CAMBRIDGE MULTIFAMILY: Overcoming barriers in tenant-occupied housing

Callie Seltzer, Alexis Howland, and Adi Nochur
ENERGY USE IN CAMBRIDGE

- Office & Industrial: 33%
- Multifamily: 31%
- Single Family: 7%
- Education & Government: 13%
- Other: 16%

Electric and Gas Use by Land Use (%)


Note: Does not include heating oil.
ENERGIZING COMMUNITIES
## ENERGY SCORE RENTAL MAP

### WHAT IS IT?
Interactive map targeted at renters
Shows average monthly electricity and gas use
Buildings are color-coded by energy performance

### PROBLEM ADDRESSED?
Landlord-tenant barrier

### WHAT IS THE IMPACT?
Renters use map for leasing decisions
Color-coding sets new social norm
Encourages landlords to upgrade

### PRECEDENTS?
Columbia’s annual building energy at block level
Cambridge Solar Map
Los Angeles Energy Map
Gainesville Green - Tools4Tenants
LOS ANGELES ENERGY MAP
CAMBRIDGE SOLAR MAP

Solar Tool
For Electric Photovoltaics

15 Tremont St, 02139
Cambridge, MA 02139

Overview

- Total Roof Area (sqft): 1,479
- High PV Potential Area (sqft): 502
- System Size (kW): 8
- Electricity Output (kWh/y): 11,308

Potential Savings (per year):

$4,475

Estimates are calculated based on the assumptions available here.
GAINESVILLE GREEN
Comparing 5 Apartments

Recent Average electricity cost ($) 4/2012 to 12/2012

- **Arlington Square**
  - Address: 113 NW 3RD AVE, Gainesville FL 32601
  - Floorplans: 0-3, 1-3, 312-1444 square feet, Rnt: 599-1819
  - Units: 405
  - Electricity average monthly kWh: 645
  - Cost: $89
  - Gas average monthly therms: -
  - Carbon average monthly tons of CO₂: 0.30

- **Pinewood 1**
  - Address: 4151 NW 43RD ST, Gainesville FL 32606
  - Floorplans: 1, 1, 600 square feet, Rnt: 460
  - Units: 174
  - Electricity average monthly kWh: 427
  - Cost: $58
  - Gas average monthly therms: -
  - Carbon average monthly tons of CO₂: 0.20

- **Lakewood Villas**
  - Address: 700 SW 62ND BLVD, Gainesville FL 32607
  - Floorplans: 1-3, 1.5-3, 704-1450 square feet, Rnt: 700-1132
  - Units: 210
  - Electricity average monthly kWh: 839
  - Cost: $120
  - Gas average monthly therms: -
  - Carbon average monthly tons of CO₂: 0.39

View a map of these apartments
How are these calculated?
ENERGY SCORE RENTAL MAP

INFORMATION LAYERS

Average monthly electricity and gas (usage and dollars)

Heat fuel type

Benchmark or efficiency potential score

Recommended upgrades

Available rebates

Potential savings
ENERGY SCORE RENTAL MAP

15 Tremont Street
Electricity Consumption (kwh/sq ft)
101% worse than similar buildings
145  Actual
72   Similar
179% worse than similar buildings
145  Actual
52   Efficient
ENERGY SCORE RENTAL MAP

WHO PROVIDES DATA? Utilities
ConEd agreed to release multi-tenant data

Tenants
Individually release data
More difficult

IS IT SCALABLE? Areas with large multi-family rental markets
Urban areas
Young population
college towns
Expandable to single-family homes and commercial buildings

WHO HOSTS MAP? Utility
City or state agency
Another 3rd party provider
PROGRAM FINANCING

Proposed Tools & Solutions

- Expedited MassSave HEAT Loan Offer with Enhanced Incentives
- Green Lease Adjustments
- Integrate Energy Data into Financing Decisions
## EXPEDITED MASSSAVE HEAT LOAN OFFER

<table>
<thead>
<tr>
<th>Program</th>
<th>100% upfront financing at 0% interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Features</td>
<td>Streamlined loan application process</td>
</tr>
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<td>Partnerships with banks and contractors</td>
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<td>selected by city</td>
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<td>Credit enhancements for underwriting</td>
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<td>standards</td>
</tr>
<tr>
<td>Challenges</td>
<td>Scale</td>
</tr>
<tr>
<td>Addressed</td>
<td>Upfront cost barrier</td>
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<td>Process challenges</td>
</tr>
</tbody>
</table>
GREEN LEASE ADJUSTMENTS

Program Features

- Framework for enabling energy efficiency transfer payments from tenants to landlords
- CBSM strategy around landlord and tenant outreach and education

Challenges Addressed

- Split incentive barrier
- Landlord and tenant coordination
GREEN LEASE MODEL

**Landlord**
- Project Cost: $100,000
- EE Rebate & Incentives: $25,000
- Loan Amount: $75,000
- Payback Period: 25 months

**Monthly Debt Service**

**Without Green Lease**
- Old Utility Bill
- New Utility Bill

**Green Lease Based on Projected Energy Savings**
- New Utility Bill
- Green Lease Payment

**Tenant**

**Calculation**
- Debt Service: $3,000
- Green Lease: ($2,800)
- Net Debt Service: $20
- Return of Investment: 1.17%

EE cost should be shared at a ratio of 20% Landlord/80% Tenant of Project Energy Savings.
COMMUNITY-BASED SOCIAL MARKETING

- If landlords act in accordance with economic self-interest, why are energy efficiency programs so hard to get off the ground?

- CBSM: Initiatives that promote behavior change are more effective when they involve direct personal contact, leverage trust, and are carried out at the community level.

- Identify specific barriers to the behavior you’re trying to address

- Successful strategies make a single decision point
MOBILIZING COMMUNITY GROUPS

Problems Addressed
Lack of trust among landlords and tenants in understanding and implementing efficiency measures

Approach
Offer community groups incentives to promote efficiency through referral system
Provide dedicated efficiency liaisons to community groups to support their members

Implementation
Liaison from program implementer does outreach through community channels
Partner organizations promote programs through internal channels and receive incentives for referrals
### TENANT TOOLKIT

<table>
<thead>
<tr>
<th>Problems Addressed</th>
<th>Tenant’s inability to impact and contribute to building-level efficiency decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Uses interested tenant as a point of entry to full-building retrofit</td>
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<td>Interested tenants receive data and organizing tools to help understand efficiency and communicate with neighbors and landlord</td>
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<tr>
<td>Implementation</td>
<td>Turnkey implementer guides process, working with tenant to recruit neighbors and contact landlord</td>
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<td>Implementer receives incentives based on thresholds they cross in building-level outreach, is motivated to do hand-holding</td>
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THANK YOU!

Contact:
Harvey Michaels, hgm@mit.edu
Callie Seltzer, cseltzer@mit.edu