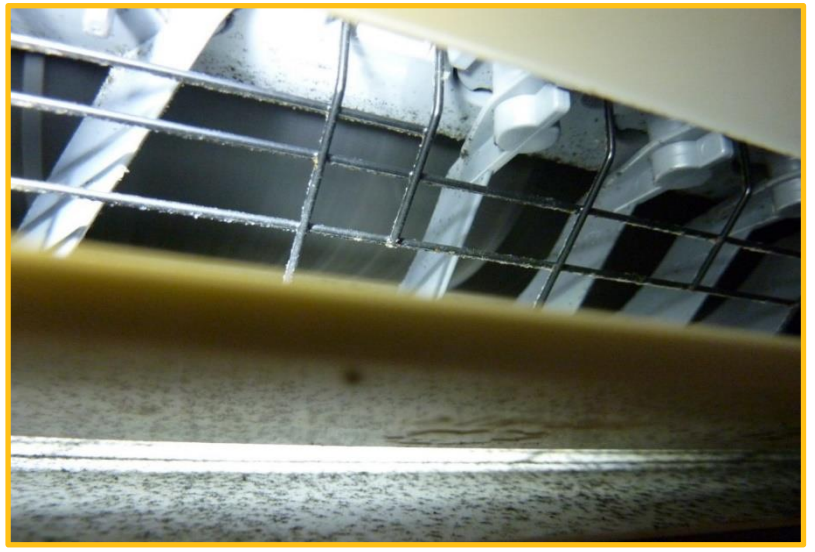
SITE FINDINGS – BUILDUP INSIDE ASHP CASING AND COILS

- **The crud**
  - Accumulates in cooling season
  - Fans should run continuously
  - Annual deep cleaning
  - Not due to make or location
- **Deep cleaning options**
  - Pressure wash kit
  - Steam cleaning
  - Disassembly and wipe down



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SITE FINDINGS – POOR PIPE INSULATION

- **White polyethylene**
  - Degrades quickly under sunlight
  - Decreases energy efficiency
  - Can corrode copper tubing
  - Can lead to loss of refrigerant
- **Refrigerant loss**
  - Poor performance
  - Energy waste
  - Service call and downtime
  - Greenhouse gas
    - 14,600 lb. CO_2 emissions
    - Offsets 3 years of energy savings

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SITE FINDINGS – EQUIPMENT PADS AND STANDS

- **Function of pad**
  - Prevents plant growth under unit
  - Stabilizes unit
  - Prevents loss of refrigerant
- **Installation details**
  - Stand should be bolted to pad
  - Pad should be away from building
- **Pad specification**
  - Do not use molded plastic
  - Use heavyweight, 3” thick concrete

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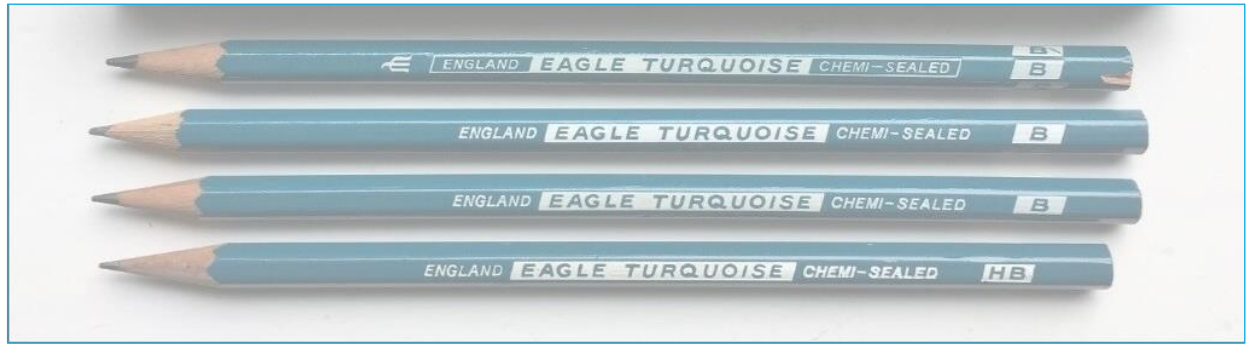
GUIDELINES – OPERATION AND MAINTENANCE

- **Indoor Unit Cleaning**
  - Annual deep cleaning
    - Pressure washer
    - Steam cleaning
    - Disassembly and wipe-down
  - Can be done w/ internal labor or contracted
- **Indoor Unit Filters**
  - Clean 2 to 4 times per year
  - Have spares on hand
  - Do not replace disposable and expensive mini-filters
  - Protect unit during renovation activity
- **System Controls and Operation**
  - **Run fan continuously in cooling mode**
  - Do not use night setback
  - Adjust setpoint for comfort, not numerical value
  - Check for firmware update
- **Condensate Pipe and Pumps**
  - Use condensate pan treatment tablets annually
  - Clear line w/ shop vac annually and as needed

GUIDELINES – DESIGN AND INSTALLATION

- **System Sizing**
  - Do not base size on sq.ft.
  - Perform load calculations
  - Site visit should determine envelope
  - Pay attention to orientation



- **Indoor Unit(s)**
  - Consider individual units for LR and BR

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GUIDELINES – DESIGN AND INSTALLATION

- **Indoor Unit**
  - Hang level and plumb
  - Secure to studs
  - 12” below ceiling if possible
- **Controls and Setup**
  - Wall-mounted controllers
  - Sense temperature at wall controller
  - Fan in auto speed mode
- **Outdoor Unit**
  - 12” from wall, 24” above ground
  - 3” heavyweight concrete pad, bolt stand to pad
  - Back of building preferred
- **Refrigeration Line Sets**
  - No white polyethylene insulation
  - Black elastomeric insulation
  - Protect exposed insulation from UV
- **Condensate**
  - No pumps – gravity drain preferred
  - Use rigid PVC pipe
  - Secure with hangers, no cable staples
  - No sags, bellies, or traps
- **Transfer Fans**
  - Do not install in kitchen
  - Consider quieter unit

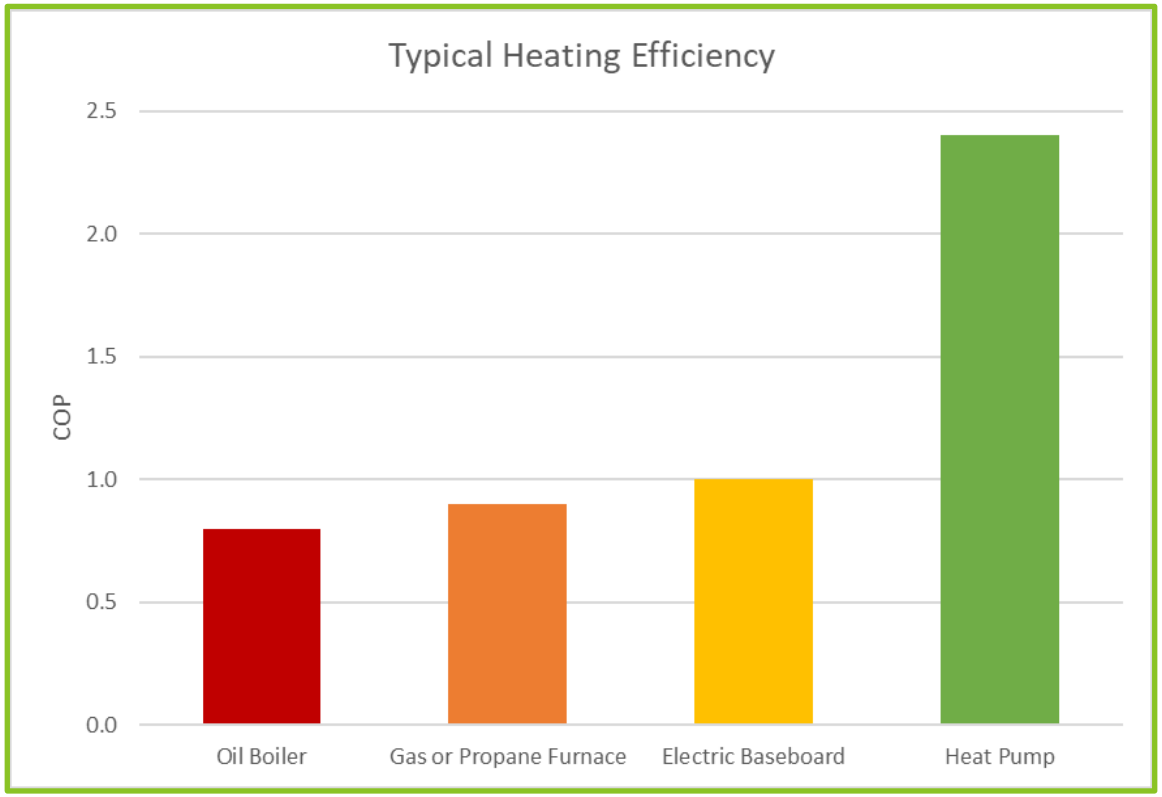
GUIDELINES

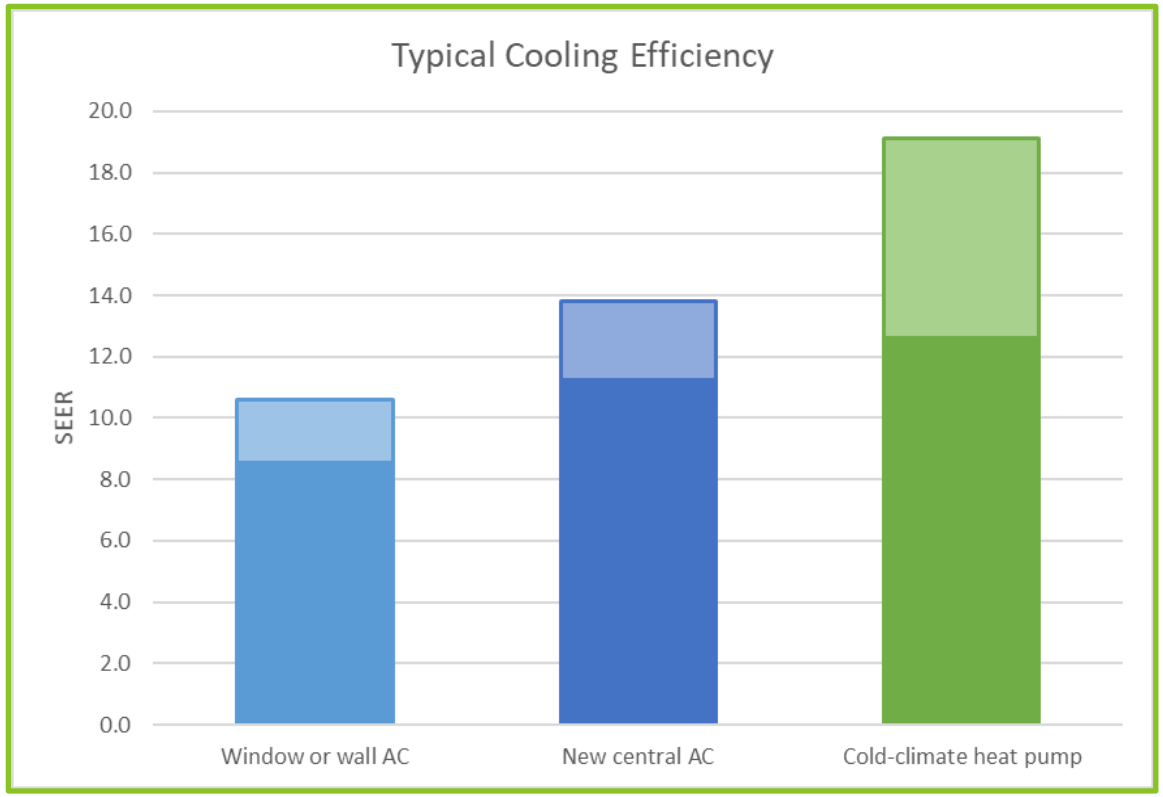
See ASHP guidelines for housing authorities on DHCD website:
www.mass.gov/service-details/design-construction-guidelines-standards

WE DIDN'T FIND A SMOKING GUN

- **Looking Back**
  - **Energy and emissions savings**
  - **Load calculation MIA**
  - **Problems not related to:**
    - System Size
    - Manufacturer
    - Layout
  - **Problems were related to:**
    - Operation
    - Installation

- **Designing Forward**
  - Calculate loads
  - Two heads are better than one
  - Wall controllers
- **Installing Forward**
  - Proper insulation
  - Concrete pads
  - No condensate pumps
- **Operating Forward**
  - Run fan continuously
  - No night setback
  - Annual deep cleaning





QUESTIONS AND COMMENTS

Heat pumps are the high-efficiency option – when done right!

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SITE FINDINGS – THE TALE OF THE TAPE

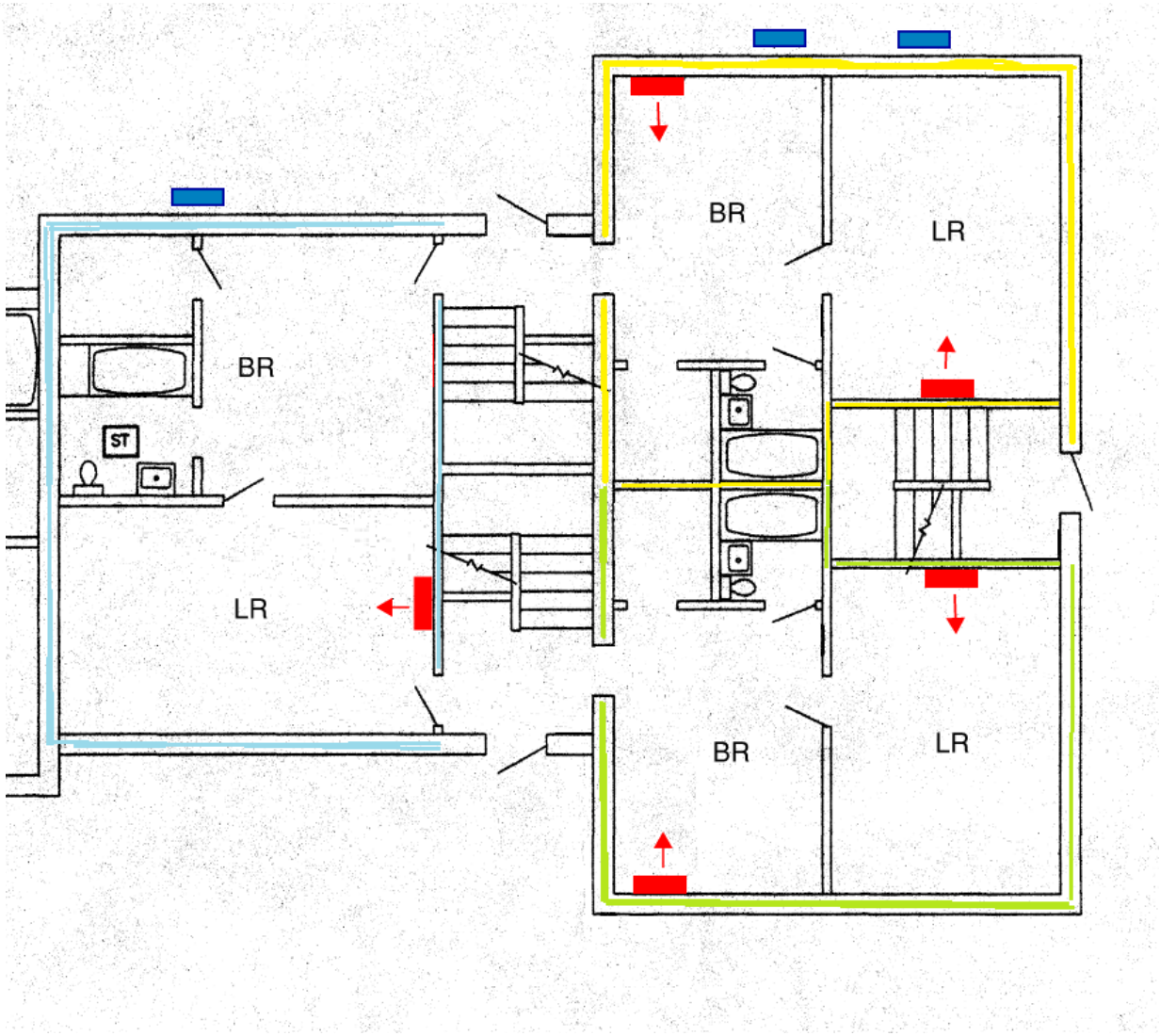
ASHP Make	Fujitsu	Haier	LG	Mitsubishi
Sites	3	2	1	5

ASHP Size	9,000 MBH	12,000 MBH	15,000 MBH	18,000 MBH	24,000 MBH
Sites	2	4	1	2	1

Other Details		Qty. Sites
Indoor Units	Single	8
	Double	2
Controller	Wall Mounted	7
	Remote	3
Outdoor Unit	Pad Mounted	6
	Wall Bracket	4

TYPICAL HEAT PUMP LAYOUTS

- **Two indoor units**
  - Living room and bedroom
  - End apartments have more exterior wall
  - Found at 4 of 10 sites
- **Single indoor unit**
  - Usually in living room
  - Transfer fan between rooms
- **Outdoor unit**
  - Usually in back of building
  - Wall bracket, or
  - Pad mounted (preferred)



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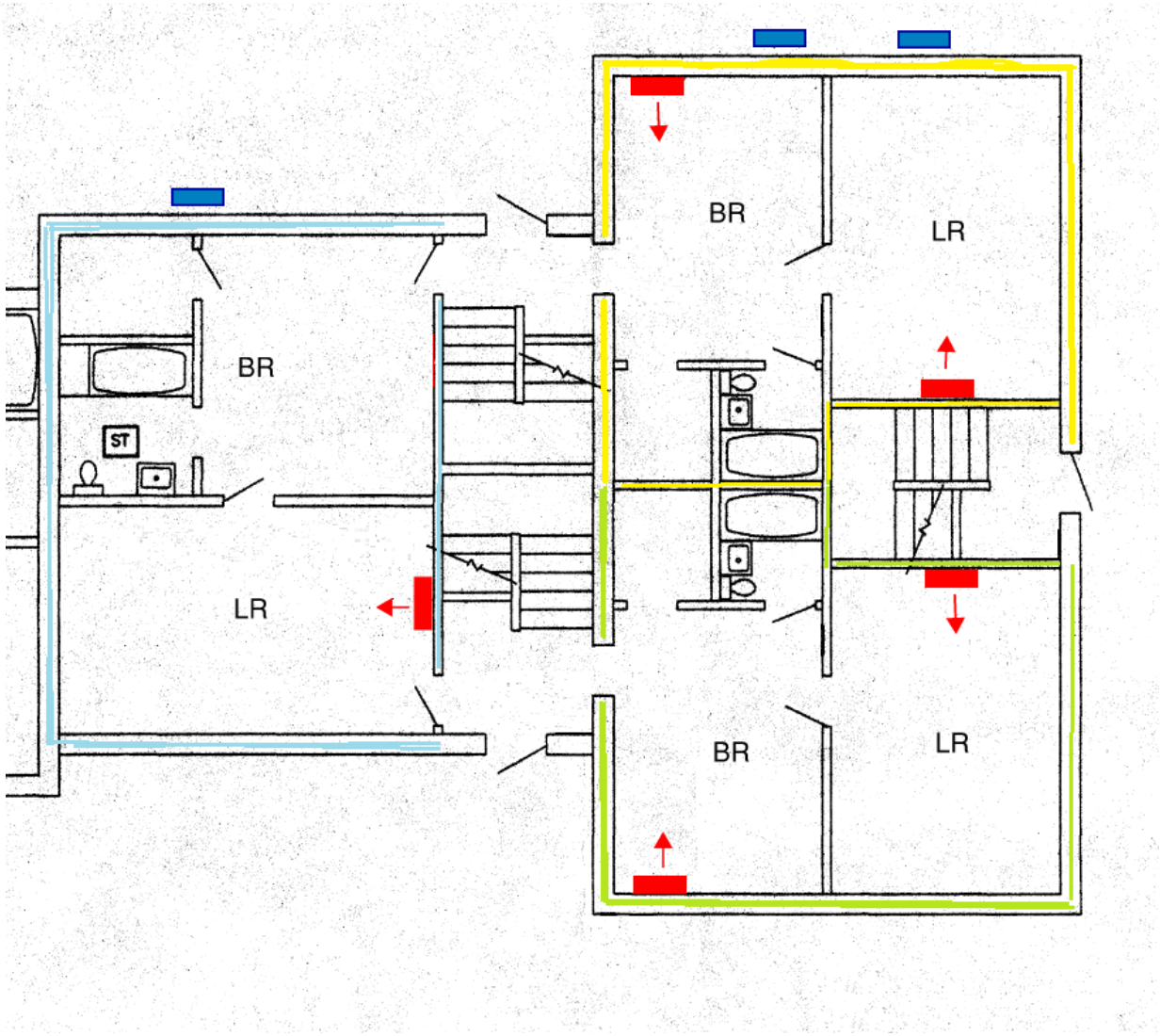
TYPICAL HEAT PUMP LAYOUTS

- **Two indoor units**
  - Allows individual room control
  - More cost and maintenance
- **Single indoor unit**
  - NEEP: “When rooms are open to each other, a single ductless unit may reasonably heat and cool that space — particularly if the home is weatherized.”
  - NREL: “Single-point systems can work well in super-insulated, very airtight, compact houses.”
  - Reading between the lines: *A single ductless unit won’t work as well with leakier, less-insulated construction.*



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WFD Overview

Mass Save - 2022-2024 PAs Workforce Development Strategies:

- Recruiting and training diverse new entrants
- Increasing coordination with public vocational/technical high schools
- Engaging with workforce development, education, and industry stakeholders
- Continuing to upskill existing workforce
- Continuing to partner with the MassCEC on workforce development initiatives

The program aims to:

- Increase diversity in the energy efficiency workforce
- Increase access to opportunities for individuals historically underrepresented in the industry, including:
  - Women
  - People of color
  - People who speak English as a second language
- Create a sustainable pipeline of qualified professionals for the high-demand career fields of weatherization and HVAC

Clean Energy Pathways

Partner with community-based workforce training programs to identify qualified, interested candidates

Place candidates with geographically targeted energy efficiency trade allies in high-need positions/high-value

Upskill interns by providing professional development training and a certification

Match interns with industry mentors, networking opportunities and provide exploratory learning opportunities

Employ graduating participants: aim for 100% of candidates to be placed into jobs upon graduation

Place 120 Recruits in the CEP BY Q4 2024

Clean Energy Pathways

3-month fully paid internship program with:

- Starting salary of $20/hour
- Internship placement and on-the-job training
- Wraparound services and case management support
- Access to:
  - Professional development
  - Mentorship program
  - Career exploration

- Job placement support upon successful completion of internship

Offered in Environmental Justice Communities:

- Boston (Mattapan, Dorchester, Roxbury)
- Fall River
- Lawrence
- Springfield
- Worcester

Focus on multiple career pathways:

- HVAC Specialist
- Weatherization Specialist
- *Energy Auditor (future pathway)

Contractor Industry Trainings

Current WFD Programs/Trainings	Q1 Activities
Building Operator Certification (BOC)	-Old Habits Die Hard: Reinventing Your IEQ Strategy -Benchmarking Simplified: Using Tools & Techniques to Meet Energy Performance Standards -BOC 1004 – HVAC Controls -BOC 1005 – Indoor Environmental Quality -BOC 1006 – Common Opportunities for Low-Cost Operations Improvement
Codes and Standards Training	-Residential Trainings (7x) -Residential Webinars (3x) -Commercial Webinars (3x)
Massachusetts Energy Efficiency Partnership (MAEEP)	-Introduction to Heat Pumps and VRF (2x)
Passive House	-PHIUS Prescriptive Program Workshop -PH 102 with various architectural firms (4x)
Residential Coordinated Delivery (RCD)	-16 individuals completed Wx Crew Member Training -17 individuals completed Wx Crew Chief Training -14 individuals completed Duct Sealing Training

Contractor Industry Trainings, cont.

Current WFD Programs/Trainings	Q2 & Q3 Activities
Building Operator Certification	-It's Electric: The Impact of Electrification on Building Operations -Heat Pumps: Are They the Right Fit for Your Building? -BOC 1013 – Smart Building Fundamentals
Codes and Standards Training	-Energy Code for Existing Buildings -Air Sealing and Insulation Installation -Mechanical; Ventilation
Heat Pump Installer Network	-Air Source Heat Pump Sizing and Design Training -Mini-Split Heat Pump Installation Best Practices Training -Weatherization 101 for HVAC Contractors -Integrated Controls 101
Massachusetts Energy Efficiency Partnership (MAEEP)	-Heat Pumps for Engineers and Energy Auditors -Weatherization and Heat Pumps for Small Businesses
Passive House	-All-Electric Homes Kickoff Series -Making the Switch to All-Electric -PH 101 for Structural Engineers
Residential Coordinated Delivery (RCD)	-Bootcamps for Weatherization Crew Members & Chiefs Ongoing

Mass Save Scholarship

$250,000 Annual Funding

Scholarship Goal: Increase access to energy efficiency workforce by alleviating financial hardship

- Trainings
- Certificates

Scholarships will prioritize:

- Diverse individuals in environmental justice communities
- Students in a high school, community college, and or vocational training school programs

MASSACHUSETTS CLEAN ENERGY CENTER®

DEVELOPING THE CLEAN ENERGY WORKFORCE

Presented By Janel Granum

OUR MISSION

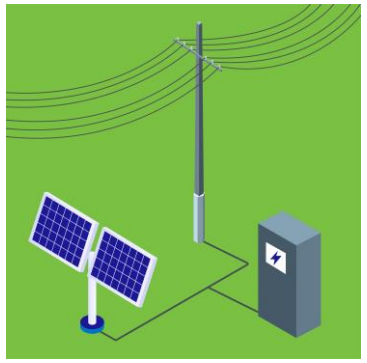
Grow the economy and help meet the state's ambitious clean energy and climate goals.

MASSCEC FOCUS AREAS

High Performance Buildings

Clean Transportation

Net Zero Grid



Offshore Wind

WORKFORCE - EQUITY

WORKFORCE DEVELOPMENT

Prepare and support a diverse clean energy and climate solution workforce needed for Massachusetts to reach its 2050 net zero greenhouse gas emission goal

Raising awareness of industry

Support career pathways that lead to economic stability

Prepare workers to meet needs of industry

Support diverse clean energy & climate solution businesses

Cultivate a diverse pipeline of workers

Summer interns working for Building Evolution

CLEAN ENERGY INTERNSHIP PROGRAM

- Reduces cost of a summer intern by reimbursing employer $16 per hour
- Summer maximum reimbursement of $7,300.
- Employers can get two interns but three if from a Community College
- Pairing begins mid-February of employers and students

SUPPORT FOR MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES

- By summer 2022, MassCEC hopes to award multi-year grants to organizations that will support MWBEs, help with certifications, and create new companies
- RFP applications received by April 29
- Diversity of offerings for new businesses

EQUITY WORKFORCE DEVELOPMENT PLANNING GRANTS

- Addresses the lack of green career industry knowledge and clean energy workforce gaps by supporting planning for regional training programs and job placement directly in EJ Neighborhoods

- Position organizations serving EJ Neighborhoods to successfully educate, train and place EJ residents into the clean energy career pipeline

- Applications are due by July 1

BELD Ribbon Cutting for ACES project

OTHER WORKFORCE RESOURCES

MassHIre Market Makers – Connect employers with training providers to meet

CTI programs – local vocational schools and community colleges host training programs for the workforce

Local training and certification programs

QUESTIONS?

Massachusetts Department of Energy Resources

LBE Updates

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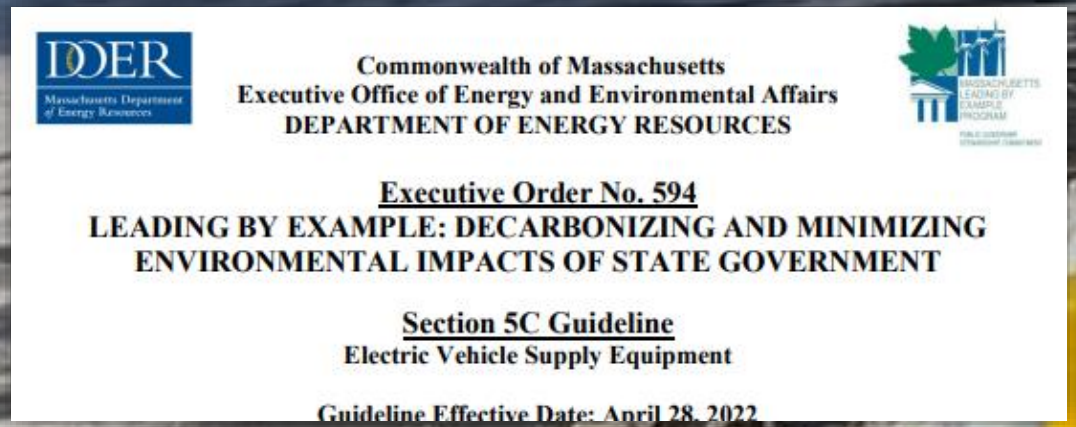
LBE Feasibility Study Grants

Awards	• $75,000 per study • $100,000 max per entity per 6-months
Eligibility	• State entities including executive branch agencies, state institutions of higher education, and quasi-public authorities
Eligible Studies	• Support directives of EO594 • Renewable thermal, innovation, long-term decarbonization roadmaps, etc
Schedule	• Rolling applications • Studies should target completion within 6 months (longer may be requested)
PON Response Deadline	• June 30, 2023

More information, PON, and application form on the LBE Grants page

New EVSE Guidelines

Guidelines for EO594 Section 5C: Electric Vehicle Supply Equipment



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Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
DEPARTMENT OF ENERGY RESOURCES

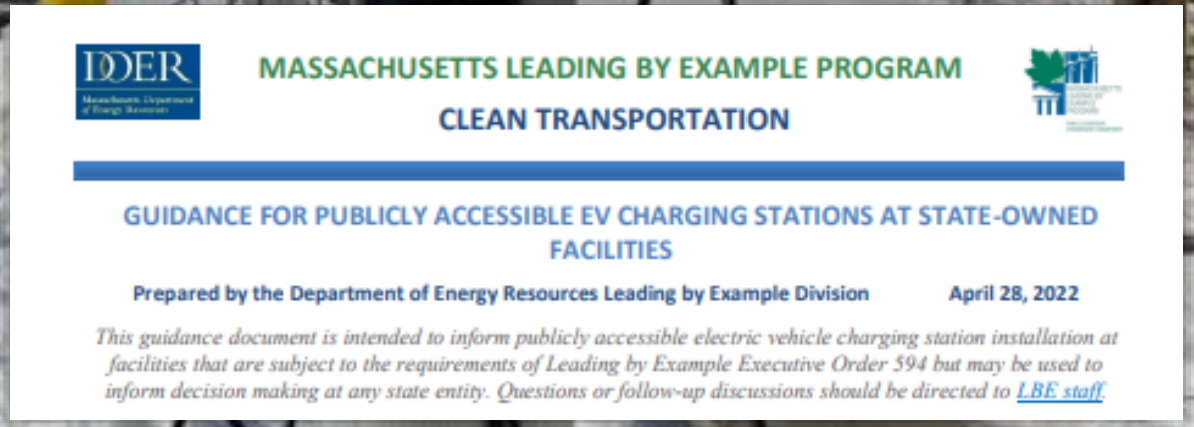
Executive Order No. 594
LEADING BY EXAMPLE: DECARBONIZING AND MINIMIZING ENVIRONMENTAL IMPACTS OF STATE GOVERNMENT

Section 5C Guideline
Electric Vehicle Supply Equipment

Guideline Effective Date: April 28, 2022

Prioritization for Fleets, Recommended Numbers, Funding and Procurement, LBE Resources

Guidance for Publicly Accessible EV Stations



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MASSACHUSETTS LEADING BY EXAMPLE PROGRAM

CLEAN TRANSPORTATION

GUIDANCE FOR PUBLICLY ACCESSIBLE EV CHARGING STATIONS AT STATE-OWNED FACILITIES

Prepared by the Department of Energy Resources Leading by Example Division **April 28, 2022**

This guidance document is intended to inform publicly accessible electric vehicle charging station installation at facilities that are subject to the requirements of Leading by Example Executive Order 594 but may be used to inform decision making at any state entity. Questions or follow-up discussions should be directed to LBE staff.

Locations, Types, Siting, Numbers, Funding and Procurement, Costs, Fees and Access

EV Charging Scope of Services Template

- Fully editable Statement of Work for procurement under VEH102: Advanced Vehicle Technology Equipment, Supplies & Services
- Download via the LBE Clean Transportation Page

- **LBE EV Models Database** ⇒ This workbook provides detailed information for a broad range of available and upcoming zero-emission vehicle models across various classes and use cases.
- **LBE Scope of Services for EV Charging** ⇒ This document provides template language for partners to utilize when procuring EV charging stations.
- **Considerations to Inform EV Charging Station Decision-Making** ⇒ This two-page This resource is intended to better inform the initial decision-making process for all types of electric vehicle (EV) charging station installations at state facilities, including public, workplace, and fleet

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Also Available on the LBE Clean Transportation Page…

- Links to statewide contract user guides
  - VEH102: EV Charging
  - VEH110: Light and Medium-Duty Vehicles
- Links to funding programs
  - MassEVIP
  - MOR-EV and MOR-EV Trucks
- TCO comparison calculator
- Lists of EVs on statewide contracts
- Quick guides on EVs and EV Charging
- Upcoming EV Models database

Visit: www.mass.gov/info-details/lbe-priorities-and-efforts-clean-transportation

Next LBE Council Meeting

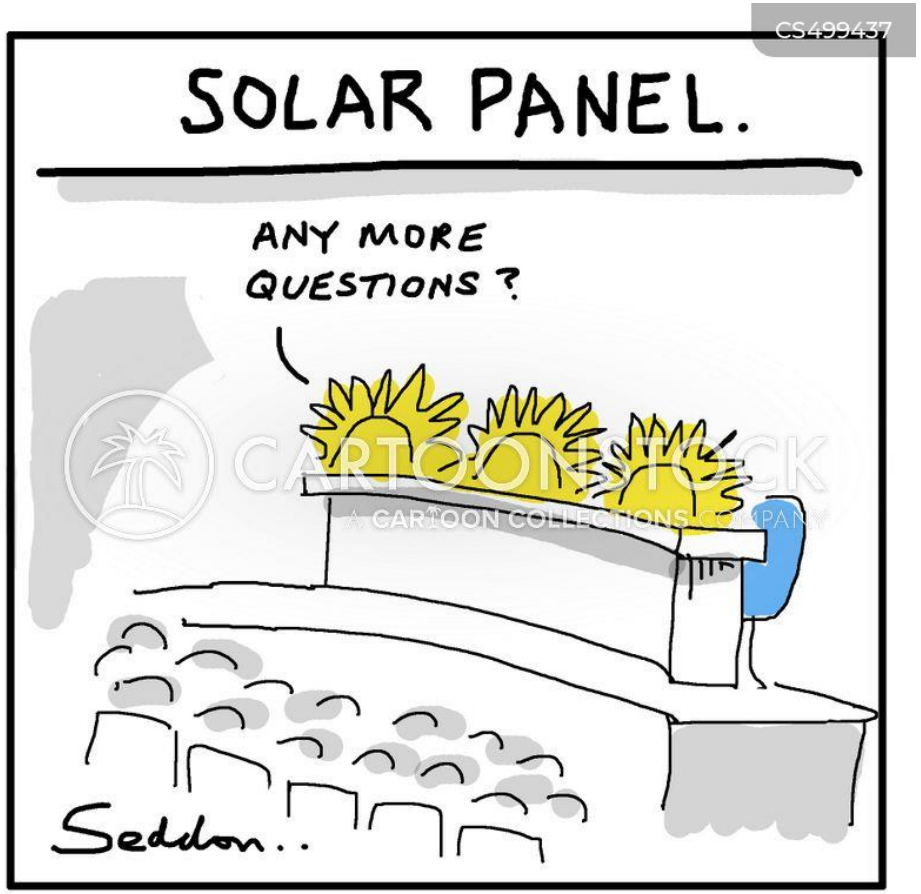
Save the Date!

Tentative:

Tuesday, July 12th

10:00 am–12:00 pm

Upcoming Tentative Meeting Dates:
Sept 13th
Nov 8th
Jan 10th



Creating a Clean, Affordable and Resilient Energy Future for the Commonwealth

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