Energy Efficiency
Success Stories from Detroit’s City Buildings

Brad Dick – Director, General Services Department – City of Detroit
Detroit Programs Overview

City of Detroit EECBG

SMART BUILDINGS DETROIT
ENERGY SAVINGS FOR YOUR COMMERCIAL BUILDING
EECBG Program Overview

$8,862,400  EECBG Grant
$1,013,615  Leverage
16  Buildings
1.2M+  Square Feet

partners
- Belle Isle Conservancy
- Clean Energy Coalition
- Economic Development Corporation of the City of Detroit
Detroit Commercial Energy Efficiency Projects

EECBG
(City of Detroit General Services Department)
The timeline outlines the key events and deadlines for the project:

- **Grant Award**: October 2009
- **Award Accepted**: January 2010
- **Energy Audits Started**: March 2010
- **Project Scope Defined**: October 2010
- **Boilers Ordered**: November 2010
- **Construction Bidding**: October 2011
- **Construction Started**: November 2011
- **Grant Deadline**: October 2012

The estimated project completion is set for October 2012.
# Investment Overview

## City of Detroit EECBG Investments

<table>
<thead>
<tr>
<th>Building/Property</th>
<th>Square Feet</th>
<th>Total Building Investment (and leverage)</th>
<th>Total Annual Savings (Operations + Energy)</th>
<th>Simple Payback (years) (Operations + Energy)</th>
<th>Jobs Created</th>
<th>GHG Saved (Metric Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th Police Precinct</td>
<td>25,600</td>
<td>$280,890</td>
<td>$87,840</td>
<td>3.20</td>
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<td>199</td>
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<td>12th Police Precinct</td>
<td>25,200</td>
<td>$544,140</td>
<td>$166,764</td>
<td>3.26</td>
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<td>36th District Court</td>
<td>240,000</td>
<td>$1,698,652</td>
<td>$494,234</td>
<td>3.44</td>
<td>18</td>
<td>1,049</td>
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<tr>
<td>Anna Scripps Whitcomb</td>
<td>80,000</td>
<td>$1,110,076</td>
<td>$372,316</td>
<td>2.98</td>
<td>12</td>
<td>719</td>
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<tr>
<td>Conservatory</td>
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<td>Chene Park Ampitheatre</td>
<td>25,000</td>
<td>$95,502</td>
<td>$33,008</td>
<td>2.89</td>
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<td>Coleman A. Young</td>
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<td>$699,914</td>
<td>$229,054</td>
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<tr>
<td>Community Center</td>
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<tr>
<td>Cultural Center</td>
<td>137,690</td>
<td>$56,178</td>
<td>$22,636</td>
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<td>Underground Garage</td>
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<td>Davison Service Yard</td>
<td>34,200</td>
<td>$533,732</td>
<td>$162,576</td>
<td>3.28</td>
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<td>Dossin Great Lakes Museum</td>
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<td>$356,168</td>
<td>$114,224</td>
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<td>Elections Building</td>
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<td>$617,957</td>
<td>$228,923</td>
<td>2.70</td>
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<td>Fire Apparatus Building</td>
<td>101,750</td>
<td>$1,001,527</td>
<td>$326,589</td>
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<td>790</td>
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<td>Historical Museum</td>
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<td>Huber Maintenance Facility</td>
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<td>Police Training Academy</td>
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<td>$337,068</td>
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<td>Russell/Ferry Service Yard</td>
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<td>$986,243</td>
<td>$394,634</td>
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<td>Southfield Service Garage</td>
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<td>$333,772</td>
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<td><strong>Total</strong></td>
<td>1,211,040</td>
<td><strong>$9,512,423</strong></td>
<td><strong>$3,150,945</strong></td>
<td><strong>2.95</strong></td>
<td><strong>103</strong></td>
<td><strong>6428</strong></td>
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</tbody>
</table>

1. Building investment numbers for these buildings are based on estimates since bids have not occurred yet.
2. Operational savings prorated based on % of building investment and total operations savings identified of $2.08 M
3. Job creation based on $92,000/job per Department of Energy guidelines

**Utility Rebates**: ($227,000)

**Net Total**: $9,285,423
City of Detroit Projected Annual Energy + Operational Savings
(EECBG Investments)

10-year projected energy and operations savings = $36,122,053
*Based on 3% inflation of annual energy and operations savings

These savings could heat and power about 1,680 homes per year for 10 years!
EECBG Program Overview

a/e
- BEI Associates

electrical
- De-Cal
- Detroit Electrical Service
- Motor City Electric

mechanical
- De-Cal Mechanical
- Universal Piping / Gallegar Kaiser
- R.L Depman
The Anna Scripp Whitcomb Conservatory is an 80,000 square foot facility and has been in operation since 1904. It features five distinct horticultural houses showcasing plants from around the globe.

partners
- Belle Isle Conservancy (formerly consisting of Belle Isle Women’s Committee, Belle Isle Botanical Society, and Friends of Belle Isle)

retrofits
- lighting retrofit
- boiler replacement

annual metrics
- $129,585 energy savings
- $242,731 o&m savings
- 12,709,628 kbtu savings
- 719 metric tons GHG saved

$1,110,076 total investment
($50,000 leveraged)
2.98 year payback
Coleman A. Young Community Center

$699,914 total investment
3.06 year payback

annual metrics
$76,010 energy savings
$153,044 o&m savings
2,003,196 kbtu savings
191 metric tons GHG saved

The Coleman A. Young Community Center is an 85,000 square foot recreation facility that provides community services such as tutoring, computer labs and art and crafts classes. It is also a venue for supervised physical activities like basketball, handball, swimming and boxing.

retrofits
- lighting retrofit
- boilers
- controls
The Russell/Ferry Service Yard is a 103,000 square foot facility that is one of three maintenance centers servicing City cars and trucks. The center also houses several administrative offices and city service dispatch.

**Retrofits**
- lighting retrofit
- boilers
- modulating gas tube heaters
- AHU retrofit
- controls
The Fire Apparatus Building is a 101,750 square foot facility with the objective of providing a supply of safe, fully operational fire apparatus, functional tools, equipment, and supplies.

Partners
- Economic Development Corporation of the City of Detroit

Retrofits
- domestic hot water system
- split systems
- lighting
The Elections Building is a 56,000 square foot facility that supports the City’s Department of Elections as it carries out its functions.

The Elections Building

$617,957 total investment
($100,000 leveraged)

2.70 years average payback

annual metrics

$93,800 energy savings

$135,123 o&m savings

11,394,769 kbtu savings

33 metric tons GHG saved

partners

- Economic Development Corporation of the City of Detroit

retrofits

- chiller
- lighting
- controls
Summary

$9,512,423 total investment
2.95 year average payback

annual metrics
$1,070,945 energy savings
$2,080,000 o&m savings
68,691,462 kbtu savings
6,428 metric tons GHG saved
EECBG Lessons Learned

keys to success:

- Solid program management capacity
- Internal champion to get projects done
- Audit-to-A/E work: the smoother, the better
- Coordination with partners and leveraging other programs
- Viewing energy as just one puzzle piece
  (in addition to building upgrade needs, human comfort, etc.)
- Flexibility to alter/change course when needed
Thanks!