PSE&G Multifamily Housing Program

Improving the Energy Efficiency of Affordable Multifamily Housing Through PSE&G’s Residential Multifamily Housing Program

Innovative Program Design to Reach a Difficult Market

Rachael P Fredericks
PSE&G Program Manager
Newark NJ
PSE&G’s Service Territory is an Ideal Target Market
But….. Multifamily Housing Faces Steep Market Barriers… or Opportunities?!

• Thin operating margins & lack of available capital for infrastructure improvements
• Deferred maintenance with poor building conditions, ongoing deterioration
• Market sector consistently overlooked and underserved by existing energy efficiency programs
• Lack of knowledge about energy efficiency
• Relatively high energy usage
• Aging mechanical equipment
• Need to preserve affordability
Program Design = GO DEEP
Eliminate Barriers… Dive into Opportunity!

• Master metered and individually metered buildings accepted- 5 or larger
• Diversity of building types…
• Measures presenting impact to tenants and/or owners energy considered
• Partnership with NJHMFA

Common measures considered:
• Boiler optimization / replacement
• DHW improvements / replacement
• Ventilation improvements
• Air conditioning including in-unit
• Insulation & air sealing
• Refrigerators
• Water saving devices, low flow aerators and shower heads
• Lighting in units (both pin based and screw in)
• Common area lighting and lighting controls
Getting Started.... First Step?

Determine Opportunity!

- Application and bill payment history review (PS E&G accounts)
- Free on-site energy audit with audit report
- Design / Engineering and bid-ready document support
- Contractor selection review (by Engineer hired by PSE&G)
Start Construction!

• Multiple payments of cost of Project provided
  – 30% at start – execution of all documents
  – Multiple payments commensurate with progress.
  – 20% held until project close out
• Permanent “buy down” incentive to off-set the cost of energy efficiency upgrades
• On-site inspections to ensure compliance with program requirements
• Commissioning, Inspections and Construction Admin. CM allowance
• PSE&G utility on-bill financing 0% 5 or 10 yr. term
Multifamily Program Incentive Structure

- Eligible measures must have a simple payback of < 15 years and are subject to PSE&G approval
- Project incentive will buy down project cost by 7 years, but not to less than 2 years. This is a permanent incentive
- Typical share of the project for the customer is 30%
- Projects must meet cost-effectiveness screening (TRC and UCT at the project level) TRC = 1.

Most attractive element: Program finances project costs; Customer repays share of costs at 0% interest on customers’ utility bill over a period of 5 years (10 years if HFMA mortgaged properties).
<table>
<thead>
<tr>
<th>Item</th>
<th>Measure Description</th>
<th>Measure Cost ($)</th>
<th>Measure Savings ($)</th>
<th>Measure Payback (yrs)</th>
<th>PSE&amp;G Buydown ($)</th>
<th>Customer Total Share ($)</th>
<th>Customer Monthly Payment ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apartment CFLs - MATERIALS ONLY, EST qty = 2,349</td>
<td>$11,714</td>
<td>$15,558</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Common area lighting - T12 to T8 upgrade, occupancy sensors</td>
<td>$34,567</td>
<td>$2,183</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Exterior lighting upgrade eHID replacement for (35) 1000W MH parking lamps</td>
<td>$34,842</td>
<td>$18,764</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.5 gpm hand held showerheads and aerators - MATERIALS ONLY</td>
<td>$15,968</td>
<td>$14,609</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Thermostatic control valves for apartments (108 valves)</td>
<td>$66,112</td>
<td>$6,072</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Seal T12 kitchen and bath exhaust risers, add CAR dampers to top four floors, add fire dampers to all registers</td>
<td>$96,433</td>
<td>$67,442</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Condensing HW boiler upgrade (8 units)</td>
<td>$661,754</td>
<td>$55,343</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Condensing DHW heaters, pipe insulation on mains (4 units)</td>
<td>$176,116</td>
<td>$11,675</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Variable speed DCW booster pump (4 units), HW pumps (8 units)</td>
<td>$68,707</td>
<td>$8,783</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Energy STAR refrigerators - Estimated quantity MATERIALS ONLY</td>
<td>$29,146</td>
<td>$2,463</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Weather-strip stairwell trash room doors, trash chute, repair penthouse exhaust fan thermostat, wire stairwell fans to run only as needed per fire code.</td>
<td>$77,904</td>
<td>$6,233</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Programmable thermostat for 1st floor AC (4 units)</td>
<td>$11,300</td>
<td>$1,058</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Seal apartment AC units (916 units)</td>
<td>$44,967</td>
<td>$3,933</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Project Total</strong></td>
<td><strong>$2,219,538</strong></td>
<td><strong>$214,127</strong></td>
<td>10.4</td>
<td><strong>$1,498,892</strong></td>
<td><strong>$720,646</strong></td>
<td><strong>$6,005</strong></td>
</tr>
</tbody>
</table>

**CUSTOMER SUMMARY TABLE**

- Customer Payback from Savings: 3.4 years
- Measure Savings: $214,127
- Annual Repayment: $72,065
- Annual Net Cash Flow: $142,063
- MONTHLY CASH FLOW: $11,839

**Payment Summary**

- First Progress Payment: $581,350.55
- Second Progress Payment: $968,917.58
- Third Progress Payment: $387,567.03
- Total: $1,937,835
Results to Date…

• Estimated 42-45 projects funded with $39 million. Represents over 10K units and 280 buildings

• 13 projects currently in repayment
  • 113 buildings and 3072 units
  • 15-18 year average measure life
  • In 2012- kWh savings= 1,858,715  Therm savings = 352,135
Lessons Learned

• Implement an audit approach best to fit opportunity

• Customer education and owner involvement important

• Dialogue with management firms & owners

• Accurate site energy analysis (baseline energy data)

• Overcoming site / access issues to move project to completion during and after audit and into construction

• Close out Process is Critical

• Accurate documentation

• Commitment to Cx

Most attractive elements:
NO $ out of pocket during participation
Program finances project costs; Customer repays share of costs at 0% interest on customers’ utility bill over a period of 5 years
Thank you!

Questions?

Contact information:

Rachael P Fredericks

Rachael.fredericks@pseg.com

Office- 973 430 7565

Cell- 732 939 2401