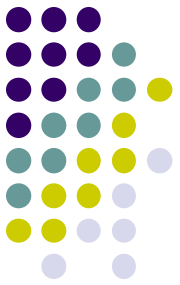


Boston CAP Building WG Recommendations

Presented To Leadership
Committee

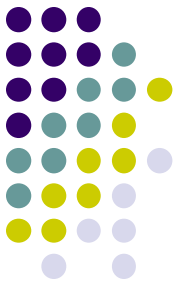
September 15, 2009

Agenda



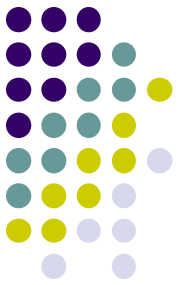
- City Lead-By-Example (Raab)
- Performance Based Incentives (Boston Properties)
- Benchmarking/Labeling Energy Performance in Commercial and Residential Buildings (Raab)
- Green Roofs --light colored, vegetative, solar (Boston Properties)
- Other:
 - Building Energy Codes and Enforcement
 - Residential Energy Conservation Ordinances (RECO)
 - Green Leases
 - Post-WG Ideas

Boston City Buildings: Leading By Example— Monitoring and Tracking



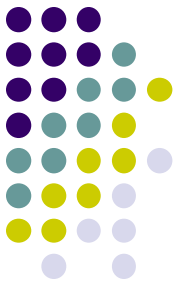
- “Energy usage in all City (and related agencies) buildings should be tracked, benchmarked and reported at the building, and department levels.”
 - All buildings should be separately metered where possible to enable accurate energy tracking
 - Tracking system should be capable of providing information in as close to “real time” as possible
 - Benchmarking should not only be across City buildings, but use a tool that would enable benchmarking across cities (e.g., EPA’s Portfolio Manager—which can also be used for Energy Star rating)

Boston City Buildings: LBE--New Construction



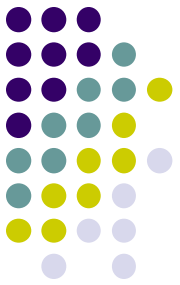
- Currently all new City buildings, additions and major renovations should meet at least LEED Silver standards (Mayor's 2007 Executive Order)
- WG Recommends ratcheting this up to require all new City (and related agencies) buildings, additions, and major renovation meet at least LEED Gold standards
- In addition to meeting LEED Gold, City should capture all cost effective (minimum life cycle cost) energy efficiency measures in new buildings, additions, and major renovations.

Boston City Buildings: LBE– Building Retrofit



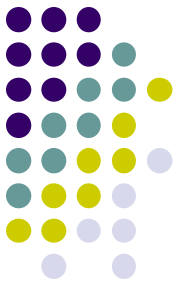
- City should develop a plan to systematically retrofit all City (and related agencies) buildings with all cost-effective energy efficiency measures as soon as practicable. City should fully participate in Utility energy efficiency programs, and harness other sources of funding and expertise, including performance contracting, to help it achieve its building energy retrofit goal.

Performance Based Incentives— New Construction



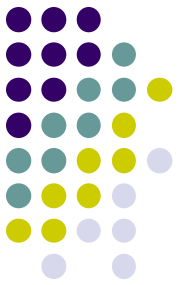
- Tie incentives to achieving LEED Certification, Energy Star or other comparable standard
- Two types of incentives:
 - Property tax abatements, tax credits, grants (e.g., for LEED Silver, Gold, Platinum –25%/50%/75% property tax abatement for 3 years)
 - FAR, height, and density bonus (e.g., for LEED Silver, Gold, Platinum—5%/10%/20% increase in FAR and height beyond Article 80) FAR and height bonuses could be increased further if within 1/4 mile mass transit
- Include significant financial penalty if don't meet designed LEED standard

Performance Based Incentives— Existing Buildings



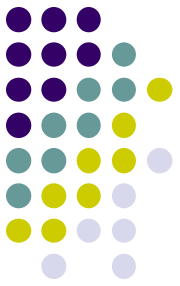
- Tie incentives to achieving LEED Certification, Energy Star or other comparable standard
- Two types of incentives:
 - Property tax abatements, tax credits, grants (e.g., for Achieving Energy Star Rating Labels 75/85/95—25%/50%/75% property tax abatement each year building is labeled)
 - FAR and density bonuses not relevant for retrofit
 - Penalties probably not necessary, since only get incentive based on annual achievement
- NOTE: Just like for City buildings, for LEED standards also require capture all cost effective energy efficiency
- NOTE: Could move to revenue neutral approach where inefficient buildings pay more property tax, to cover abatement of more efficient buildings plus admin cost. Would then need to require of all new construction and/or all existing buildings rather than opt in.

Benchmarking and Labeling



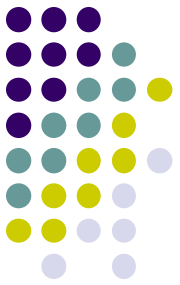
- Require for all Commercial and Residential buildings, but not industrial (too heterogeneous)
- Primary focus should be existing building stock rather than new construction (required to be relatively efficient)

Benchmarking and Labeling: Commercial



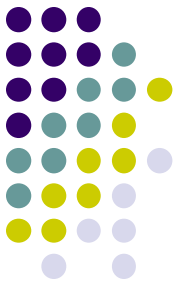
- Use common label such as LEED, or Energy Star Rating (consider ASHRAE label currently under development)
- EPA rating based on utility bill analysis using EPA Portfolio Manager, plus verification audit
- Like CA, require utilities to provide energy bill data directly to owner's Portfolio Manager account
- Require by certain date, can start with largest buildings and phase down to smaller buildings over time
- Can post on website, or require disclosure prior to sale or rental, or both
- Connect benchmarking and labeling to any performance incentives

Benchmarking and Labeling: Residential



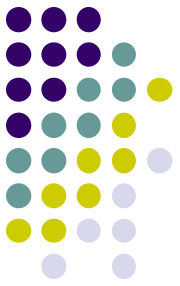
- Single family, multi-family, and coop/condos
- Based on actionable audit that identifies measures to improve rating
- Use HERS rating
- Require prior to resale
- Can be done by utility or independent HERS rater
- Consider tying part of property tax to efficiency label rating
- Make compatible with potential Residential Energy Conservation Audit (RECO)

Example EU Building Energy Certificate



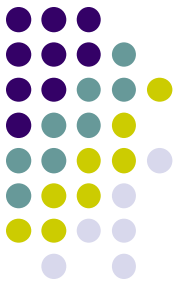
Energy Efficiency Rating		
	Current	Potential
<i>Very energy efficient - lower running costs</i>		
(92-100) A		
(81-91) B		
(69-80) C		73
(55-68) D		
(39-54) E	37	
(21-38) F		
(1-20) G		
<i>Not energy efficient - higher running costs</i>		

“Green Roofs— Cool and Vegetative”



- Consider requiring reflective or light colored (“cool roofs”), using Energy Star or ASHRAE 90.1.2007 standards—can vary by building type, size, and slopes but require for new construction and upon replacement (City should first conduct further research to determine net benefit under current conditions and under likely conditions 10 to 50 years from now)
- Provide one time property tax abatements of \$5-10/square foot for vegetative roofs, with minimum requirement of 50% of roof coverage or 5,000 square feet

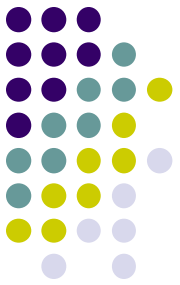
Green Roofs— Solar



- For photovoltaic and solar hot water systems
- Largely covered by federal and state (MTC) tax credits and rebates
- However, only works for REITs through PPAs. To allow REITs to own directly, consider property tax abatements if can't change laws
- Work with state and Utilities to solve grid connection technical barriers for downtown network

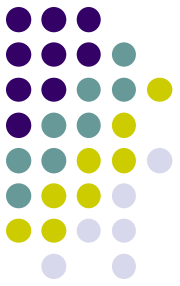
Other:

Building Energy Codes and Enforcement



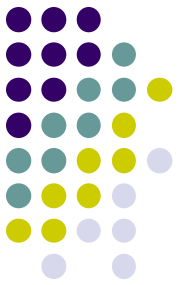
- Reduce building size threshold for LEED requirement under Article 37
- Require LEED or Energy Star for residential construction over a certain size
- Advocate for improving state base code
 - Increased prescriptive lighting requirements
 - Retro-commissioning
- Continue to monitor and assess value of adopting stretch code, including concerns about certain requirements (e.g., 3% on-site renewables). Consider recommendations to improve stretch code
- Enforcement—Provide training for building inspectors on energy code, improve industry self-policing

Other: Green Lease

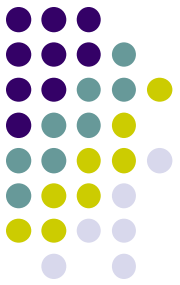


- Conceptual lease agreement structure designed such that tenant and building owner both contribute financially to the cost of efficiency improvements, and also share in the benefits
- Exact lease structure/language is not yet developed
- Different groups working on this
 - Cambridge Energy Alliance
 - Office of the Future Advanced Energy Office Program (utility-sponsored national program)

Other: Residential Energy Conservation Ordinances (RECO)



- Consider future RECO for Boston for residential property (i.e., look into authority issue). Tie into labeling scheme (discussed previously)
- Burlington, VT Time of Sale Ordinance
 - Mandatory for all apartments in which utilities are paid by renters
 - Inspection and upgrades take place at time of sale
 - Cost cap of 3% of sale price or \$1300 per unit, and based on “simple pay-back” of 7 years
- Berkeley, CA Code
 - Mandatory efficiency upgrades at time of sale for any residential structure
 - Based on “feasible” energy conservation measures
 - Feasible ECMs must be installed whenever the residence is sold until all feasible ECMs are installed
- San Francisco RECO
 - Mandatory for residential buildings at time of sale
 - Cost cap of 1% of purchase price or of assessed property value (whichever is greater), or \$1300 for one- or two-unit buildings
 - Upgrade responsibility can be legally transferred to buyer



Other: Post-WG Ideas

- Require solar ready standard for all new construction (private and city owned) (adequate unobstructed roof space, isolated roof mounted mechanicals, adequate chase for pipe and wire runs, etc.)
- City should run and expand pilot initiatives (Gov't Center Green Growth District, Old Colony) and design competitions to push the envelope GHG reduction programs
- The City should adopt as a goal that, after 20??, all new buildings must be carbon-neutral. (e.g., the 2030 Challenge)
- Encourage smaller residential units (that is, resist trend to larger houses and apartments)