



LISC Boston's Green Retrofit Initiative

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Boston

Evolution of Program...3 distinct phases

- ▶ Building owner demand (2010-2012)
 - ▶ New utility program created: LEAN Low-Income Multifamily
 - ▶ 11 Boston nonprofits enrolled in Green Retrofit Initiative
- ▶ HUD Energy Innovation Fund (2012-2015)
 - ▶ Achieve 20% savings
 - ▶ Expand statewide engaging nonprofits, for-profits, and public housing authorities
- ▶ Experience informs policy (2014-2016)
 - ▶ 20 owners: proactive approach across portfolio
 - ▶ Policy work focused on connecting utilities and housing finance agencies

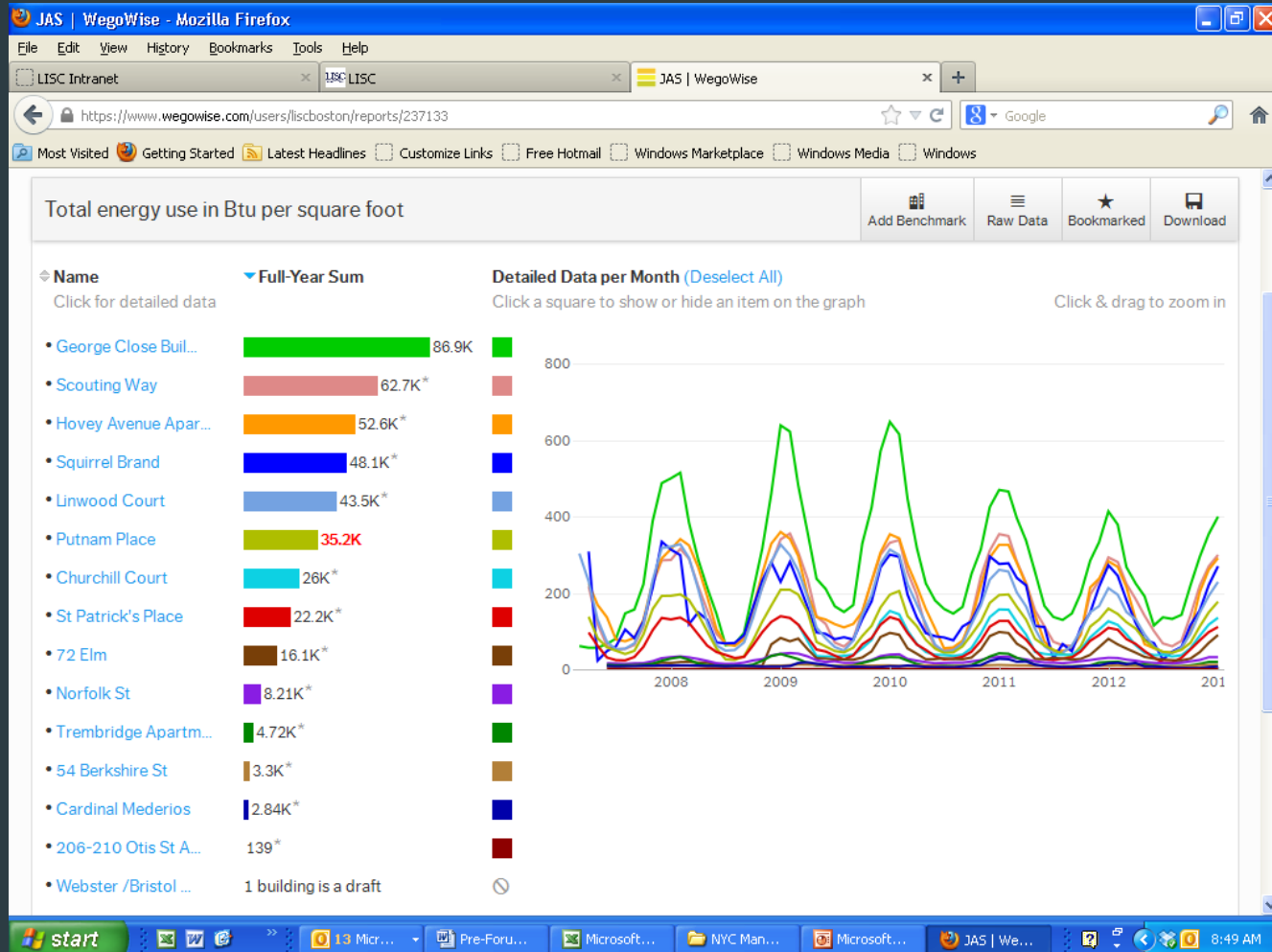
What Kinds of Buildings?

- ▶ Small to large, wood and masonry, scattered site and centrally located – each building is unique
- ▶ Urban, town, and rural
- ▶ Mostly master-metered heat, water, and DHW. Mostly individual meters for electricity in units.



Where Do I Start?

Benchmarking Used to Prioritize Efforts



Post-Retrofit Savings Analysis

Effect of Boiler and Make Up Air Unit Installed (September 22, 2011)

[Back to list of all upgrades](#)

Total energy use in Btu per square foot

Raw Data

Bookmark

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Date Range

Full-Year Sum

Detailed Data per Month (Deselect All)

Click a square to show or hide an item on the graph

Click & drag to zoom in

Sep 11 - Aug 12

85.8K



Sep 10 - Aug 11

106K



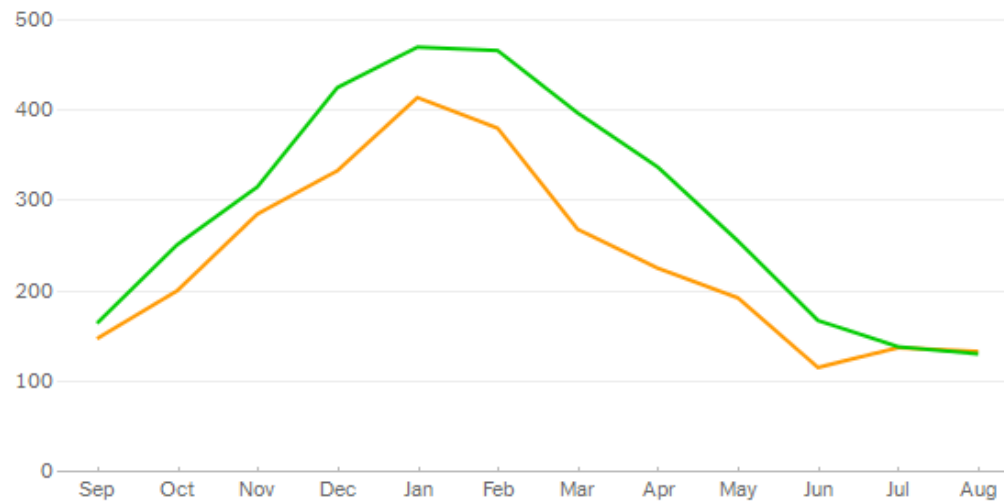
Before: 8 aging atmospheric boilers and deficient make up air unit

After: 5 new condensing boilers installed (90% efficiency), 3 DHW tanks and 1 new make up air unit installed

Cost: \$209,025.00

Actual Savings: 19% (20,406 Btu / sqft)

Categories





Green & Healthy Property Management A Guide for Multifamily Buildings

February 2013

Local Initiatives Support Corporation



Green Cleaning

Goal Maintain properties cost-effectively using green cleaning products that minimize the use of harmful or toxic chemicals. Ensure property management staff and vendors use green cleaning products.

Key Actions

Property Owner

Require staff, Property Manager, vendors and contractors to use green cleaning products that meet third party certification unless such products are not available or cost-effective. Acceptable green certifications include: GreenSeal, U.S. EPA Design for the Environment (Dfe), and Eco Logo.

Property Manager

1. **Require all vendors (cleaning, other rehab contractors) to use green certified cleaning products** unless the product is not available. If vendors cannot identify an available cost-effective cleaning product that is GreenSeal or EcoLogo Certified, or Dfe approved for a particular use, the vendor shall evaluate if that specific product is needed. If the product is critical the vendor shall provide the Property Manager a written request to justify the use of a non-third party certified cleaning product and obtain written authorization. Such authorization is not required during emergency cleaning activities.

2. **Encourage the use of:** dilution control systems (to reduce packaging waste and supplies), Microfiber wipes and mops, HEPA filtration vacuums, Green Seal certified or Forest Stewardship Council (FSC) certified paper products

Tracking Annually review Green Cleaning progress.

Resources

Design for the Environment (Dfe)—www.epa.gov/dfe
EcoLogo—www.ecologo.org/en/
GreenSeal—www.greenseal.org
New York State Green Cleaning Program—www.greencleaning.ny.gov

Green Retrofit Initiative 2012 to 2015

- ▶ Goal: Achieving 20%+ savings – give us your worst buildings
 - ▶ Funders: Barr Foundation and HUD
 - ▶ Building science partner: New Ecology, Inc.
- ▶ 1 of 12 HUD Energy Innovation Fund grantees
 - ▶ 10+ year affordability means mostly mid-capital cycle projects
- ▶ Results
 - ▶ Benchmarked 12,000 units
 - ▶ Retrofitted 3,500 units
 - ▶ Leveraged \$12+ Mill
 - ▶ **Lesson learned: Owners do not want additional debt between capital cycles. Increase focus on the point of rehab.**

2012-2015 Savings Summary

- ▶ Over half of participating units achieved >20% savings
 - ▶ Electric savings averaged 29%
 - ▶ Gas savings averaged 23%
- ▶ The same level of savings is achievable regardless of building size or type (low-, mid-, or high-rise).
- ▶ Importance of providing data to state housing policymakers - need to align resources at time of rehab.

Read the full report at www.liscboston.org

WegoWise Dating Savings Analysis with review by Cadmus

Green Retrofit Initiative 2014 to 2016

- ▶ Work with owners informs policy opportunities
 - ▶ Funders: Barr Foundation, MassHousing, and Massachusetts Housing Partnership
 - ▶ Building science partner: New Ecology, Inc.
- ▶ 20 orgs enrolled for 1 year: combined portfolios = 29,000+ units
- ▶ 17 nonprofits get \$10k; 3 for-profits participate
 - ▶ Benchmark portfolio
 - ▶ Green Asset Management Plan
 - ▶ 2 priority retrofit projects
- ▶ Six orgs joined Better Buildings Challenge

Green Retrofit Initiative 2014 to 2016

► Results

- Savings achieved, yet large opportunities remain
- Noticeable trends with nonprofit v. for-profits

► Importance of organizational leadership buy-in

- Education: How much money are we leaving on the table?

What if...	Water Savings (\$.018/gallon)	Electricity Savings (\$.18/kWh)	Gas Savings (\$1.10/therm)	Annual Totals
Your buildings matched* the WegoWise median for all metrics?	\$400,887	\$28,124	\$175,297	\$604,309
Your portfolio decreased use by 20%** , across the board?	\$324,228	\$82,987	\$215,356	\$622,572
*Buildings already at or below the metric were not included in this savings estimate.				
**20% is the portfolio reduction target for participants of the DOE Better Buildings Challenge. Source: New Ecology, Inc.				

Program Work Informs Policy

- ▶ Goal: How do we make it easier for owners to do efficiency work at rehab?
 - ▶ Housing Finance Agencies are now sharing pipeline with MA's Low-Income Multifamily Utility Program (LEAN)
 - ▶ Utilities will create program roadmap for owners
 - ▶ All LEAN audits will be given to owners
 - ▶ LEAN now accepts 3rd party comprehensive audits
 - ▶ LEAN will provide incentive commitment 6 months or less from rehab's construction closing
 - ▶ Owner can choose their own general contractor for LEAN rehab work

Green Retrofit Initiative Today

- ▶ Massachusetts Clean Energy Center grant
 - ▶ Collaborate with Housing Finance Agencies to provide audits for 24 projects approaching rehab
 - ▶ Retrocommission 15 underperforming renewables (1 air source heat pump, 1 ground source heat pump, 4 solar PV, 3 solar thermal, 6 co-gen)
- ▶ Grant goals
 - ▶ Audits - Getting all parties (owners, lenders, building science providers, state agencies, utilities) to communicate about deep energy savings opportunities
 - ▶ Retrocommissioning - How do we make sure renewables are installed and maintained correctly to achieve projected savings?
 - ▶ Inform program and policy design so there are more resources and technical assistance from state level

Questions for Field: What challenges need to be addressed?

- ▶ Clean energy for all or for some? Low-income sector shortchanged in 2016 Omnibus Energy Bill. Unpredictable compensation/incentives cause paralysis. SMART Program?
- ▶ How do we get more owners interested in underwriting energy efficiency savings? What challenges do owners face?
- ▶ Why are we not seeing more affordable passive house or net zero projects in MA?
- ▶ Are there additional guidance/resources needed from state such as a clean energy roadmap? How do we make it easier for owners to make informed decisions?
- ▶ What resources are needed to ensure clean energy technologies work long-term? e.g.
 - ▶ Third party monitoring?
 - ▶ Boilerplate maintenance contracts? Continuous Commissioning sounds nice- who's doing it?
 - ▶ RFP for select vendors to serve sector? Solarize by sector

Contact Information

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