

BEPSDC WORKING GROUP

SESSION 4: Energy Efficiency Strategies & the Prescriptive Pathway

SEPTEMBER 17, 2019



@DOEE_DC
#BEPSDC

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

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

SESSION #4: ENERGY EFFICIENCY STRATEGIES



4:00 – 4:10	Networking
4:10 – 4:20	Introduction
4:20 – 5:00	Rotation 1
5:00 – 5:40	Rotation 2
5:40 – 6:00	Report Back & Summary

BUILDING ENERGY PERFORMANCE STANDARD



- ❑ DOEE must establish a minimum threshold for energy performance – will be “at least” the local median ENERGY STAR score by property type (or equivalent)
- ❑ Benchmarking data will need third-party verification every 3 years
- ❑ DOEE determines enforcement rules for compliance
- ❑ 5-year compliance cycles - 1st cycle begins 2021
- ❑ **Compliance paths for bldgs. below minimum:**
 - ❑ Performance: Reduce energy usage 20%
 - ❑ Prescriptive: Implement cost-effective energy efficiency measures
 - ❑ Other as determined by DOEE



WORKING PRINCIPLES



- ❑ Break-down List by:
 - ❑ Minimum Requirements (must-do's; Energy 101 strategies)
 - ❑ Operations & Maintenance Strategies
 - ❑ Project-based Strategies

- ❑ Create prescriptive paths by property type (4-5 categories)

Prescriptive Path savings
must be comparable to
Performance Path

WORKING PRINCIPLES



- ❑ Weighted values for each item based on energy savings potential

- ❑ Vet list by what is possible in DC

- ❑ Categorize items on list:
 - ❑ Easy – simple upgrades or process changes
 - ❑ Medium – moderate renovations
 - ❑ Hard – substantial improvements

Prescriptive Path savings
must be comparable to
Performance Path

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"

SCENARIOS FOR CONSIDERATION



Can't Afford Capital Improvements or Loans	Has Some O&M and Capital Funding	Planning a Major Renovation with Deep Energy Retrofits
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 nd /3 rd cycle





Energy Efficiency Strategies

Energy efficiency strategies and listing them in the prescriptive pathway. This is the “WHAT” question!

Prescriptive Compliance Process

How DOEE can encourage/enforce the prescriptive pathway throughout the compliance period. This is the “HOW” question!

DISCUSSION GROUP GROUND RULES



- ❑ **Listen actively** – respect others when they are talking
- ❑ **Be concise** – watch wordiness and run on statements while explaining thoughts
- ❑ **Challenge ideas** –ask for clarification, do not make questions personal attacks
- ❑ **Speak from personal experience** – use personal experience or stories to convey ideas
- ❑ **Participate** – speak when you have a relevant and valuable contribution to make
- ❑ **Be aware of body language and nonverbal cues** – physical cues can be just as hurtful
- ❑ **Speak freely** – but share the floor with others, especially those who have been quiet
- ❑ **Things to avoid** – lecturing, side tracking the discussion, **sales pitches**



BREAK OUT



Facilitators will rotate at 40 minutes so all groups will have a chance to provide input on each topic.

- ❑ A - Room 790 – Energy Efficiency Strategies – Cliff/Andrew
- ❑ B - Room 774 – Energy Efficiency Strategies – Kate/Erin
- ❑ C - Room 509 – Prescriptive Compliance Process – Katie/Jenn
- ❑ D - Room 709 - Prescriptive Compliance Process – Dave/Casey

ENERGY EFFICIENCY STRATEGIES



- Should we have minimum requirements? If so, what should they be?
- O&M strategies – what's missing from the list?
- Project-Based strategies – what's missing from the list?
- Should we offer Alternative Paths?

Possible energy savings potential and weighted values to be determined by DOE (or a 3rd party)

OPERATIONS & MAINTENANCE

*** Ideas for minimum requirements?*



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

PROJECT-BASED

OFFICE OF BUILDING ENERGY SERVICES

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		

ALTERNATIVE COMPLIANCE PATH?

Ideas from Seattle's alternative compliance paths for their Building Tune-up requirement

Certified Energy Star Score
LEED Gold or Platinum O&M
3-4 Green Globes O&M
Living Building, Petal, or Net Zero Energy Certifications
Completing ASHRAE Level II Audit Recommendations



ENCOURAGING COMPLIANCE



- What can DOE do to help out-of-compliance buildings stay on track and reach their goals?
- What can DOE do to encourage early compliance (first 2-3 years) within a certain compliance cycle?
- What can DOE do to encourage going beyond the minimum requirements (planning beyond 5 yrs. or higher % reduction) for a certain compliance cycle?

COMPLIANCE DETAILS



- Compliance submission? What kind of documentation should/could we collect?
- Do we count projects done 2019-2020 towards the prescriptive path?
- If time permits: Does the 2nd compliance period look different? Are there things that are one-and-done or continuous types of processes?

WRAP-UP EVENT



October 7, 2019

4:00 – 6:00pm

Wash Reit, The Flagship
1627 I Street NW

No-Host Happy Hour, Blackfinn Ameripub DC

