We'll be starting in just a few minutes….

Tell us…

What topics are you interested in for future webinars?

Please go to slido.com and use event code #DOE to submit your responses.
Next-Generation Building Performance Policies: Maximizing Energy Savings and Environmental Impacts

July 16, 2020
1:00 – 2:00 pm EDT
Adam Guzzo
Senior Advisor
U.S. Department of Energy
Weatherization & Intergovernmental Programs Office (WIP)
Better Information

Making Energy Efficient Investments Easier
- Better Buildings Solution Center
- Financing Navigator
- Improved Data and Consistency Access
- Tools to Assess the Efficiency of Buildings/Homes
- Tools for Energy Management

Better Building Workforce Guidelines
Industrial Energy Management Workforce

Workforce Development

Market Leadership
Developing Innovative, Replicable Solutions with Market Leaders
- Better Buildings Challenge
- Better Buildings Alliance
- Better Buildings, Better Plants
- Better Buildings Accelerators
- Better Buildings Residential
- Superior Energy Performance

Innovation and Emerging Technologies
New technologies and new ideas are key to building a stronger economy
- Better Buildings Technology Campaigns - lighting, HVAC, Energy Analytics
Please go to www.slido.com using your mobile device, or by opening a new window

Enter Event Code

#DOE
Poll #1

*Where are you joining us from today?*

Please go to [www.slido.com](http://www.slido.com) and enter code #DOE to respond
What sector best describes your organization?

Please go to www.slido.com and enter code #DOE to respond
National Building Energy Efficiency Opportunity and Impact

Opportunity

- **$400 billion/year** spent in the U.S. to power our buildings
- **74%** of all U.S. **electricity** is used in buildings
- **50%** of the nation’s **5.6 million commercial buildings** were built before 1980
- **30%** of the energy used in buildings is wasted on average

Impact

- **$120 billion** in annual savings if we cut the energy use of U.S. buildings by 30%

Source: DOE’s Building Technologies Office
Poll #3

Is your jurisdiction currently considering passing a policy targeting energy use in new or existing commercial buildings?

Please go to www.slido.com and enter code #DOE to respond
Today’s Presenters

Nicole Ballinger  
City of Seattle, Washington

Dave Epley  
District of Columbia

Rajiv Ravulapati  
City of St. Louis, Missouri
Nicole Ballinger
Buildings & Energy Advisor
Office of Sustainability & Environment
City of Seattle, Washington

Submit Questions
www.slido.com event code #DOE
Accelerating Tune-Ups in Existing Buildings - Seattle, WA

Nicole Ballinger
Buildings & Energy Advisor
Office of Sustainability & Environment
US DOE Better Buildings Summer Series - July 16, 2020
Buildings make up over 1/3 of Seattle’s core GHG emissions

• Goal & Targets:
  • Zero Net GHG Emissions by 2050
  • 2030 Target: Buildings must reduce emissions by 39% from a 2008 baseline

• Commercial Existing Building Policies:
  • Energy Benchmarking & Reporting – 2012
    • Commercial & Multifamily 20,000 SF + (~3,300 bldgs)
    • Seattle Building Tune-Ups – 2016
      • Commercial 50,000 SF + (~1,000 bldgs.)
Tune-Up Assessment Requirements

39 Total Elements

- **20 Required** to implement if deficient
- **19 Voluntary** to implement if deficient

Operating Protocols

- HVAC systems
- Lighting
- Water heating
- Water usage

Maintenance & Repair

- HVAC systems
- Lighting
- Water heating
- Water usage
- Envelope

Examples of Operating elements

“Review HVAC equipment schedules.”

“Set schedules to optimize operations for actual building occupancy patterns.”

Examples of Maintenance, Cleaning, and Repair elements

“Verify HVAC equipment is clean and adequately maintained.”

“Clean where adversely impacting system performance.”
Elements of a Seattle Tune-Up

• Find a Qualified Tune-Up Specialist
  – a building energy professional with seven years of experience & and one of several training or certification programs.

• Conduct a Building Assessment
  – assess systems to identify operational or maintenance issues
  – review energy benchmarking data and water bills

• Identify Corrective Actions

• Implement Required Corrective Actions

• Verify Changes & Report to City of Seattle
## TUNE-UP SCHEDULE

*Ongoing, every five years*

<table>
<thead>
<tr>
<th>BUILDING SIZE*</th>
<th>ALTERNATIVE COMPLIANCE DUE DATE</th>
<th>TUNE-UP SUMMARY REPORT DUE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>200,000+ SF</td>
<td>September 4, 2018</td>
<td>March 1, 2019</td>
</tr>
<tr>
<td>100,000-199,999 SF</td>
<td>April 1, 2019</td>
<td>October 1, 2019</td>
</tr>
<tr>
<td>70,000-99,999 SF</td>
<td>October 1, 2020</td>
<td>April 1, 2021</td>
</tr>
<tr>
<td>50,000-69,999 SF</td>
<td>April 1, 2021</td>
<td>October 1, 2021</td>
</tr>
</tbody>
</table>

*Excluding parking

[www.seattle.gov/buildingtuneups](http://www.seattle.gov/buildingtuneups)
Building Tune-Up Accelerator (TUA) Program

• US DOE supported program

• Mid-size buildings (approx. 100,000 SF or smaller) due 2020 or 2021

• Tune-up “early” to meet Seattle Building Tune-Ups requirements

• Financial incentives & enhanced technical support – offer sunset after 2018

• Goal of 20% average energy savings across at least 100 buildings or spaces and 99.7 Million kBtu/year (≈$1.5 million annual savings)
## TUNE-UP SCHEDULE

Ongoing, every five years

<table>
<thead>
<tr>
<th>BUILDING SIZE*</th>
<th>ALTERNATIVE COMPLIANCE DUE DATE</th>
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<td>October 1, 2020</td>
<td>April 1, 2021</td>
</tr>
<tr>
<td>50,000-69,999 SF</td>
<td>April 1, 2021</td>
<td>October 1, 2021</td>
</tr>
</tbody>
</table>

* Excluding parking

www.seattle.gov/buildingtuneups
## TUA Program Partners & Funding

<table>
<thead>
<tr>
<th>Partner</th>
<th>Primary Role</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://www.energy.gov">U.S. Department of Energy</a></td>
<td>Federal funding ($1.2 million) and project oversight</td>
</tr>
<tr>
<td><a href="https://www.city.seattle.us">Seattle Office of Sustainability &amp; Environment</a></td>
<td>Program management, enrollment, coord. w/ Building Tune-Ups, evaluation, reporting to DOE</td>
</tr>
<tr>
<td><a href="https://www.smartbuildings.in">SMART Buildings Center</a></td>
<td>Provider training &amp; curricula, tool lending library, project tracking, help desk</td>
</tr>
<tr>
<td><a href="https://www.pnnl.gov">Pacific Northwest National Laboratory</a></td>
<td>Building Re-Tuning training, Asset Score support &amp; research on energy-savings from tune-ups</td>
</tr>
<tr>
<td><a href="https://www.seattlecitylight.com">Seattle City Light</a></td>
<td>Tune-up and energy conservation measure incentives</td>
</tr>
<tr>
<td><a href="https://www.udel.edu">Integrated Design Lab</a></td>
<td>Building Renewal strategic plan development and support, Spark Tool engagement</td>
</tr>
</tbody>
</table>
TUA Tune-Up Specialist Trainings

- 85 service providers attended trainings
- 30 firms on the “TUA” provider list
  - 16 firms participated in projects
  - Seattle Public Schools RCx /RCM staff
  - King County RCM staff
TUA Incentives & Program Paths

A. BASIC TUNE-UP
City Light incentive of up to $0.12 per SF for a tune-up that meets requirements

B. TUNE-UP PLUS
Plus incentives for energy-saving improvements like lighting, HVAC

C. BUILDING RENEWAL
Support for deeper investments like renovations or tenant improvements with 3 different levels of technical support
102 buildings completed the Accelerator

6.9 Million SF Total! Average = 67,700 SF

- > 100 - 110K SF (5 Buildings)
- 70 - 99K SF (37 Buildings)
- 50 - 69K SF (49 Buildings)
- < 50K SF (11 Buildings)
TUA Participant Buildings By Type

- Office: 27.5%
- K-12 School: 22.5%
- Other: 13.7%
- College/University: 10.8%
- Hotel: 6.9%
- Mixed Use Property: 5.9%
- Medical Office: 4.9%
- Non-Refrigerated Warehouse: 3.9%
- Worship Facility: 1% each
- Supermarket/Grocery Store: 1%
- Retail Store: 1%
- Distribution Center: 1% each
TUA Participant Ownership

- Municipal / Public Entity (28) - 43.1%
- Private for Profit / Investor Owned (44) - 21.6%
- Not-for-Profit Owned (8) - 7.8%
- K-12 Public Schools (22) - 27.5%
# TUA Top Required Tune-Up Measures

Top 6 out of 20 required measures in **102 TUA mid-size buildings.**

<table>
<thead>
<tr>
<th>Required Implementation Tune-Up Measure</th>
<th>Found &amp; Corrected</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1 – Review HVAC equipment schedules</td>
<td>58%</td>
</tr>
<tr>
<td>G2 – Review HVAC set points</td>
<td>49%</td>
</tr>
<tr>
<td>G6 - Verify HVAC controls are functioning as intended</td>
<td>41%</td>
</tr>
<tr>
<td>G5 - Verify that HVAC sensors are functioning, calibrated, and in appropriate locations</td>
<td>40%</td>
</tr>
<tr>
<td>G17 – Check valves and dampers and adjust</td>
<td>36%</td>
</tr>
<tr>
<td>G11 – Verify HVAC equipment maintenance</td>
<td>34%</td>
</tr>
</tbody>
</table>
## TUA Top Voluntary Tune-Up Measures

Top 6 out of 19 voluntary measures in **102 TUA mid-size buildings**.

<table>
<thead>
<tr>
<th>Voluntary Implementation Tune-Up Measure</th>
<th>Found</th>
<th>Corrected</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4 – Identify <strong>inefficient lighting</strong></td>
<td>64%</td>
<td>20%</td>
</tr>
<tr>
<td>G18 - Identify <strong>equipment approaching the end of its service life</strong>, per ASHRAE</td>
<td>49%</td>
<td>10%</td>
</tr>
<tr>
<td>H2 – Verify <strong>lighting sensors are working</strong> and located appropriately</td>
<td>36%</td>
<td>17%</td>
</tr>
<tr>
<td>J12 – Check <strong>water flow fixtures</strong></td>
<td>34%</td>
<td>10%</td>
</tr>
<tr>
<td>G9 – Identify areas with indications that <strong>ventilation rates</strong> may vary significantly from ASHRAE 62.1</td>
<td>33%</td>
<td>11%</td>
</tr>
<tr>
<td>G15 – Motor, fan, pump, belts, etc. <strong>repairs</strong></td>
<td>25%</td>
<td>12%</td>
</tr>
</tbody>
</table>
TUA Tune-Up Plus ECMs with City Light

Based on 20 ECMs in 19 TUA enrolled buildings.
**SBTU Top Required Tune-Up Measures**

Top 6 out of 20 required measures in *170 SBTU large buildings 100,000 SF+.*

<table>
<thead>
<tr>
<th>Required Implementation Tune-Up Measure</th>
<th>Found &amp; Corrected</th>
</tr>
</thead>
<tbody>
<tr>
<td>G5 - Verify that <strong>HVAC sensors</strong> are functioning, calibrated, and in appropriate locations</td>
<td>47%</td>
</tr>
<tr>
<td>G2 – Review <strong>HVAC set points</strong></td>
<td>45%</td>
</tr>
<tr>
<td>G6 - Verify <strong>HVAC controls</strong> are functioning as intended</td>
<td>45%</td>
</tr>
<tr>
<td>G17 – Check <strong>valves and dampers</strong> and adjust</td>
<td>42%</td>
</tr>
<tr>
<td>G1 – Review <strong>HVAC equipment schedules</strong></td>
<td>40%</td>
</tr>
<tr>
<td>G14 – Motor, fan, pump, belts, etc. <strong>maintenance</strong></td>
<td>30%</td>
</tr>
</tbody>
</table>
Top 6 out of 19 voluntary measures in 170 SBTU large buildings 100,000 SF+.

<table>
<thead>
<tr>
<th>Voluntary Implementation Tune-Up Measure</th>
<th>Found</th>
<th>Corrected</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4 – Identify inefficient lighting</td>
<td>44%</td>
<td>15%</td>
</tr>
<tr>
<td>G18 - Identify equipment approaching the end of its service life, per ASHRAE</td>
<td>40%</td>
<td>9%</td>
</tr>
<tr>
<td>K1 – Envelope penetrations</td>
<td>28%</td>
<td>12%</td>
</tr>
<tr>
<td>J12 – Check water flow fixtures</td>
<td>28%</td>
<td>11%</td>
</tr>
<tr>
<td>G8 – Air balancing issues</td>
<td>27%</td>
<td>14%</td>
</tr>
<tr>
<td>G15 – Motor, fan, pump, belts, etc. repairs</td>
<td>25%</td>
<td>12%</td>
</tr>
</tbody>
</table>
TUA Evaluation: M & V Sample

• Evaluated 10 buildings (TUA Only)
  • Office (3)
  • K-12 School (2)
  • Mixed Use (1)
  • Hotel (1)
  • Medical Office (1)
  • College/University (1)
  • Non-Refrigerated Warehouse (1)

• Site Visits
• Pre-Post Energy Data Analysis

SBC staff and building facility manager retrieve a HOBO UX90 motor runtime logger used to verify reduced parking garage exhaust fan schedule. It was confirmed.
### TUA M & V: Post Tune-Up Savings

Building Energy Consumption & Emissions Savings Post-Tune-Up in M & V Sample Buildings 2017 vs. 2019 Non-Normalized. (Increases in energy or emissions shown as negative numbers).

<table>
<thead>
<tr>
<th>Building</th>
<th>Electric %</th>
<th>Natural Gas %</th>
<th>Total Energy %</th>
<th>GHG Emissions %</th>
<th>Total Energy (kBtu)</th>
<th>Total Emissions (MT CO2e)</th>
<th>Months of Post Tune-Up Energy Data*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-2.6%</td>
<td>-0.4%</td>
<td>-1.6%</td>
<td>-0.6%</td>
<td>-69,730.46</td>
<td>-0.7</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>14.4%</td>
<td>13.3%</td>
<td>14.4%</td>
<td>13.8%</td>
<td>483,393.4</td>
<td>3.6</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>5.6%</td>
<td>see note</td>
<td>5.6%</td>
<td>5.6%</td>
<td>147,560.98</td>
<td>0.6</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>-6.5%</td>
<td>see note</td>
<td>-6.5%</td>
<td>-6.6%</td>
<td>-107,847.83</td>
<td>-0.5</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>-2.0%</td>
<td>16.4%</td>
<td>11.6%</td>
<td>15.9%</td>
<td>371,176.6</td>
<td>20.5</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>2.8%</td>
<td>see note</td>
<td>2.8%</td>
<td>2.7%</td>
<td>64,585.75</td>
<td>0.3</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>13.1%</td>
<td>27.7%</td>
<td>22.2%</td>
<td>27.1%</td>
<td>734,333.0</td>
<td>31.0</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>16.7%</td>
<td>-4.4%</td>
<td>13.2%</td>
<td>1.6%</td>
<td>656,430.8</td>
<td>1.0</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>5.1%</td>
<td>13.6%</td>
<td>8.9%</td>
<td>12.8%</td>
<td>367,870.9</td>
<td>13.9</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>12.8%</td>
<td>see note</td>
<td>12.8%</td>
<td>12.7%</td>
<td>517,516.5</td>
<td>2.1</td>
<td>9</td>
</tr>
</tbody>
</table>

**Average Savings**

<table>
<thead>
<tr>
<th>Electric %</th>
<th>Natural Gas %</th>
<th>Total Energy %</th>
<th>GHG Emissions %</th>
<th>Total Energy (kBtu)</th>
<th>Total Emissions (MT CO2e)</th>
<th>Months of Post Tune-Up Energy Data*</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.9%</td>
<td>11.0%</td>
<td>8.3%</td>
<td>8.5%</td>
<td>316,529.0</td>
<td>7.2</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Building Tune-Up Accelerator Program Final Technical Report, Table 15

TUA Final Program Savings Estimates

20% Average
- Basic Tune-Up: 10% → 7%
- Tune-Up Plus: 20% → 15%
- Building Renewal: 35% → 35%

Total Average: 20% → 12%
- kBtu/yr: 99.0 → 67.8 million
- Seattle GHG: 13.3%
- MT CO2e/yr: 10,500
TUA Post-Participation Survey

✓ Positive Program Experience & Benefit to Building Operations
  • 80% agreed to: Overall, participating in the Tune-Up Accelerator Program was beneficial to my building or organization.

✓ Strong Satisfaction with the Tune-Up Specialist
  • 75% agreed to: Service providers that want to conduct Seattle Building Tune-Ups should be required to attend a City of Seattle program training.

✓ The Tune-Up Drives ECM Participation
  • 80% “Yes”: After your participation, did you implement, or have you planned/budgeted for any voluntary ECM(s) beyond the required actions of the tune-up?

✓ Offering an Incentive & Technical Support for Early Compliance is Good Policy
  • 93% “Yes” - The City should use incentives and extra technical support to engage building owners with early compliance.
Beyond Tune-Ups... Next Steps

- WA State Building Performance Standards
- Future Seattle Building Performance Standards
- Seattle Green New Deal – Good, Clean Energy Jobs!
- Increased Support: “Hubs” & Financing
Q & A

Submit Questions
www.slido.com event code #DOE
Dave Epley
Associate Director for Data & Benchmarking Division
Department of Energy & Environment
District of Columbia

Submit Questions
www.slido.com event code #DOE
DC’S BUILDING ENERGY PERFORMANCE STANDARDS

Next-Generation Building Performance Policies: Maximizing Energy Savings and Environmental Impacts

David Epley
July 16, 2020
SUSTAINABLE DC VISION

Make DC the healthiest, greenest, most livable city in the country.
GOALS: 2032

- Adapt to Climate Change
- Climate Ready Buildings
- Cut Energy Use 50%
- 50% Renewable Energy
- Net Zero New Buildings
- Net Zero Retrofits
- Cut GHG Emissions 50%

Mayor Bowser: Committed to Zero Carbon by 2050

@DOEE_DC #BEPDC
POLICY TIMELINE

2006
- Green Building Act
  - Created the Green Building Fund
  - Set minimum green building standards

2008
- Energy Benchmarking DCSEU
  - Launched benchmarking and disclosure program

2010
- Sustainable DC Plan
  - Developed a long-term plan for sustainability in the built environment

2012
- Green Codes
  - Adopted 2012 International Green Construction Code

2013
- Energy Efficiency Financing Act
  - Created DC Pace

2016
- Community Renewables Act
  - Enabled community solar

2018
- Clean Energy DC Act
  - Established Building Energy Performance Standards
  - Increased RPS to 100%

- Renewable Portfolio Standard Update
  - Creation of Solar for All

- Renewable Portfolio Standard Update
  - Creation of Solar for All
CLEAN ENERGY DC MEANS....

New Buildings
Adopt mandatory Net-Zero Energy codes by 2022/2026

Existing Buildings
Improve the performance of existing buildings by implementing a Building Energy Performance Standard

100% Renewable Electricity
Require 100% renewable electricity by 2032, and 10% from local solar by 2041

CLEAN ENERGY DC OMNIBUS ACT OF 2018
CLEAN ENERGY DC PLAN

ESTIMATED GHG SAVINGS: 56%

RELATIVE IMPACT OF ACTION AREAS

- Shifting to Transit, Walking, & Biking: 10%
- Net-Zero New Buildings: 10%
- Efficient Existing Buildings: 20%
- Renewable Energy Outside DC: 35%
- Local Renewable Energy: 5%
- Electric & Efficient Vehicles: 20%
- Buildings
- Energy Supply
- Transportation

GHG emissions after policies
21% reduction in source energy if all buildings meet the standard for their type and size subgroup.

- 18.7% from buildings over 50K sf
- 1.4% from 25K-50K sf buildings
- 1% from 10K-25K sf buildings

ANNUAL GHG EMISSIONS SAVINGS: 1.05 MILLION TONS OF CO2e
www.energybenchmarkingdc.org

C40 Technical Analysis

@DOEE_DC #BEPSDC

DATA: ACCESS & ANALYSIS

Table A.2 Summary of building energy use

<table>
<thead>
<tr>
<th>Source of energy intensity (EUI) in 2015 (EUI/RSQ)</th>
<th>Estimated Site Energy consumption in 2015 (million kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Electricity</td>
<td>Total Natural Gas</td>
</tr>
<tr>
<td>Residential</td>
<td>23,742</td>
</tr>
<tr>
<td>Low-rise residential (1-4 units)</td>
<td>40.6</td>
</tr>
<tr>
<td>Multifamily (5+ units)</td>
<td>65.3</td>
</tr>
<tr>
<td>Institutional and Government</td>
<td>16,079</td>
</tr>
<tr>
<td>Education and Other Inf (non-gov)</td>
<td>101.4</td>
</tr>
<tr>
<td>Federal Government</td>
<td>108.5</td>
</tr>
<tr>
<td>District Government</td>
<td>103.4</td>
</tr>
<tr>
<td>Embassy</td>
<td>109.4</td>
</tr>
<tr>
<td>Commercial and Industrial</td>
<td>24,256</td>
</tr>
<tr>
<td>Office</td>
<td>88.9</td>
</tr>
<tr>
<td>Hotel</td>
<td>102</td>
</tr>
<tr>
<td>Other Comm. and Industrial</td>
<td>110.9</td>
</tr>
<tr>
<td>Hospital and Other Medical</td>
<td>196.1</td>
</tr>
<tr>
<td>Facilities Excluded from Analysis*</td>
<td>1,162</td>
</tr>
<tr>
<td>DC Water</td>
<td>n/a</td>
</tr>
<tr>
<td>GSA Central Heating Plant</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>65,711</td>
</tr>
</tbody>
</table>

Note: The Plan assumes building actions do not affect their performance. *Natural gas consumed in the process of generating steam for Federal Government is captured by these buildings energy consumption.

Clean Energy DC Analysis

Evaluating the energy performance of buildings within the District of Columbia.
CLEAN ENERGY DC OMNIBUS AMENDMENT ACT OF 2018, TITLE III...

**BENCHMARKING**

Lowers minimum building square footage required to benchmark; Creates data verification requirements

**ENERGY PERFORMANCE**

Improves the performance of existing buildings by implementing a Building Energy Performance Standard
DOEE must establish a minimum threshold for energy performance - will be “no lower than” the local median ENERGY STAR score by property type (or equivalent metric).

Buildings that do not meet the minimum threshold for energy performance enter a 5-year compliance cycle - 1st cycle begins January 2021.

Compliance paths for bldgs. that do not meet the minimum:
- Performance: Reduce energy usage 20%
- Prescriptive: Implement cost-effective efficiency measures
- Other paths as determined by DOEE

Creation of BEPS Task Force

More than 2,700 buildings impacted by BEPS!
- 916 buildings over 50k sf
- 561 buildings 25-50k sf
- 1,269 buildings 10-25k sf
**BEPS APPLICABILITY TIMELINE**

- **1st BEPS Compliance Cycle Begins for Private 50K+ and Public 10K+**
  - Jan 1, 2021

- **2nd BEPS Compliance Cycle Begins for Private 25K+ and Public 10K+**
  - Jan 1, 2027

- **3rd BEPS Compliance Cycle Begins for Private and Public 10K+**
  - Jan 1, 2033

- **4th BEPS Compliance Cycle Begins for Private and Public 10K+**
  - Jan 1, 2039

*Standards are set every 6 years (with 1+yr adjustment for COVID in Period 1)*
STAKEHOLDER ENGAGEMENT: CLEAN ENERGY DC

Visioning Workshops
Interviews
Global Best Practices
Consultant’s Own Ideas

Interactive Workshops
Interviews
Analysis
Iterative Modeling

90+ Actions
Peer Review Draft
Peer Review
Revision

Community Energy Model
Published Draft Plan
Scenario Analysis

Aug.-Dec. 2015
Nov. 2016
Jan.-Sep. 2017
Oct. 2017 – Aug 2018
Kickoff event – June 2019

Presentations/remarks:
- DOEE Director
- Commercial building rep
- Industry associations

Live polling to understand topics most important to stakeholders

Tabling for key partners involved in energy efficiency assistance/incentives
BEPSDC WORKING GROUPS

- 4 Working Group Sessions (June – September):
  - Financing
  - Program Structure
  - Technical Assistance
  - Energy Efficiency Strategies

- 139 Attendees

- Wide variety of industries represented:
  - Associations
  - Commercial & Multifamily Property Managers
  - Constructions Companies
  - Architects
  - Engineers
  - Energy Consultants
  - Facility Managers
  - Information Technology Professionals
  - Non-profit Advocates
  - Real Estate Developers
  - Universities
  - Utility Companies

Slides + Notes from each session posted to DOEE website:
https://doee.dc.gov/node/1436881
BEPSDC WORKING GROUPS

• **Affordable Housing Working Group (Aug – Sept 2019)**
  - Convened by National Housing Trust (NHT) and Housing Association of Nonprofit Developers (HAND)
  - Sessions focused on:
    - Financing/technical assistance
    - Program Structure/Implementation
  - Final Report delivered **November 2019**
SCORECARDS ISSUED FOR THE FIRST TIME IN 2019

To request scorecard data for multiple buildings, email info.benchmark@dc.gov
BEPsdc Task Force

Agenda, slides, notes: https://doee.dc.gov/service/building-energy-performance-standards
ALIGNMENT: ASSISTANCE, INCENTIVE, FINANCING
CLEAN ENERGY DC ACT: NEW PROGRAMS & FUNDING

Increased revenue & expanded uses for the Sustainable Energy Trust Fund: $20-22 million in Fiscal Years 2020-2022

- $70 million over 6 years to DC Green Bank
- $3 million beginning in FY2022 to support affordable housing compliance with BEPS
- 30% of the increase (~$7 million) in SETF to benefit low-income residents; support workforce development initiatives and the Sustainable Energy Infrastructure Capacity Building & Pipeline program

Allows gas and electric utilities to apply to PSC to offer energy efficiency and demand reduction programs
THANK YOU!

David Epley
Associate Director, Data & Benchmarking Division
doee.dc.gov/energybenchmarking or doee.dc.gov/service/beps
David.Epley@dc.gov
Q & A

Submit Questions
www.slido.com event code #DOE
Rajiv Ravulapati
Government Services Analyst – Building Division
City of St. Louis, Missouri

Submit Questions
www.slido.com event code #DOE
St. Louis Tackles Carbon from Existing Buildings

The Midwest’s First Building Performance Standard
Why We LED on BEPS & Why It’s Right for St. Louis

- Quite honestly, it’s the right thing to do given how indiscriminate the effects of climate change are, especially here in St. Louis and the Midwest in general.

- It’s important for all functions of government to lead on policies that can benefit the health and welfare of citizens.

- Our BEPS policy has big time potential public health and economic benefits to St. Louis, particularly for many of the local building trade organizations.

- Buildings account for 80% of our GHG emissions – BEPS is by far the most impactful legislation we have passed to address this problem.
Why We Led on BEPS & Why It’s Right for St. Louis

• Building codes + BEPS
  • as codes continue to recognize the importance of minimum safety, they also move towards progressive measures and cities’ sustainability goals
  • I see this intersectionality as a natural progression towards better indoor air quality in our buildings, enhanced operations + maintenance, and retention of people/businesses in buildings
  • simply put, it reinforces our board community goals as a City wanting to lead on building energy efficiency
BEPS Design Decisions

- Performance Metric
- Covered Buildings
- Exemptions
- Compliance Cycles
- Improvement Requirements
- Equity
BEPS Design Decisions: Performance Metric

SITE Energy Use Intensity (EUI)
Simplicity
Owner-Control
Drive Electrification
BEPS Design Decisions

• **Covered buildings:** 50,000 ft²

• **Exemptions:** Same @ Benchmarking Policy

• **Compliance Cycle:** Comply first in May 2021 and every four years after

• **Improvement Requirements:** Not included, but can be used as alternative compliance path if presented to Building Energy Improvement Board
BEPS Design Decisions: Equity

- Extended compliance cycle for affordable housing and houses of worship from 4 to 6 years
- Building Energy Improvement Board and coming Energy Resource Hub available to assist under-resourced buildings with compliance
- Gas and Electric utilities have generous incentives for affordable housing that are co-delivered
Community & Stakeholder Engagement Timeline

- **July 2019**: Kick-Off to Begin Discussion BEPS Design
- **August 2019**: Hosted by JLL – proposed policy & timeline
- **October 2019**: One-on-One Meeting with BOMA-St. Louis
- **October 2019**: Hosted by Housing Authority – focus on Equity
- **December 2019**: Meeting to review final policy elements & timeline
- **January 2020**: Draft policy released for 2 week comment period
Building Energy Improvement Board (BEIB)

- Defining element of policy
- Harness local private sector expertise
- Democratically approve equitable accommodations
- 9 member board appointed by the Mayor
- Equity win that was supported by local stakeholders
Role of Building Energy Improvement Board

- Establish & approve standards each compliance cycle
- Review and recommend amendments to proposed regulations
- Review alternative compliance plans - recommendation approval or denial
- Recommend complementary programs and technical expertise
  - Plan to create technical sub-committee to support board
Keys to Success & Lessons Learned

- The right staff who can build a coalition & manage the process
- Outside partners to advocate on the City’s behalf & to key stakeholders, like utilities or real estate

- Getting local elected officials to be part of planning process & show buy-in/leadership
- Benchmarking Advisory Group: convening stakeholders for over a year to help guide the policy design

- Have an operating department oversee policy creation & implementation after policy passage
- IMT’s & ACCC – technical expertise and organizing efforts
St. Louis got lucky, in some respects

- We are an ACCC-funded city, we were lucky enough to have technical support and resources at our disposal.

- When COVID-19 lockdowns began, we had our ordinance language + proposed budget completed AND submitted to our Board of Aldermen.

Photo courtesy of Hope Gribble

- Main sponsor pushed BEPS through the legislative process even while COVID-19 disrupted normal board procedures. BEPS passed unanimously!

- We had ZERO testimony opposing BEPS during committee or to any alderpeople

Photo courtesy of Richard Reilly
What’s Next?

- Building Division reviewing board applicants to make nominations for the Mayor to appoint
  - Applications will be accepted through end of this week
- Building Division is currently working with Washington University on analyzing local benchmarking data to establish standards by property type
  - Standards will then be recommended to the Board to review and finalize
- The Office of Building Performance shall be established to oversee the implementation, compliance and enforcement of both the existing benchmarking ordinance and BEPS
- *All these next steps must be completed by May 4th, 2021*
Rajiv Ravulapati – City of St. Louis
Government Services Analyst
314-622-3616
ravulapatir@stlouis-mo.gov
Q & A

Submit Questions
www.slido.com event code #DOE
Benchmarking and Transparency: Resources for State and Local Leaders

This resource guide provides state and local leaders with streamlined access to key existing resources for developing and implementing high-impact building energy benchmarking and transparency programs in their jurisdictions.

State and Local Planning for Energy (SLOPE) Platform

A DOE-led collaboration across 8 EERE technology offices and NREL to create a dynamic, comprehensive energy planning platform of integrated, localized data for state and local decision makers.

Energy Data Access: Blueprint for Action Toolkit

This toolkit summarizes opportunities for states and local governments to streamline their process for getting access to data and building performance information.
Additional Resources

- City of Seattle – Building Tune-Up Accelerator Final Report and Case Studies

- Institute for Market Transformation – Exploring Building Performance Standards

- Urban Land Institute – Decarbonizing the Built Environment: 10 Principles for Climate Mitigation Policies
  - [www.uli.org/decarbonizing10ps](http://www.uli.org/decarbonizing10ps)
Discover online training and education opportunities from the U.S. Department of Energy (DOE) and Better Buildings Affiliates who are working with DOE to promote energy efficiency in U.S. buildings and manufacturing plants.

Learn more at: https://betterbuildingssolutioncenter.energy.gov/e-learning-center
EERE Funding Opportunities

“Proving Ground – Public Sector Field Validation” Funding Opportunity Announcement (FOA)

Building Technologies Office

- **FOA released on June 26, 2020**
- An informational FOA webinar was held on June 30, 2020
- Up to **$10 million** in funding available
- **Awards can be up to $1 million**
- Purpose: to generate and disseminate data on the field performance of novel approaches to integrate advanced building technologies, which can inform commercial and multi-family building efficiency, demand flexibility, and building-to-grid programs
- Eligible entities include:
  - State, local, and tribal governments
  - States with high energy consumption per capita
- Visit eere-exchange.energy.gov for more information on FOA (**DE-FOA-0002324**)
EERE Funding Opportunities

“Connected Communities” Funding Opportunity (Coming Soon)

Building Technologies Office

• DOE intends to invest up to $42 million into “Connected Communities”
• Funding Opportunity Announcement is expected to be released later in 2020
• Purpose: to enable and study groups of grid-interactive efficient buildings that increase grid reliability and reduce emissions while maintaining or enhancing occupant satisfaction
• Visit eere-exchange.energy.gov for more information on the notice of intent (DE-FOA-0002249)
• Start forming a team of strategic stakeholders for submission
• Teaming List email CCPilotsTeamingList@hq.doe.gov

Connected Community:
A group of grid-interactive efficient buildings (GEBs) with diverse, flexible end-use equipment that collectively work to maximize building and grid efficiency without compromising occupant needs and comfort

Visit https://eere-exchange.energy.gov/ and https://grants.gov for more funding information
### Better Buildings: Summer Webinar Series

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| July 8 | BEHIND THE METER DISTRIBUTED ENERGY RESOURCES:  
BEST PRACTICES FOR INTEGRATING DERS INTO COMMERCIAL BUILDINGS | July 8                                                                  |
| July 9 | PROGRAM DESIGN WITH EVERYONE IN MIND:  
LOW-INCOME SOLAR PROGRAM STRATEGIES | July 9                                                                  |
| July 14| THE DYNAMIC DUO:  
UNLEASH PUBLIC SECTOR ENERGY SAVINGS WITH FINANCING AND TECHNICAL ASSISTANCE | July 14                                                                 |
| July 16| NEXT-GENERATION BUILDING PERFORMANCE POLICIES:  
MAXIMIZING ENERGY SAVINGS AND ENVIRONMENTAL IMPACTS | July 16, REGISTER TODAY                                                  |
| July 21| STRATEGIES TO COMBINE ENERGY + HEALTH UPGRADES IN MULTIFAMILY HOUSING | July 21, REGISTER TODAY                                                  |
| July 22| CASE IN POINT:  
OREGON’S RECENT EFFORTS TO REDUCE PLUG LOAD ENERGY CONSUMPTION | July 22, REGISTER TODAY                                                  |
| July 28| EVERYONE HAS A DATA CENTER:  
HOW TO BE AN ENERGY CHAMPION FOR YOURS | July 28, REGISTER TODAY                                                  |
| August 4| SUCCEED WITH SUBMETERING:  
HOW TO MAKE THE BUSINESS CASE | August 4, REGISTER TODAY                                                 |

**On-Demand Webinars**
This interactive webinar will provide an opportunity for speakers and attendees to share their strategies for combining energy and health upgrades to help promote health and wellness for residents of multifamily buildings. Panelists will present case studies of innovative partnerships between affordable housing providers, public health, and building science stakeholders to advance energy + health initiatives and will share experiences pursuing the FitWel® certification for healthy buildings.
Better Buildings

Better Buildings is an initiative of the U.S. Department of Energy (DOE) designed to improve the lives of the American people by driving leadership in energy innovation. Through Better Buildings, DOE partners with leaders in the public and private sectors to make the nation’s homes, commercial buildings and industrial plants more energy efficient by accelerating investment and sharing of successful best practices.

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State and Local Spotlight
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Subscribe:
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Contact WIP:
stateandlocal@ee.doe.gov

Poll #4

On a scale of 1 to 5, how would you rate this webinar?

(1 = missed the mark, 3 = average, 5 = fantastic)

Please go to www.slido.com and enter code #DOE to respond
Additional Questions?

Please Contact Us

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