Network and Building Technologies:
The Coming Revolution in Building Performance

Helen Gurfel
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What is the ULI Greenprint Center?

- Founded in 2009, Greenprint is a worldwide alliance of leading real estate owners and financial institutions committed to improving the environmental performance of the real estate industry.

- Greenprint’s mission is to lead the global real estate community toward value-enhancing carbon reduction strategies.

- Support the Intergovernmental Panel on Climate Change (IPCC) goals for global greenhouse gas stabilization by 2030.

- Greenprint is a member driven nonprofit 501(c)(3).
Why collect data?

• What gets measured, gets managed
• Data is key to understanding current performance and improvement potential
• Benchmarking
• Creating an index
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Greenprint At-A-Glance

2010
18 members

2011
29 members

Increase in membership
61%

2010
44 countries

2011
46 countries

Increase in countries
5%

SQUARE METERS IN 2011

2010
32 million m²

2011
65 million m²

Increase in square meters
108%
Global Scope: Measuring and benchmarking energy, carbon emissions and water
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2010
6,873 million kWh
1,628 properties

2011
6,572 million kWh
1,628 properties

-4.4%
2010-2011 Greenhouse Gas Emission Performance & Equivalents

-8.2% carbon
454 thousand metric tonnes

1,056,830 barrels of oil not consumed
39,345 homes not consuming energy

89,106 cars taken off the road
11,652,231 trees planted
Sample member report chart: Energy intensity of 5 member properties in London compared to Greenprint median

ENERGY INTENSITY
annual kWh/m²
(rentable area)

2011
2010
2011 Greenprint Median

Property A: 411
Property B: 417
Property C: 424
Property D: 433
Property E: 575

2011 Median: 434
## Greenprint Partnerships & Alliances

<table>
<thead>
<tr>
<th>Strategic Alliances</th>
<th>Innovation Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>LONDON</td>
<td>LUTRON</td>
</tr>
<tr>
<td>NRDC</td>
<td>Johnson Controls</td>
</tr>
</tbody>
</table>

- ULI Greenprint Innovation Roundtable is an assembly of companies that share information and advance the transformation of the real estate industry.
- The roundtable explores and adopts new technologies and operational best practices.
Where is Greenprint Headed?

- Provide useful **benchmarks** and information that drive members to improve the environmental performance
- Continue to lead the way in **transparency, quality controls, and global standards**
- Publish **best practices and case studies** illustrating connection between performance and **asset value**
- **Increase scope** through expanded participation, membership, partnerships and alliances
Environmental Performance and Value

We believe that, when companies focus on being socially responsible and having good governance practices, they may be exposed to lower risk and hereby achieve better financial performance.

Roger W. Ferguson, Jr., CEO, TIAA-CREF

Our environmental due diligence and our emphasis on sustainability...have a direct effect on profitability. Equally important, they remind us that we are stewards of our portfolio.

Steve Schwarzman, Chairman, CEO, and Co-Founder, Blackstone Group

A year ago we challenged ourselves to demonstrate $50 million in value from our 2011 sustainability programs. I am pleased to report that we reached that goal through cost savings that boost properties’ net income and, therefore, value.

J. Allen Smith, CEO, Prudential Real Estate Investors

Every day we are helping our clients and ourselves realize the value of corporate responsibility. Sustainability is not just aligned, but increasingly embedded, in everything we do.

Colin Dyer, President and CEO, Jones Lang LaSalle
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<table>
<thead>
<tr>
<th>Category</th>
<th>Whole Building Energy (kWh) by Rentable Area (m²)</th>
<th>Common Area Energy (kWh) by Common Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFFICE</td>
<td>227</td>
<td>96</td>
</tr>
<tr>
<td>Energy Intensity</td>
<td>227 annual kWh/m²</td>
<td>96 annual kWh/m²</td>
</tr>
<tr>
<td>Properties</td>
<td>1,050 properties</td>
<td>83 properties</td>
</tr>
<tr>
<td>MULTIFAMILY</td>
<td>228</td>
<td>268</td>
</tr>
<tr>
<td>Energy Intensity</td>
<td>228 annual kWh/m²</td>
<td>268 annual kWh/m²</td>
</tr>
<tr>
<td>Properties</td>
<td>14 properties</td>
<td>242 properties</td>
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<tr>
<td>RETAIL</td>
<td>291</td>
<td>469</td>
</tr>
<tr>
<td>Energy Intensity</td>
<td>291 annual kWh/m²</td>
<td>469 annual kWh/m²</td>
</tr>
<tr>
<td>Properties</td>
<td>23 properties</td>
<td>135 properties</td>
</tr>
</tbody>
</table>
Water consumption decreased 3.1% on a Like for Like basis, equivalent to saving 1.3 billion gallons per year.

**Water Intensity in 2011**

- **OFFICE (393 properties)**: 25,037 Kiloliters/Person
- **INDUSTRIAL (5 properties)**: 33,950 Kiloliters/Person
- **MULTIFAMILY (333 properties)**: 82,304 Kiloliters/Unit
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Greenprint Carbon Index™ (GCX)

INDEX BASED ON Annual kg CO₂e / m² 2009 = 100

INDEX BASED ON Number of Properties

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Emissions Intensity (kg CO₂e / m² / yr)</th>
<th>% Change in Emissions Intensity</th>
<th>Number of Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>116.4</td>
<td></td>
<td>1,283</td>
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<tr>
<td>2010</td>
<td>120.2</td>
<td>3.2% ↑</td>
<td>1,614</td>
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<tr>
<td>2011</td>
<td>108.3</td>
<td>-7.0% ↓</td>
<td>2,214</td>
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</tbody>
</table>

GREENPRINT GOAL 50% OF 2009 EMISSIONS BY 2030
2010-2011 portfolio includes 1,628 properties with consistent year over year data
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- **SAN FRANCISCO**: 65 properties, 200 annual kWh/m²
- **NEW YORK**: 31 properties, 275 annual kWh/m²
- **WASHINGTON D.C.**: 44 properties, 235 annual kWh/m²
- **PARIS**: 18 properties, 236 annual kWh/m²
- **LONDON**: 165 properties, 398 annual kWh/m²
- **FRANKFURT**: 10 properties, 345 annual kWh/m²
- **SEOUL**: 4 properties, 420 annual kWh/m²
- **TOKYO**: 21 properties, 190 annual kWh/m²