

# BEPSDC Task Force

February 18, 2020



@DOEE\_DC  
#BEPSSDC

\*\*\* DEPARTMENT  
OF ENERGY &  
ENVIRONMENT  
GOVERNMENT OF THE DISTRICT OF COLUMBIA

WE ARE  
WASHINGTON  
DC GOVERNMENT OF THE  
DISTRICT OF COLUMBIA  
MURIEL BOWSER, MAYOR

# AGENDA

- Administrative Items
- Performance Pathway
- Alternative Compliance Pathways
- Setting Standard above median
- Prescriptive Pathway
- Penalty Structure
- Announcements



# ROLE OF TASK FORCE



- Advise DOE on creation of an implementation plan for the Building Energy Performance Program;
  - Recommend amendments to proposed regulations issued by DOE; and
  - Recommend complementary programs or policies.
- 
- Rule of Thumb: Focus on 95% for initial meetings, 5% issues moved to Bike Rack
  - If topic needs in-depth technical discussion, anyone can make the suggestion to move it to a sub-committee
  - This is an open meeting - everyone is allowed to participate

# MEETING SCHEDULE



- January 7 – Property Types, Equivalent Metric
- January 21 – Performance Path, Other Pathways
- February 4 – Penalties and Enforcement, Exemption Criteria/Process
- February 18 – Revisit Compliance Pathways and Penalty Structure
- March 3 - Vacancy/Public Sub-committees, Higher Ed Carve-out, Bike Rack items for Rules
- March 17 – Program Support?



# PERFORMANCE PATHWAY



- **Performance Compliance Pathway**

- Buildings that do not meet the standard must reduce Site EUI by 20%

- **Median Target Compliance Pathway**

- Buildings that do not meet the standard must reduce Site EUI by 20% or reduce Source EUI to meet standard

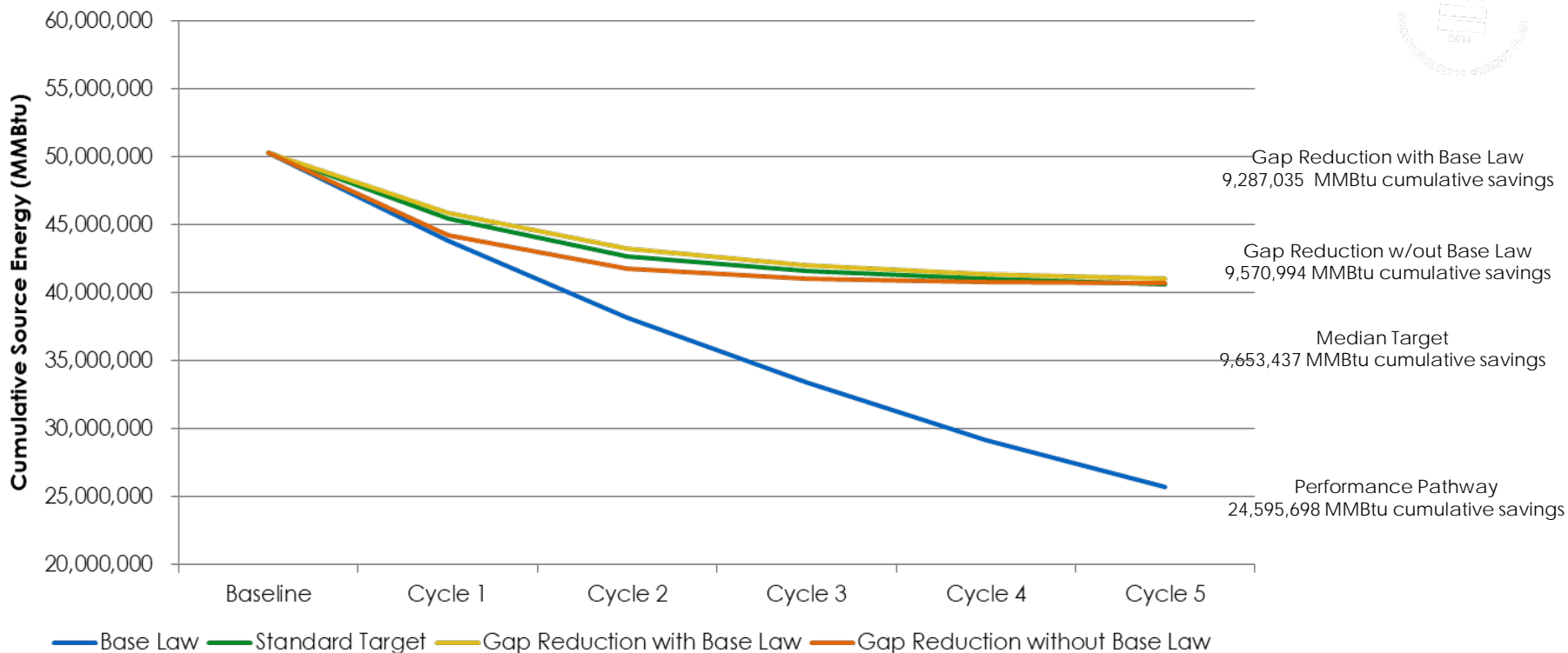
- **Gap Reduction with Performance Compliance Pathway**

- Buildings that do not meet the standard must reduce Site EUI by 20% or reduce the gap between Source EUI and standard by x% (We assumed 70% for this exercise)

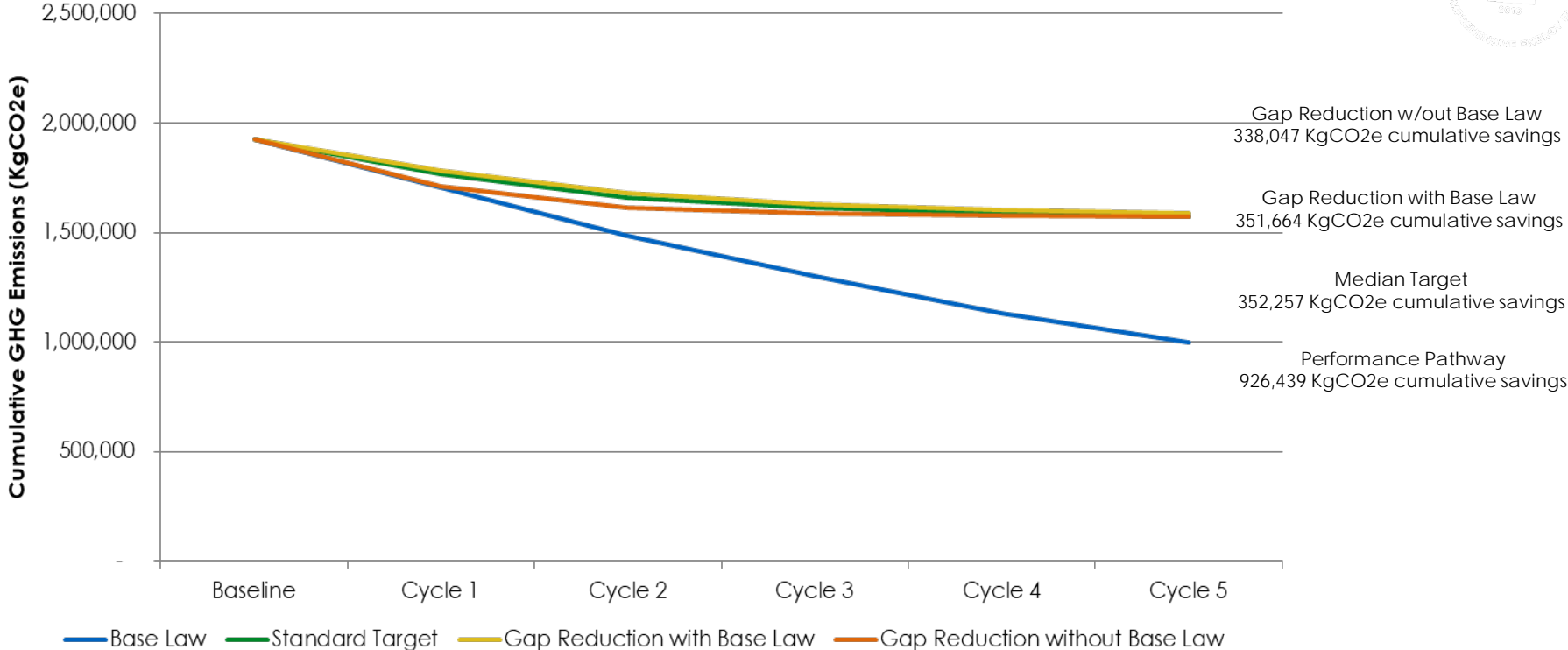
- **Gap Reduction removing Performance Compliance Pathway**

- Buildings that do not meet the standard must reduce the gap between Source EUI and standard by x% (We assumed 70% for this exercise) \*\* requires amendment to law

# PERFORMANCE PATHWAY ENERGY SAVINGS COMPARISON



# PERFORMANCE PATHWAY GHG SAVINGS COMPARISON





# ALTERNATIVE CERTIFICATIONS AS A PATH



Certified Energy Star Score
LEED Gold or Platinum O&M
Living Building, Petal, or Net Zero Energy Certifications

Which certifications should we research more in depth?

# SETTING STANDARD ABOVE MEDIAN?



Property Grouping	Count	District Median ES Score	District Median Source EUI	National Median Source EUI
K-12 School	133	39	144.7	104.4
Hotel	105	48	187.4	146.7
Fire station/police station	27		185.7	124.9
Warehouses/Dist. Center	19	35	117.7	52.9
Worship Facility	17	23	142.3	58.4
Library	12		190.7	143.6
Recreation	12		250.6	112.0
Senior Care Community	10	43	248.3	213.2
Public assembly	8		216.2	112.0
Social/meeting	8		206.0	109.6

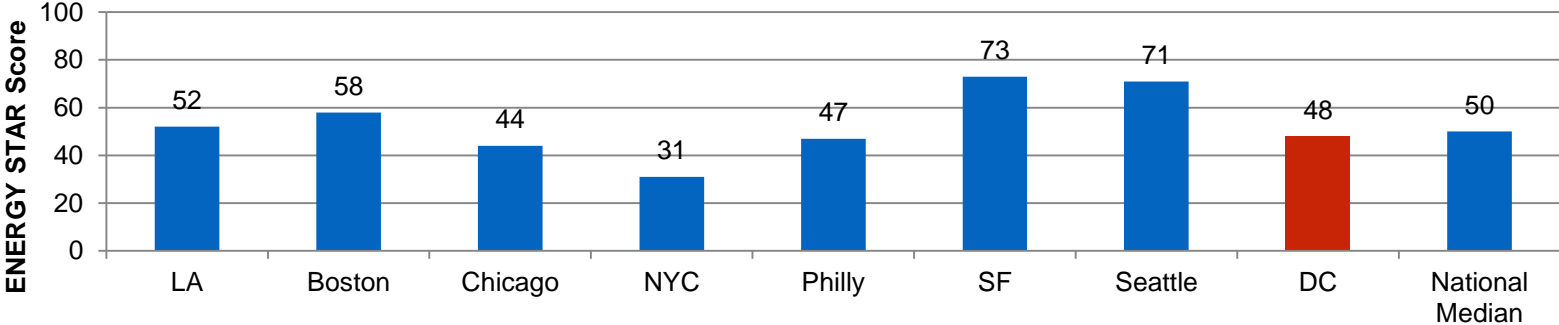
\*Property types in this chart fall below the national median based on 2018 data.



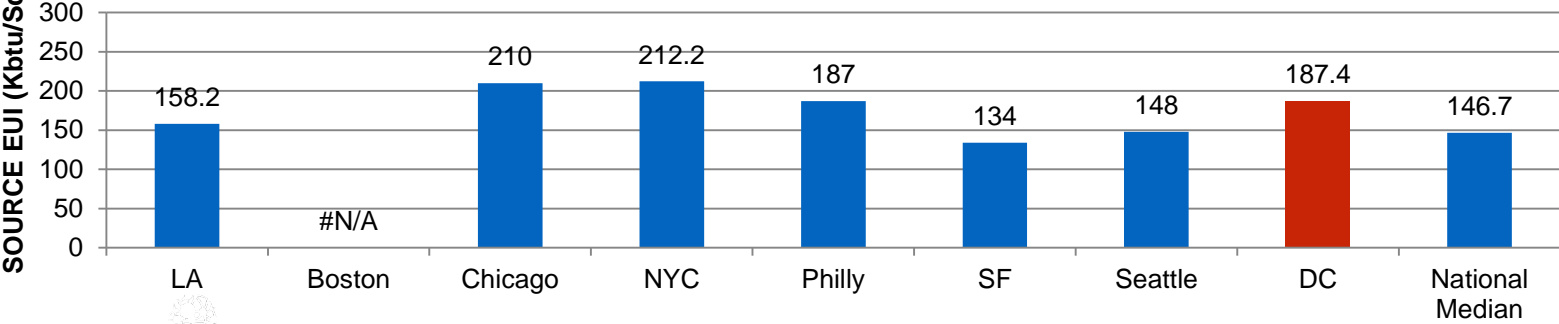
# REGIONAL ANALYSIS: HOTELS



## Hotel



## Hotel



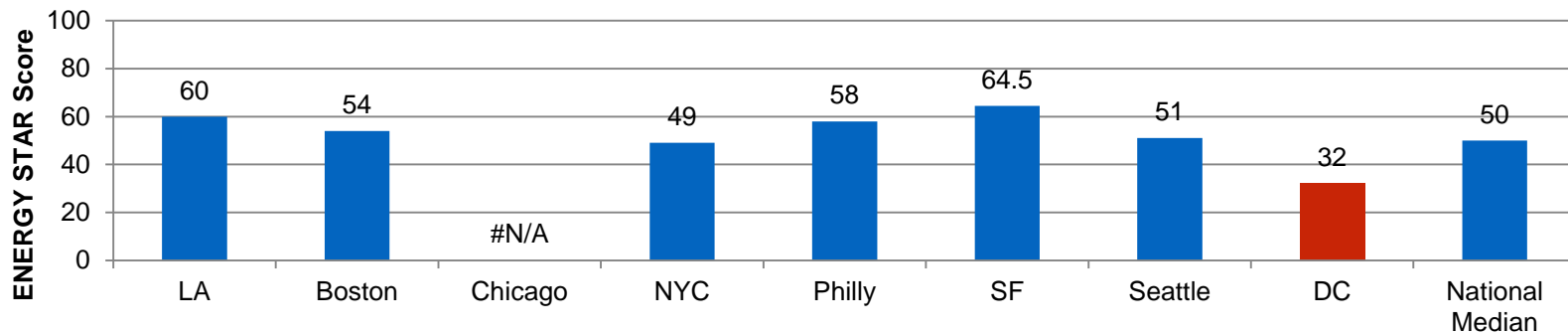
INTEGR\*\* - Boston does not disclose their Source Energy figures



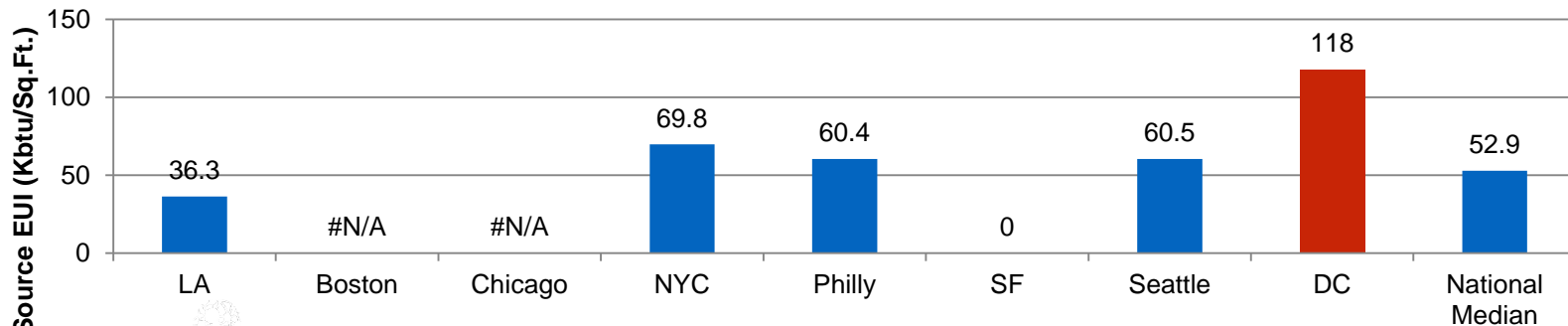
# REGIONAL ANALYSIS: WAREHOUSE



## Warehouse



## Warehouse

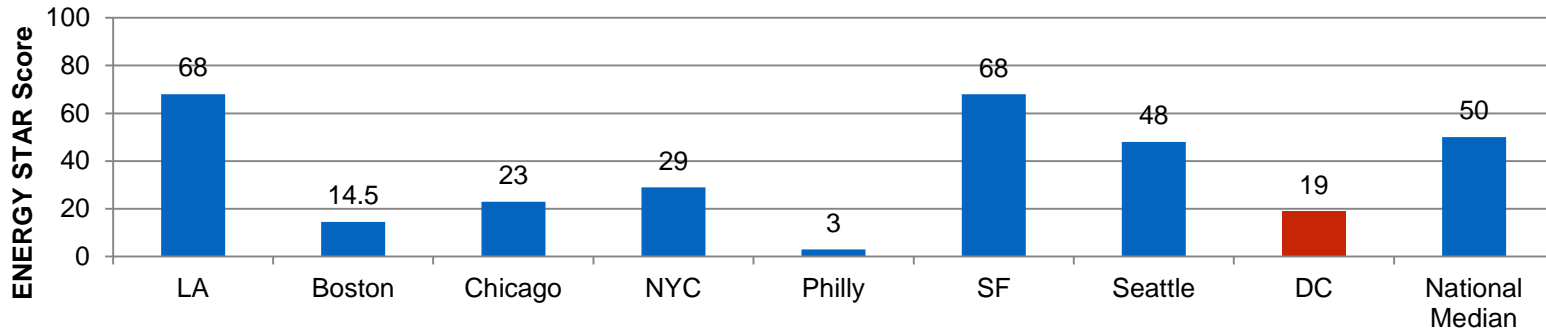


\*\* Boston does not disclose their Source Energy figures, Chicago does not have any warehouses in their public disclosure

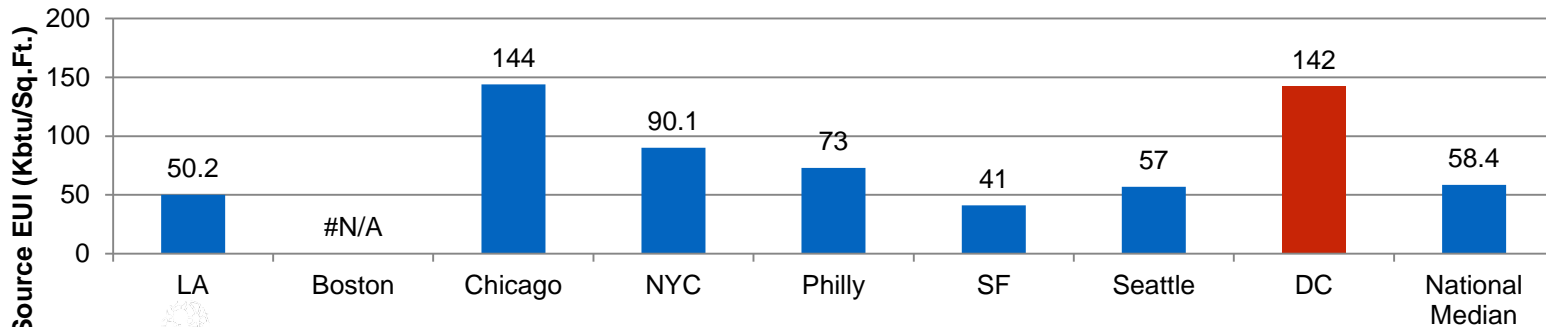
# REGIONAL ANALYSIS: WORSHIP FACILITIES



## Worship Facility



## Worship Facility

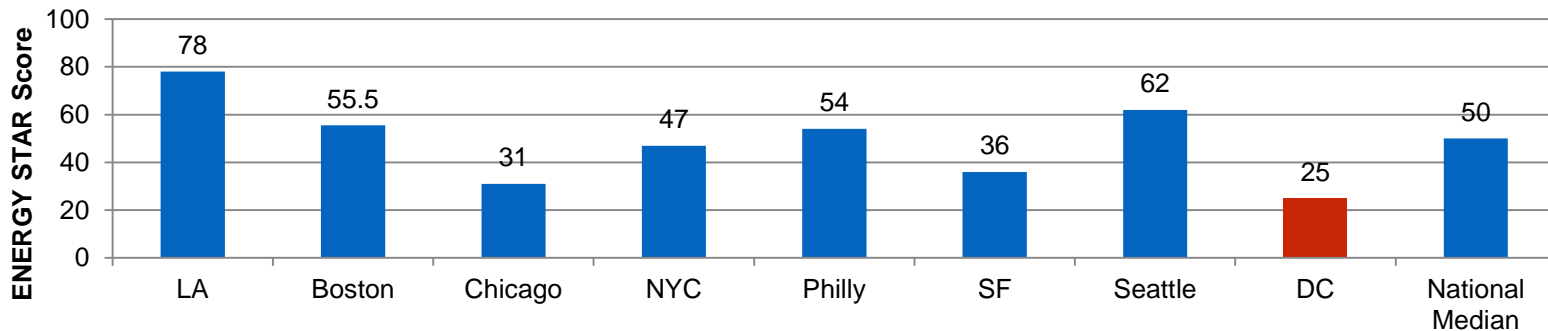


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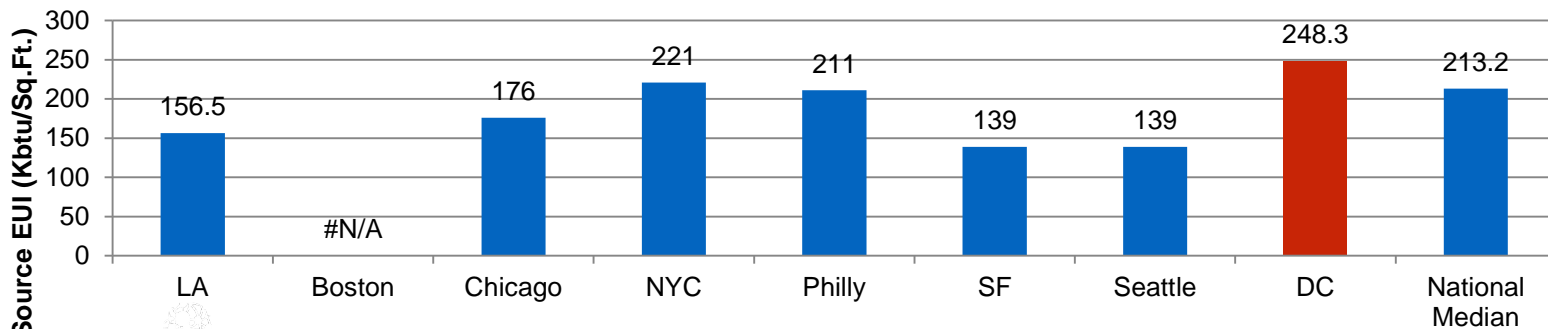
# REGIONAL ANALYSIS: SENIOR CARE



## Senior Care Community



## Senior Care Community



INTEGR>\*\* - Boston does not disclose their Source Energy figures

# SAVINGS FROM USING NATIONAL METRICS

DOE ENERGY EFFICIENCY

Grouping	Local Median ENERGY STAR Score	Local Median Source EUI	National Median ENERGY STAR Score	National Median Source EUI	GHG Emissions Base Line	LGHG Emissions Cycle 1 - Local	LGHG Emissions Cycle 1 - National	Marginal GHG Savings Percent
K-12 School	36	144.7	50	144.7	85,747,735	76,524,808	72,488,034	-4.71%
Worship Facility	18.5	142.3	50	142.3	11,437,436	9,662,155	9,216,828	-3.89%
Public assembly	0	216.2		216.2	13,182,723	10,973,619	10,711,091	-1.99%
Recreation	0	250.6		250.6	5,958,659	5,306,153	4,766,927	-9.05%
Fire/police station	0	187.5		187.5	5,625,809	5,140,000	4,631,051	-9.05%
Senior Care	24.5	248.25	50	248.25	12,519,719	10,761,029	10,608,997	-1.21%
Library	0	190.65		190.65	6,858,569	5,915,387	5,538,522	-5.49%
Social/meeting	0	235.75		235.75	2,337,117	2,153,310	1,915,841	-10.16%
Hotel	49	187.2	50	187.2	194,572,671	171,054,130	170,920,772	-0.07%
Warehouses	32	104.45	50	104.45	9,204,117	8,280,573	8,069,868	-2.29%
Total					347,444,555	305,771,163	298,867,931	<b>-1.99%</b>

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# PRESCRIPTIVE PATHWAY IDEAS PRESENTED IN WG



- ❑ Break-down List by:
  - ❑ Minimum Requirements (must-do's; Energy 101 strategies)
  - ❑ Operations & Maintenance Strategies
  - ❑ Project-based Strategies
  
- ❑ Weighted values for each item based on energy savings potential
  
- ❑ Categorize items on list:
  - ❑ Easy – simple upgrades or process changes
  - ❑ Medium – moderate renovations
  - ❑ Hard – substantial improvements



# SCENARIOS FOR CONSIDERATION



<b>Can't Afford Capital Improvements or Loans</b>	<b>Has Some O&amp;M and Capital Funding</b>	<b>Planning a Major Renovation with Deep Energy Retrofits</b>
Would choose mostly O&M strategies and some possible low/no cost projects with short paybacks	Mix of O&M and Project Strategies	Shooting for more than 20% improvement - DOEE could consider offering "early compliance" credit for the 2 <sup>nd</sup> /3 <sup>rd</sup> cycle



# PRESCRIPTIVE PATHWAY EXAMPLE



Measure	Property Type	Non-Energy Benefits	Cost Range	Savings*
Replace/Upgrade Packaged HVAC	Any		\$\$\$	5%
Increase Roof Insulation	Any		\$\$\$	3%
Upgrade Motors or Install VFDs**	Any		\$\$	4%
Replace Washing Machines & Dryers	Any		\$	1%
Upgrade Exhaust Fans	Any		\$	2%
Replace Toilets	Any		\$\$	10%
Replace Windows and Glazing	Any		\$\$\$\$	4%
Replace Refrigerators	Any		\$\$\$	2%
Replace Exterior Doors	Any		\$	1%
Install Heating System Sensors	Central Heat		\$	1%
Install Central Heating Controls	Central Heat		\$\$\$	6%
Upgrade or Repair Burner	Central Boiler Heat		\$\$	3%
Upgrade DHW Boiler	Central DHW		\$\$\$	3%
Install Thermostatic Radiator/ Valves or Zones	Central Boiler Heat		\$\$\$	5%
Convert Heating System from Oil to Gas	Oil-Fired Heating		\$\$\$\$	10%
Install Submetering	Master-Metered		\$\$\$	15%
Install Irrigation Controls	Landscaped, Garden-Style		\$\$	13%

Community  
Preservation  
Corporation:  
"Underwriting  
Efficiency"

# WORKING GROUP SCENARIOS: O&M



<p><b>** Energy Efficiency Best Mgmt. Practices</b></p> <p>occupancy schedules, equipment run-times, set points for HVAC and lighting, minimum outside air requirements, preventative maintenance plan</p>	<p><b>** Staff Training Plan</b></p> <p>ongoing plan for training building staff on implementing an energy efficiency improvement program including equipment operation and energy policy</p>
<p><b>Building-Level Energy Metering</b></p> <p>for campuses</p>	<p><b>Advanced Energy Metering</b></p> <p>sub-meter major uses that represent 20% or more of total consumption</p>
<p><b>Existing Building Commissioning</b></p> <p>implement no/low cost operational improvements with a 5-year plan for tracking/verification</p>	<p><b>Weatherizing and air sealing</b></p> <p>windows, ductwork, whole-building insulation</p>
<p><b>Ongoing Commissioning</b></p> <p>develop plan for monitoring, testing, performance verification, corrective action, and ongoing measurement</p>	<p><b>** Maintenance Schedules</b></p> <p>document and maintain records for regular mechanical systems maintenance</p>

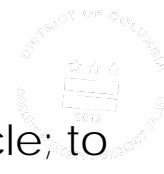


# WORKING GROUP SCENARIOS: PROJECT-BASED

OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY

HVAC	Controls	Other
Enhanced Commissioning	Lighting	Lighting
Tune-up/Upgrade Chiller	Occupancy Controls	Hot water heating equipment
Tune-up/Upgrade Boiler	Central Plant	Upgrade to Energy Star appliances
Variable Speed/Frequency Drives	Air Handlers/Outside Air	Energy efficiency windows/doors
Energy Recovery Ventilation systems	Domestic Hot Water	Address air leakage
Install Exhaust Fan timers	Building Automation System	Roof or attic insulation
Combined Heat and Power plants		Wall Insulation
Repair/Insulate/Tune-up Heating System		Shading and window film
Repair/Replace Steam Traps		

# WORKING GROUP KEY TAKEAWAYS



- **Flexibility** – to choose which pathway and change their mind during the cycle; to accept potentially delayed compliance for those who are pursuing deeper, more intensive strategies; to have the prescriptive path evolve each cycle.
- **Certainty** – for the first pathway, it is important to establish that before the first cycle and leave it static. Leave flexibility to adopt new things for 2<sup>nd</sup> cycle and beyond.
- **Coaches or online tools** to help offer tailored help to building owners, identify strategies, financing, and encourage thinking beyond one cycle.
- **Alignment** across DC agencies to ensure smooth permitting & other points of collaboration.



# WORKING GROUP KEY TAKEAWAYS



- **Audits and Retro-commissioning** should be a minimum requirement.
  - Weight things differently so that the requirements are more incentivized and then remove them as requirements.
- **Using alternative certifications as a compliance path** seems like a lot of extra work than just the normal prescriptive pathway
- Allow counting of 2019-2020 projects toward first compliance cycle.
- Need to think more about Multifamily properties.
- Make sure that BEPS Prescriptive requirements are not contradicted by code.







# NEXT TASK FORCE MEETING



March 3

- Topics:
  - Report-out from vacancy and public sub-committees
  - Higher Education carve-out
  - Review of Bike Rack items for rule-affecting items
  
- What kind of research do we need to prepare for March 3?
  - xxx







# HOTEL COMPARISON



Room Density (per 1,000 sq. ft.)	Average Score Previous Hotel Model	Average Score Current Hotel Model	Percent scoring 75 or above (Previous Model)	Percent scoring 75 or above (Current Model)
Less than 1.5	46	53	21%	31%
1.5 - 2.5	57	55	29%	28%
2.5 +	59	56	29%	31%
All	53	54	26%	30%

- Hotels with low room density often represent upscale hotels with more space devoted to common areas, such as lobbies, corridors, conference rooms, and banquet space.
- These hotels also tend to have higher energy use intensity than other types of hotel properties.
- The 2018 model better reflects this market differentiation and scores hotels with different room densities relatively evenly.

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