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## Effective Benchmarking Amidst Diversity

Christian Magliano / Citi Realty Services  
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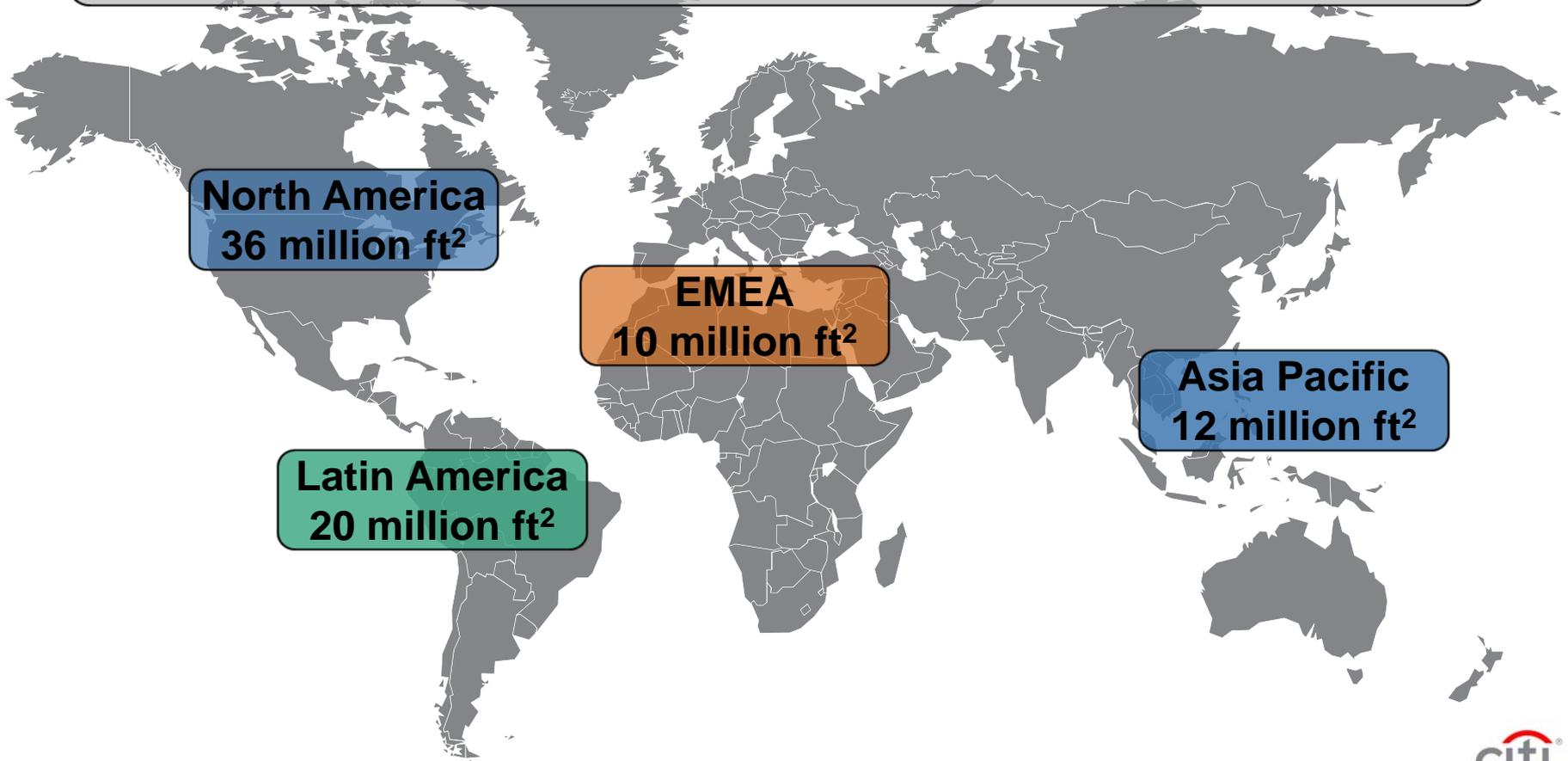
# About Citi Realty Services

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- Manage the proprietary real estate portfolio for all Citi businesses globally
- CRS Quick Facts
  - Operates in over 100 countries
  - Manages 12,500 locations
  - Covering 80 million square feet
  - Seats >400,000
  - Energy Spend >\$300 million p.a.

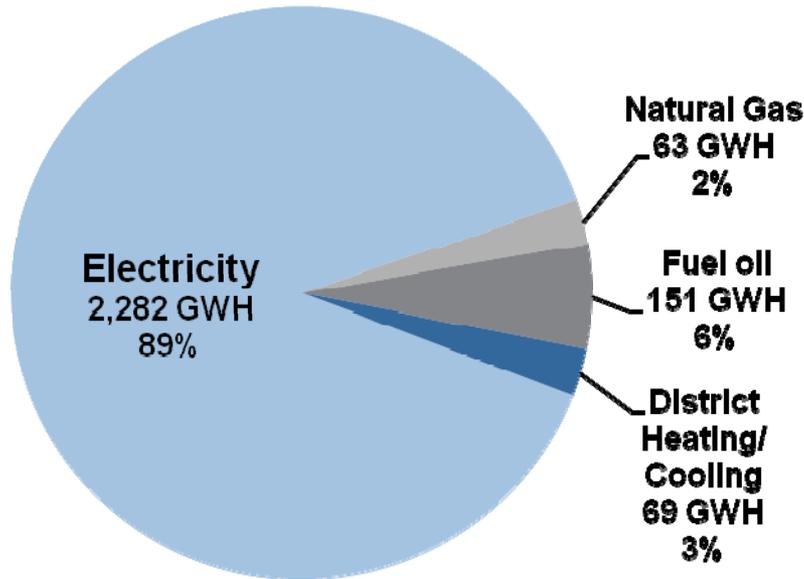
# Portfolio Distribution

Wide geographic distribution of facilities  
with approximately half of the real estate portfolio outside the U.S.

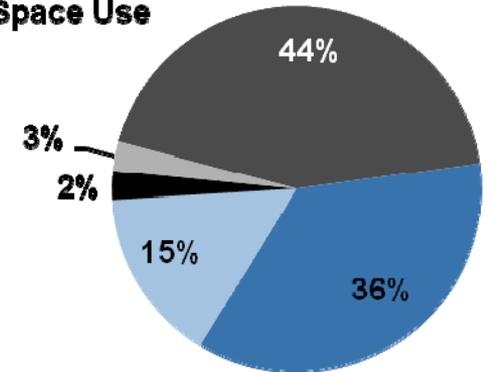


# Basic Portfolio Data

**Energy and Fuels Consumed by Citi Facilities in 2009**

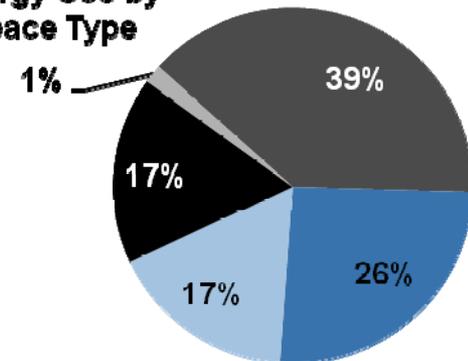


**Space Use**



- Office
- Retail Branch
- Operations Center
- Data Center
- Other

**Energy Use by Space Type**



# CRS Sustainability Group Vision and Goals

## Vision

To be the catalyst for CRS to become the recognized leader in sustainable real estate management by setting high standards for GHG emissions reductions and embedding sustainable practices in our corporate culture

## Goal

To deliver best in class sustainable corporate real estate

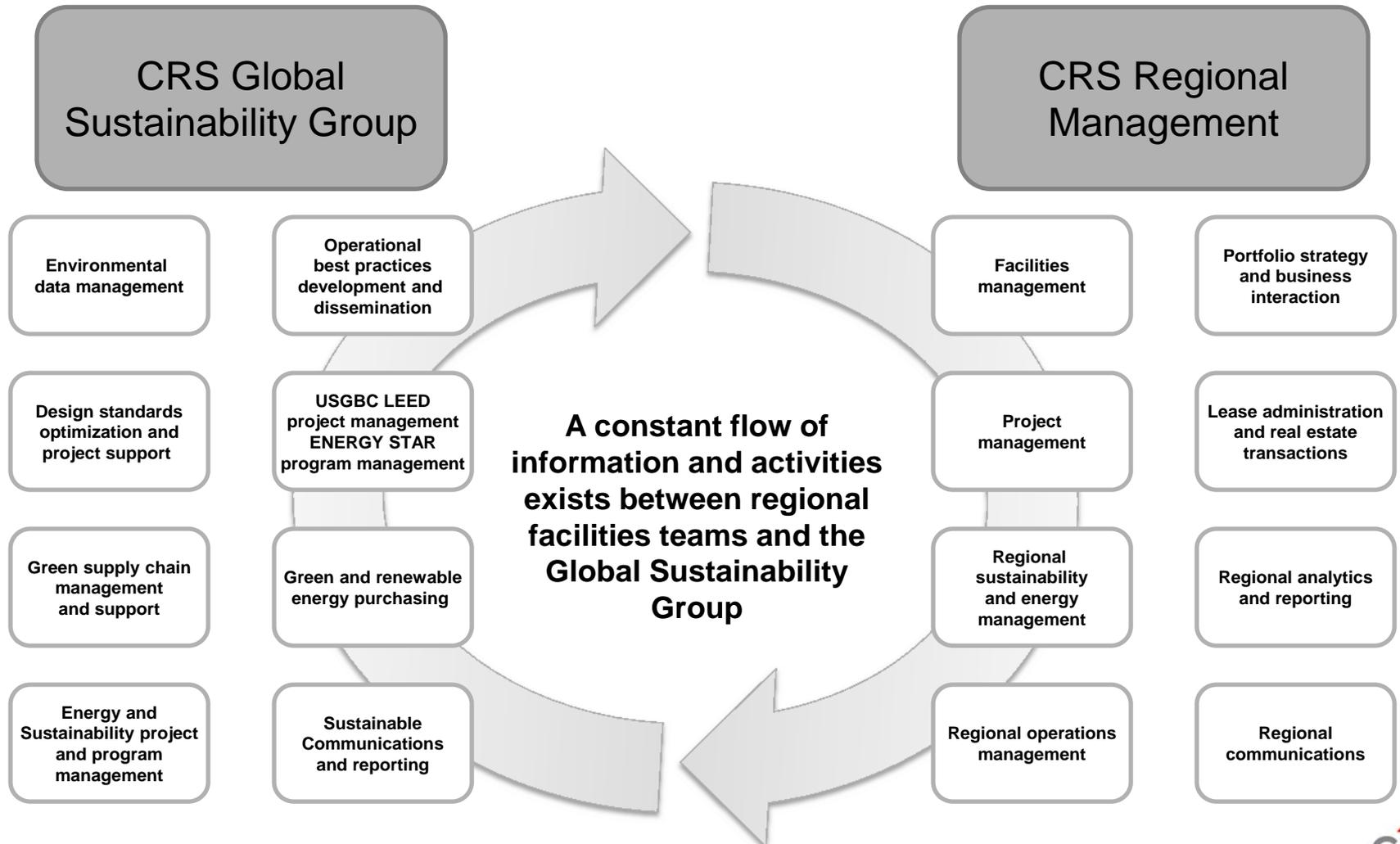
2011

## Quantitative Sustainability Goals

- 10% absolute reduction in GHG emissions from a 2005 base year
- Complete workplace sustainability training for all employees
- GHG reduction – 25% absolute reduction from 2005 base year
- Supply chain – sustainable rating system in use for all vendors
- Waste stream reduction – 40% reduction from 2005 base year
- Water use reduction – 20% reduction from 2005 base year
- LEED – 15% of portfolio certified
- Net energy use reduction – 20% reduction from 2005 base globally
- Alternate and renewable energy – 15% of global electricity

2015

# CRS Sustainability Organization



# The Citi Energy Management Program

## Step 1 – Set the baseline

- Gather data
- Develop benchmarks
- Analyze performance
- Identify best practices

## Step 2 – Clean house

- Communicate findings
- Educate operators
- Implement best practices
- Measure performance

## Step 3 – Pick low-hanging fruit

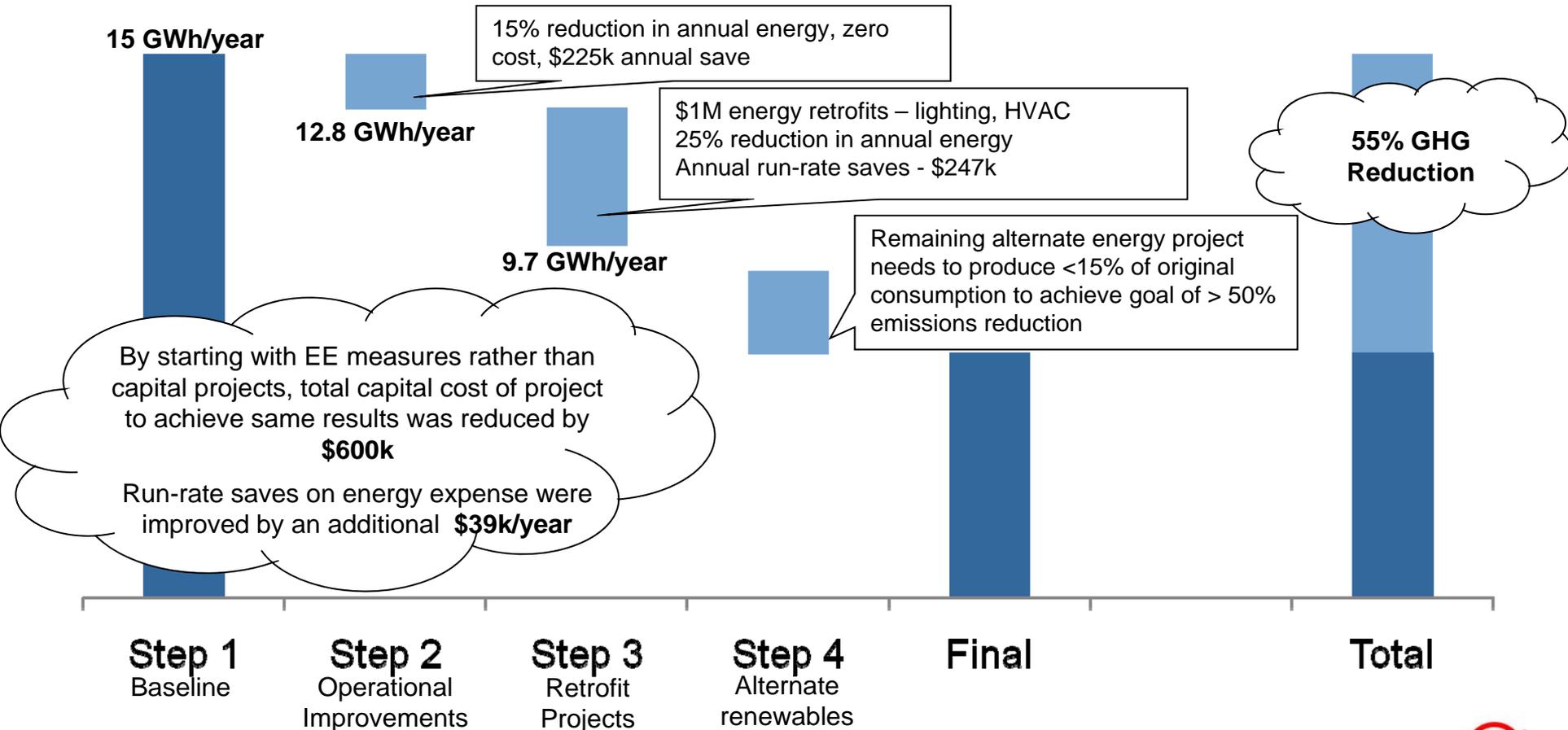
- Lighting retrofits
- HVAC improvements
- Building automation
- Measure performance

## Step 4 – Get creative

- On-site renewable energy
- Cogeneration
- Alternative energy
- Major building retrofits

# Case Study for Basic Energy Efficiency as a Starting Point

Typical 500,000-square-foot suburban office facility in the U.S. Midwest, operating at 30 kwh/sf/yr, with a starting annual energy spend of \$1.5 million and a goal to reduce GHG emissions 50%



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# The Benchmarking Challenges

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- There are too many variables in the Citi energy equation to utilize simple energy per square foot metrics effectively
  - Mixed use facilities
  - Portfolio changes
    - Reducing overall portfolio size by increasing building occupancy
    - Frequent changes to space use
  - Regional differences
    - Typical office density may range from 80sf/pp to >200sf/pp
    - Hours of operation vary by region
    - Climate and weather

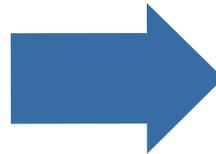
# Citi Turned to ENERGY STAR

## The case for ENERGY STAR benchmarking

### Before

Using simple building-level consumption tracking

- Office energy consumption ranged from 15kwh/sf/yr to 100+kwh/sf/yr with no means to assess differences in use and efficiency
- Typical branch energy consumption ranged from 10kwh/sf to 50kwh/sf without the ability to track hours of operation, staffing
- Operations centers ranged from trading floors to check processing facilities
- Data centers with average power densities from 20kw/sf to 125kwh/sf
- Significant workload to create meaningful statistical analysis



### After

Using ENERGY STAR Portfolio Manager

- All facilities on a common rating scale
- Density, space use, and weather differences normalized
- 1-100 rating provides clear and concise view of buildings in portfolio
- Ratings provide the ability to grasp local portfolio performance and foster competition
- Physical or operational changes within facilities do not effect ability to trend performance
- Historical trending can identify efficiency improvements over time

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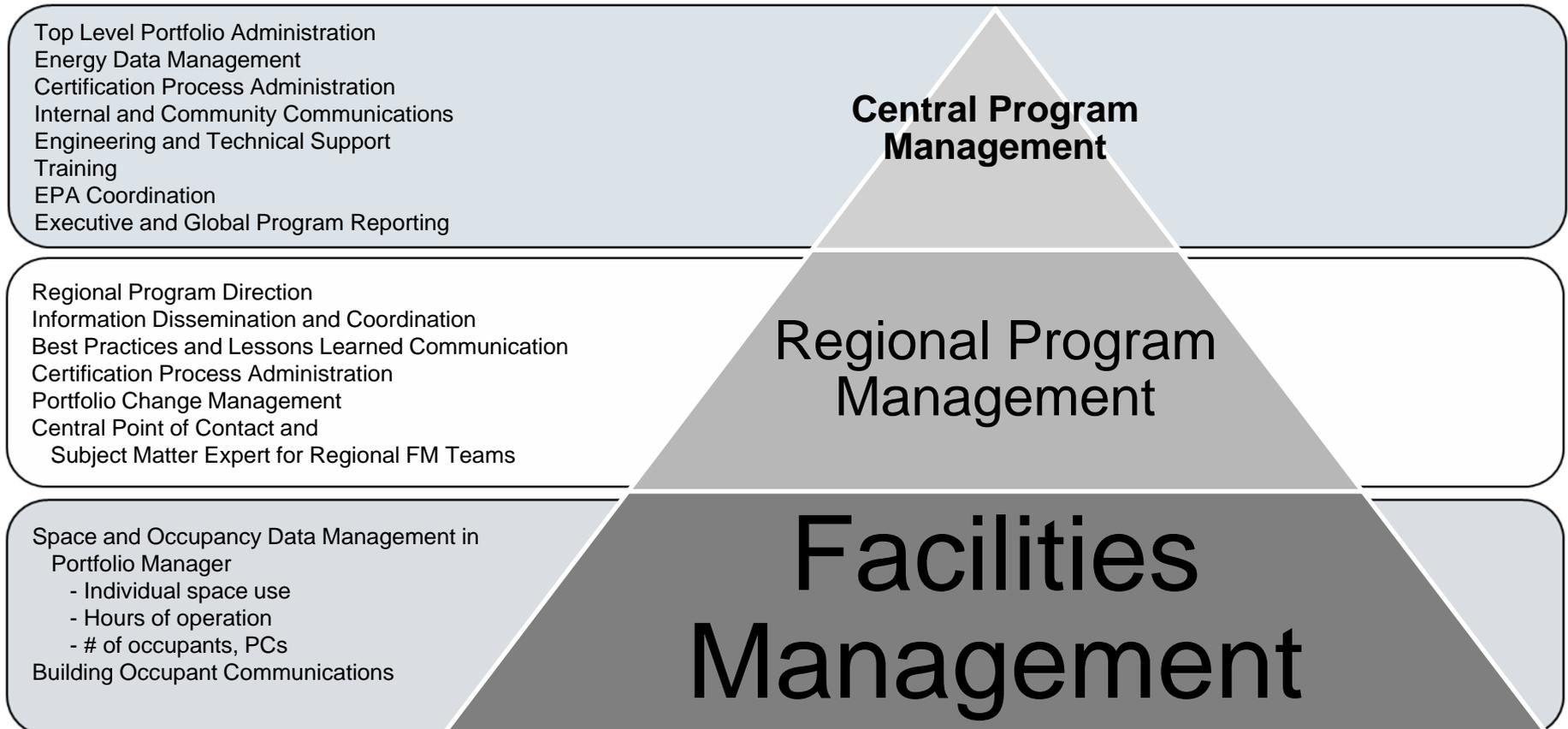
# Building Process

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- Benchmarking Pilot (2008)
  - Started with 50 of Citi's largest U.S. properties; expanded to 75 U.S. buildings and 10 international buildings
  - Validated energy management efforts to date, including low- and no-cost “quick wins”
  - Identified early success stories and provided recognition for facility management staff
  - Provided early indication that the biggest buildings are not necessarily the best retrofit candidates
- Bringing Benchmarking to Scale (2009-)
  - Internal trainings for more than 300 property managers across the world
  - Streamlined data management roles and responsibilities to reduce burden on property managers
  - Expanded efforts to include bank branches
  - Completed build out of automated benchmarking capability
  - Currently benchmarking ~5,000 facilities in portfolios of major buildings, branches, and leased space

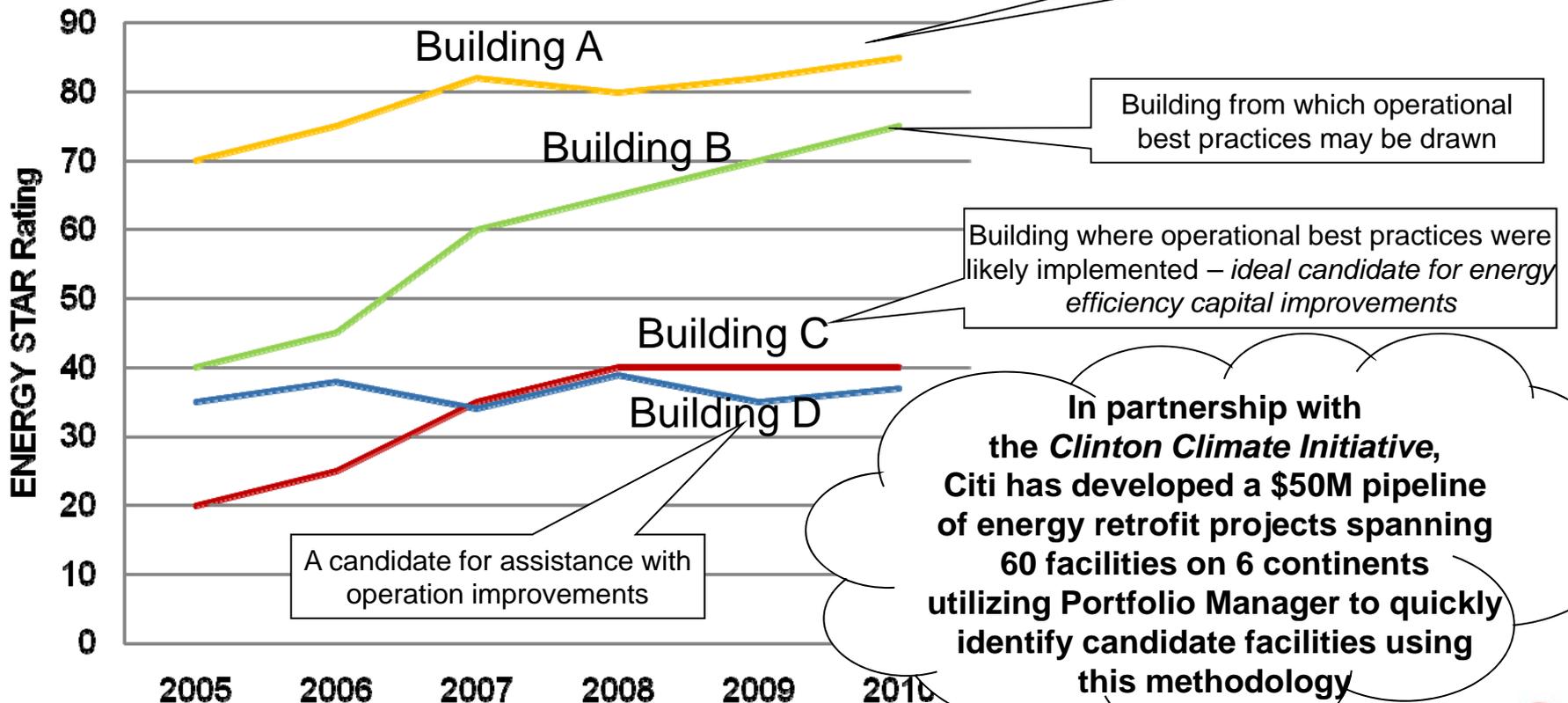
# Managing Workflows to Ensure Success

## Citi ENERGY STAR Program Roles and Responsibilities



# Leveraging Portfolio Manager to Find Opportunities

Example of how using ENERGY STAR benchmarking enabled Citi to quickly scan large portfolios for opportunity



# Methods of Engagement

## Competition

*At the portfolio and building levels*

### ENERGY STAR Major Buildings Portfolio

Region	# facilities	Total SF	% energy reduction	Portfolio rating
North America	56	21.6 million	-15.1%	66
EMEA	13	1.5 million	-27.8%	70
Latin America	15	1.5 million	-36.4%	73
Asia Pacific	4	0.5 million	-19.9%	75
<b>Total</b>	<b>88</b>	<b>25.1 million</b>	<b>-17.2%</b>	

# Methods of Engagement

## Recognition *For teams and individuals*



Citi proudly displays the ENERGY STAR plaque at 54 of its U.S. facilities



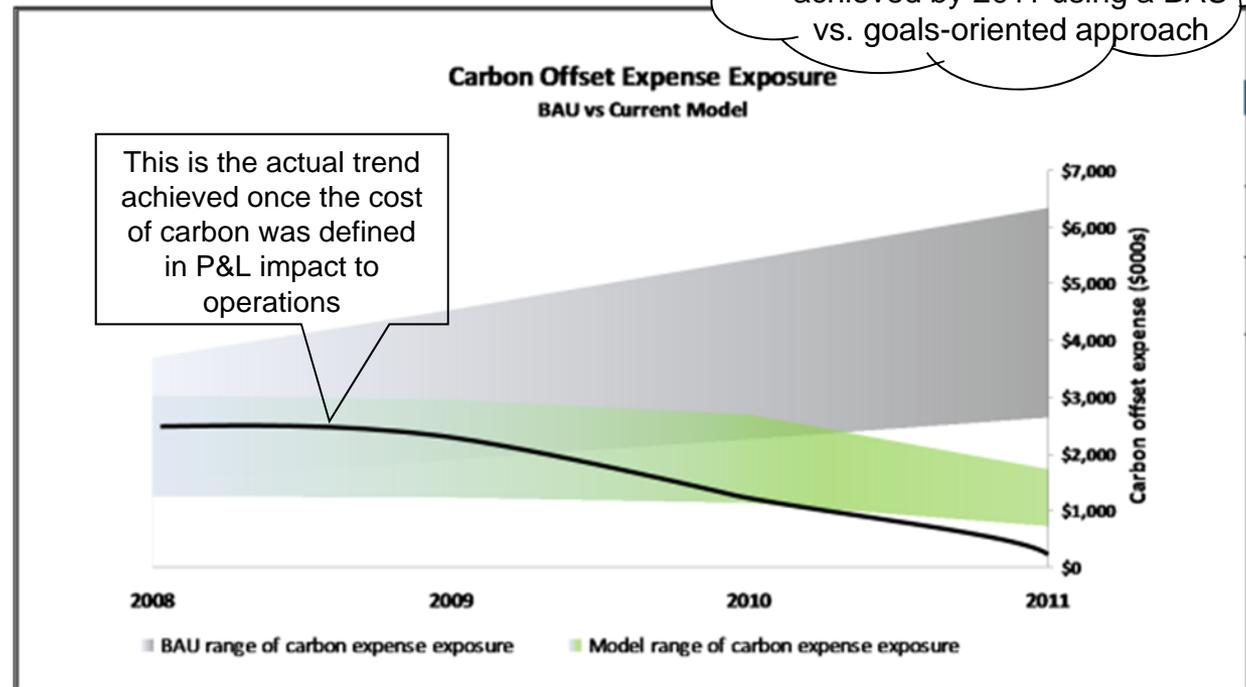
In dozens of facilities outside the U.S. where facilities cannot obtain the label, Citi created an internal recognition program using the same detailed criteria to highlight facilities with exceptional energy performance



# Methods of Engagement

## Improved Risk and Expense Management At the C-level

This model was developed to assess risk of green energy expense if goals were not achieved by 2011 using a BAU vs. goals-oriented approach



In 2007, we forecasted our emissions growth trajectory at the time and estimated that unless we make improvements, we faced a risk between \$3-6MM in carbon offsets to meet and maintain goal levels — *not including the missed opportunity expense of achieving energy efficiency.*

With a reasonable level of success on our energy reduction goals — mostly in operational best practices — the impact would be closer to \$1MM annually in offsets.

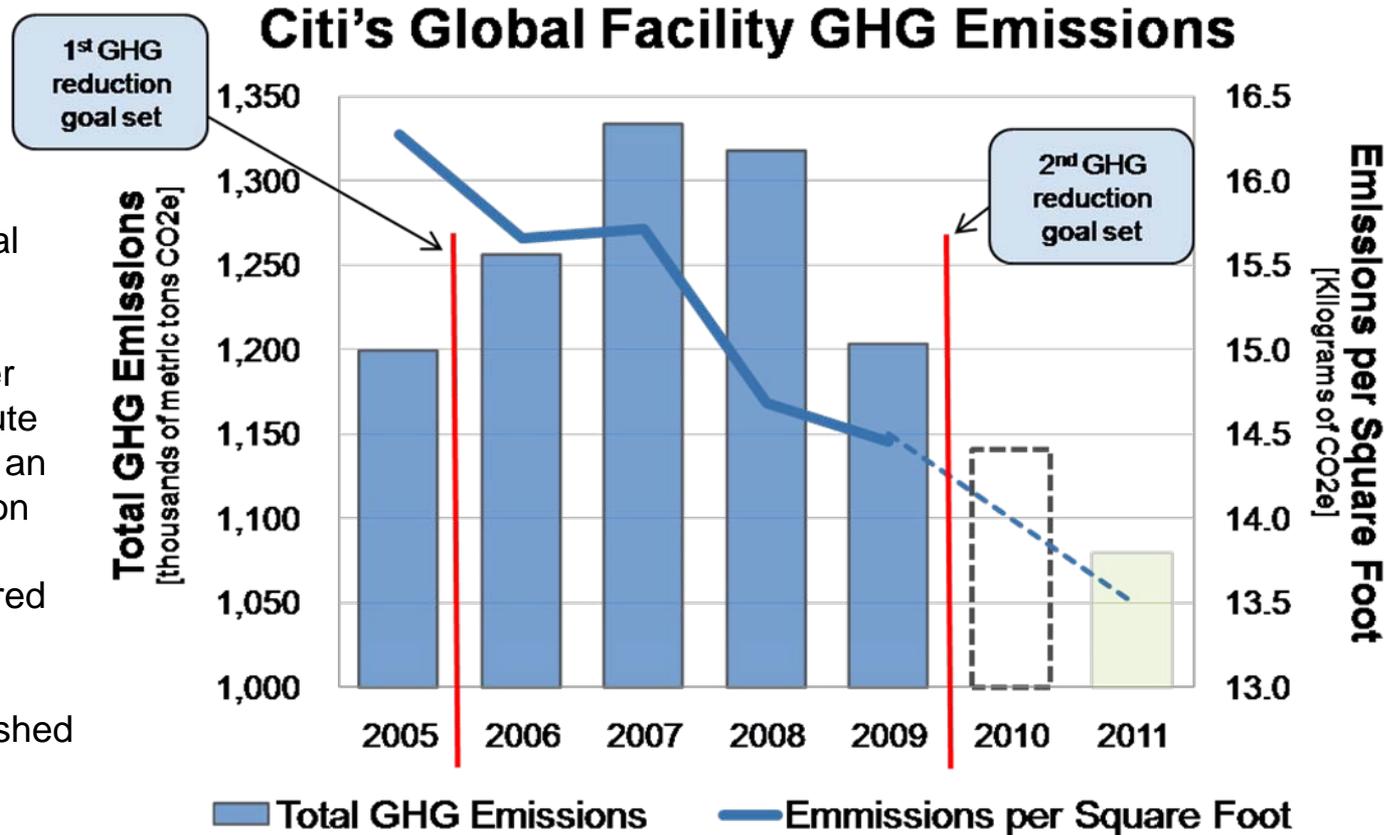
The results are reforecasted continually, and as of mid year 2010, that risk is now *near zero.*

*By compounding carbon value with energy expense saves, the financial case and C-level buy-in on initiatives is strengthened dramatically*

# Results – Reduced GHG Emissions

Progress toward 2011 emissions reduction goal enabled CRS to set a cascading goal for the organization for a further 15% reduction in absolute GHG emissions — with an underlying 20% reduction target for energy consumption as measured by Portfolio Manager.

These goals were published in Citi's 2009 CSR.



**Base year adjusted performance to account for mergers, acquisitions, and disposed business units**

## Results – Expense Reductions

**Basic energy efficiency contributed \$8.6 million to the bottom line in 2009**

	2008	2009
Energy expense (\$ millions)	\$402.2	\$338.1
Energy consumed (GWh)	2,925	2,613
Average cost per KWh	0.142	0.131
Energy expense variance (\$ millions)		(\$64.0)
Expense variance due to rate reductions		(\$23.6)
Expense variance due to consumption reductions		(\$40.4)
Expense reductions due to portfolio changes		(\$31.8)
Expense reductions due to energy savings		(\$8.6)

## Results — Industry Recognition

**32** | **Citigroup**  
Industry Sector: **Banks and Insurance** »

A diversified financial-services company with a presence in 140 countries, it offers deposits and lending, investment banking, brokerage, wealth management, and other financial services to consumers, corporations, governments, and institutions.

RANKING CATEGORIES	SCORE	INDUSTRY SECTOR RANKING	TOP 500 RANKING
Green Score	86.72	2	32
Environmental Impact Score	100.00	1	1
Green Policies and Performance Score	66.41	4	64
Reputation Survey Score	64.99	1	45



Citi ranked #1 by Newsweek in Environmental Impact score in the US 500 and Global 100

Source: [Newsweek.com](https://www.newsweek.com)

- Member of the Dow Jones Sustainability World Index – nine consecutive years
- Member of the FTSE4Good Index