April 15, 2010 | USGBC New Jersey Chapter

Green Building Market Intelligence: Turning Trends into Opportunities

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Global Thought Leadership & Business Development

McGraw-Hill Construction

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The World is Now Thinking Green

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Agenda

- Green Building Market Opportunity
- Green Retrofit & Renovation
- U.S. Corporate Sustainability
- Water Efficiency
- Sustainable Construction Waste Management
- Legislation & Green
- Final Conclusions

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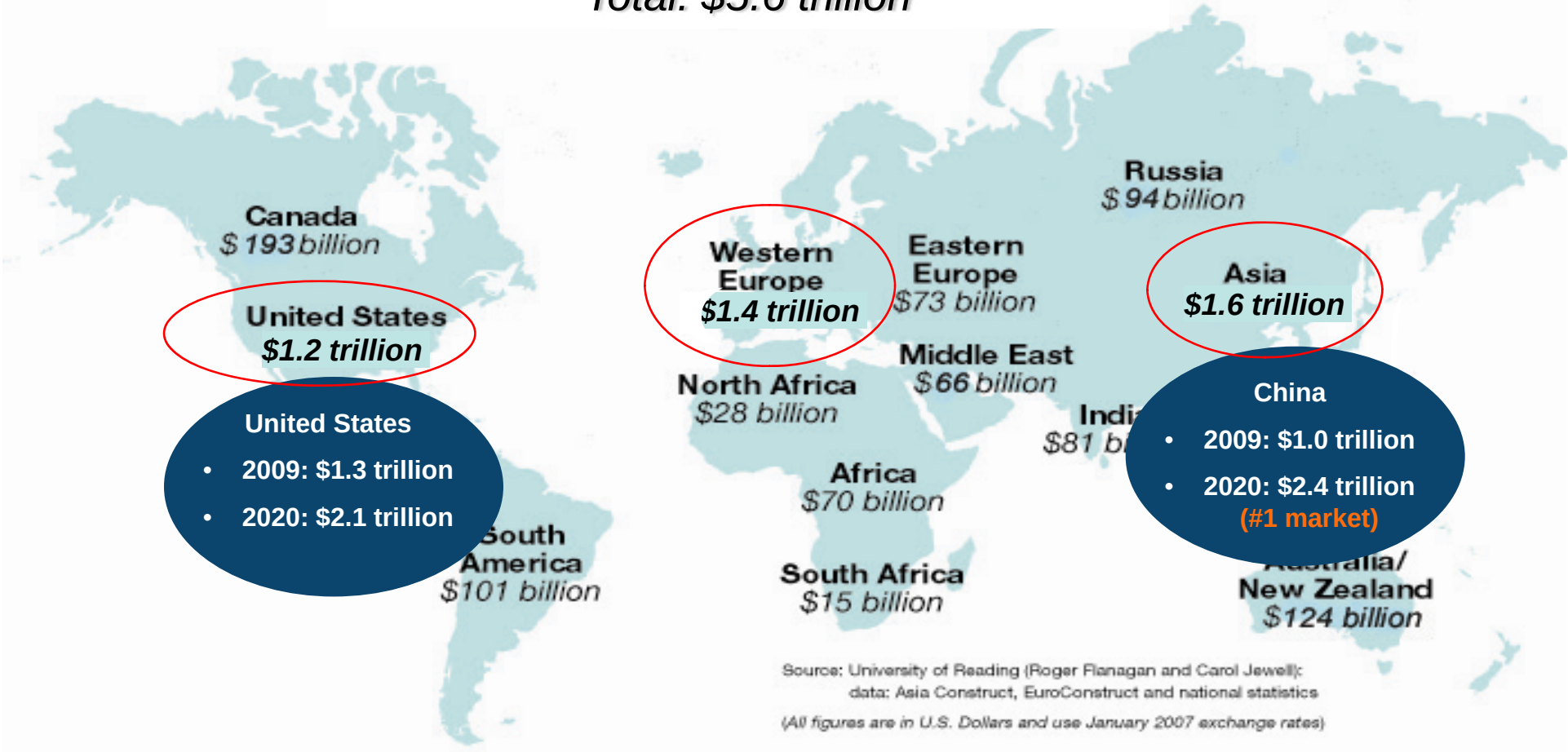
Green Building Market Opportunity

Construction = 10% of Global GDP

Global Construction Output (2008)

Total: $5.6 trillion



Source: University of Reading (Roger Flanagan and Carol Jewell); data: Asia Construct, EuroConstruct and national statistics

(All figures are in U.S. Dollars and use January 2007 exchange rates)

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The Big Picture

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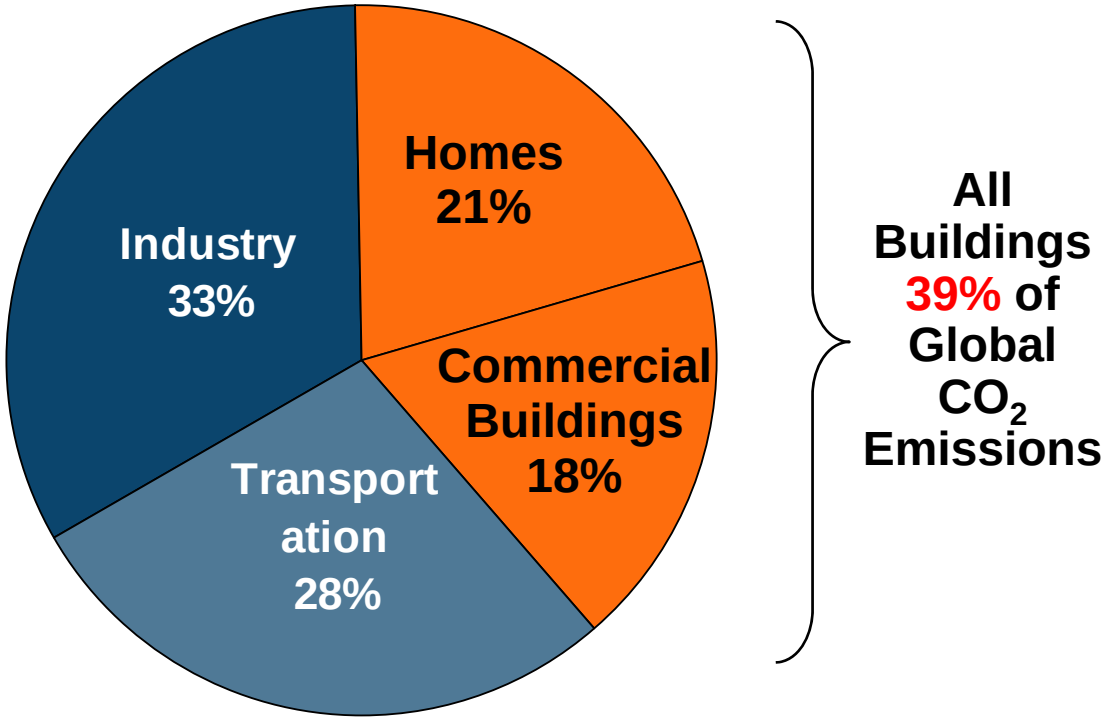
Value of U.S. Construction Starts
(Billions of Dollars)

	2005	2006	2007	2008	2009	Forecast 2010	Forecast 2011
Total Construction	**670.2**	**689.4**	**641.7**	**553.0**	**414.8**	**460.7**	**571.1**
	13%	*3%*	*-7%*	*-14%*	*-25%*	*11%*	*24%*
Residential	**384.0**	**342.2**	**262.3**	**161.6**	**111.6**	**141.6**	**210.8**
	15%	*-11%*	*-23%*	*-38%*	*-31%*	*27%*	*49%*
Commercial	**72.2**	**92.9**	**100.9**	**80.7**	**45.1**	**43.3**	**58.3**
	7%	*29%*	*9%*	*-20%*	*-44%*	*-4%*	*35%*
Industrial	**10.1**	**13.5**	**20.8**	**29.5**	**10.1**	**8.9**	**10.0**
	26%	*33%*	*53%*	*42%*	*-66%*	*-12%*	*13%*
Institutional	**100.1**	**110.7**	**117.7**	**129.2**	**108.6**	**112.6**	**122.0**
	12%	*11%*	*6%*	*10%*	*-16%*	*4%*	*8%*
Nonbuilding	**103.8**	**130.1**	**140.1**	**152.0**	**139.5**	**154.4**	**170.0**
	9%	*25%*	*8%*	*9%*	*-8%*	*11%*	*10%*

Source: McGraw-Hill Construction, April 1, 2010

Buildings: The Largest CO_2 Emitter

Global CO_2 Emissions by Sector



Source: U.S. Department of Energy, Building Energy Databook, 2008

Electricity Use in U.S.

70% Used by All Buildings, of which 43% is commercial

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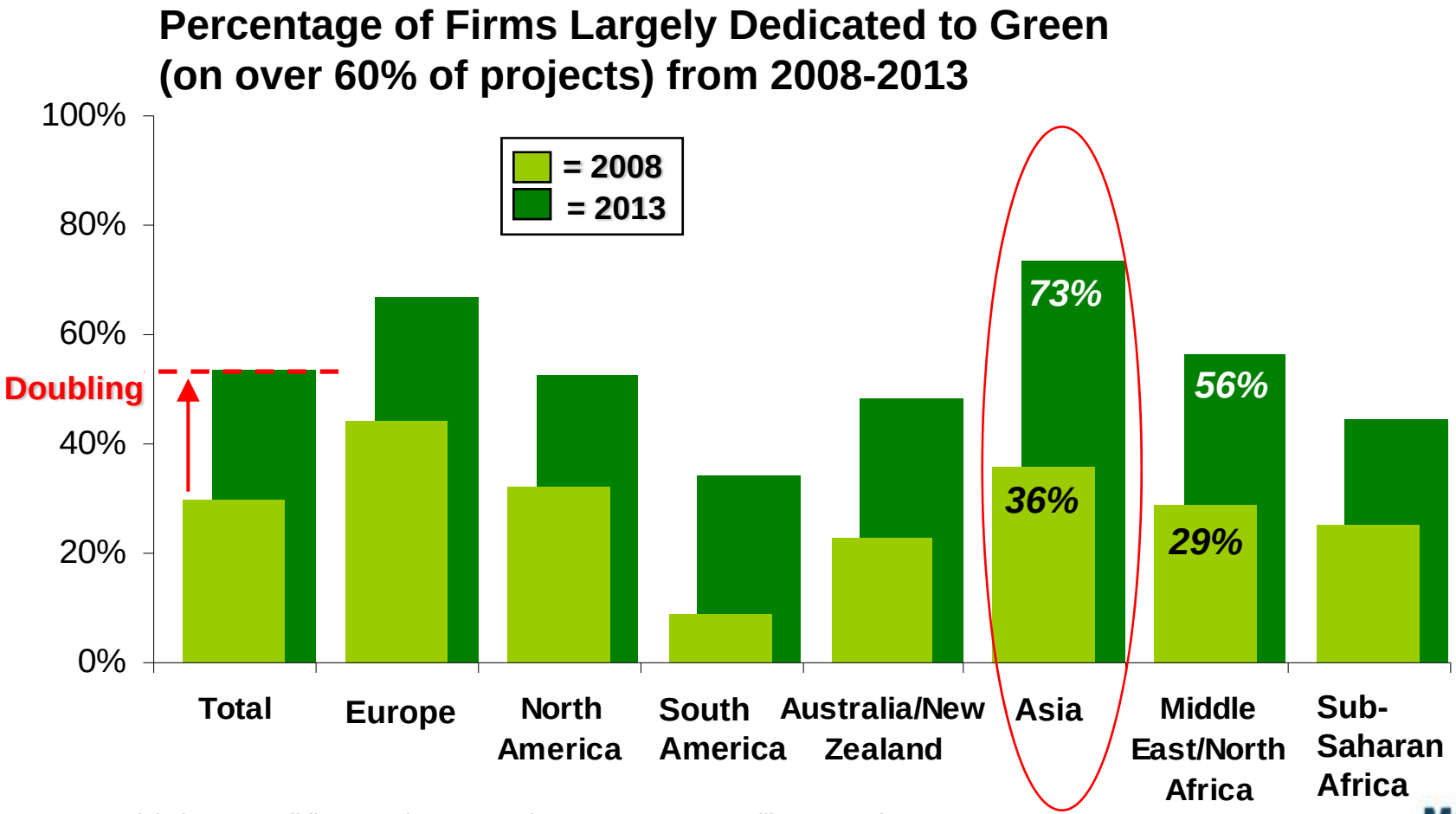
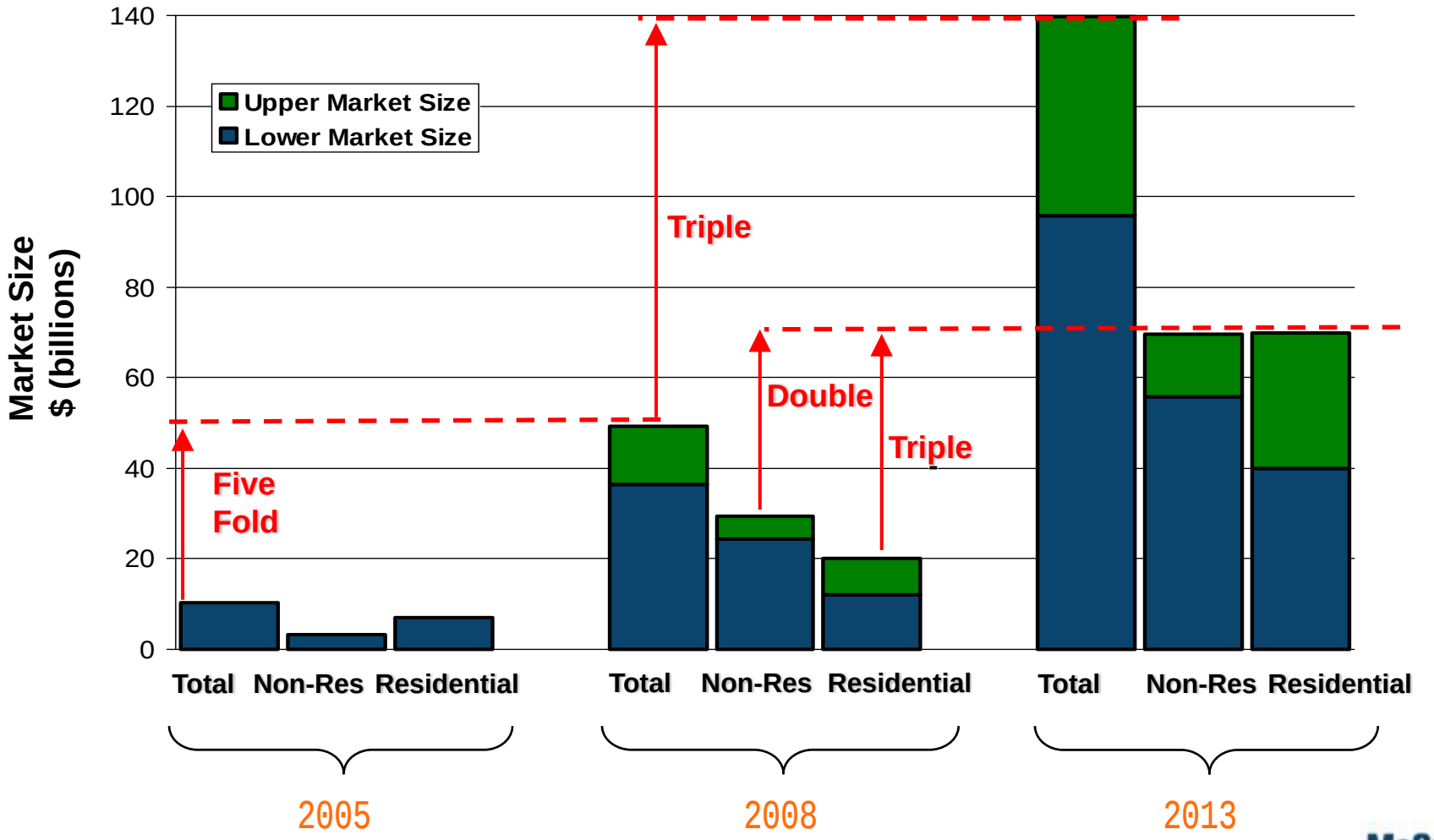
Global Movement in Green Building



Source: Global Green Building Trends SmartMarket Report, McGraw-Hill Construction, 2008

In the U.S.: Increasing Market Opportunity New Construction



Source: Green Outlook 2009, McGraw-Hill Construction

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Business Benefits of Green Building Are Increasing

	2005	2008
➔ Decreased Operating Costs:	8-9%	13.6%
➔ Increased Building Values:	7.5%	10.9%
➔ Improvement in ROI:	6.6%	9.9%
➔ Increased Occupancy:	3.5%	6.4%
➔ Rent Rise:	3.0%	6.1%

Green Building saves up to 50% in energy costs, leading to 33%-39% reduction in CO_2 emissions

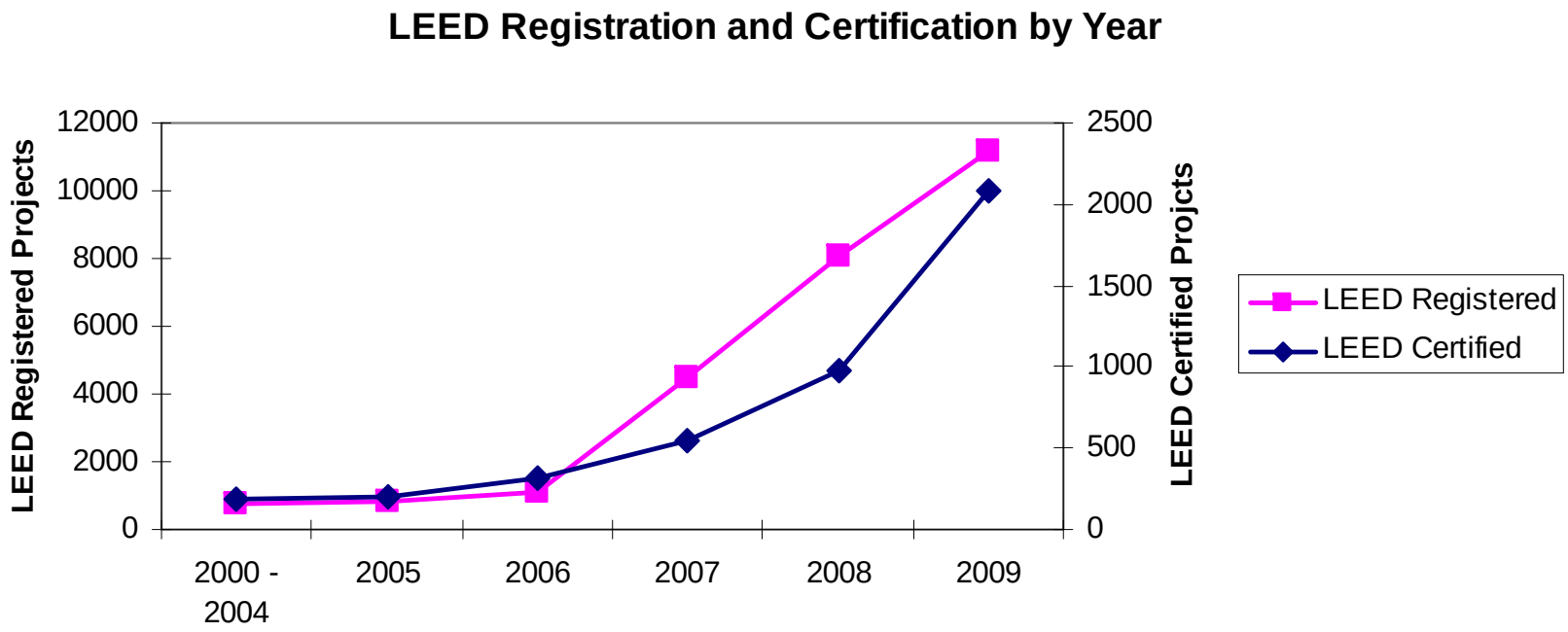
Green Building Also Makes Cities Healthier & People More Productive

Source: Commercial & Institutional Green Building SmartMarket Report, McGraw-Hill Construction, 2008

LEED Projects Continue to Rise

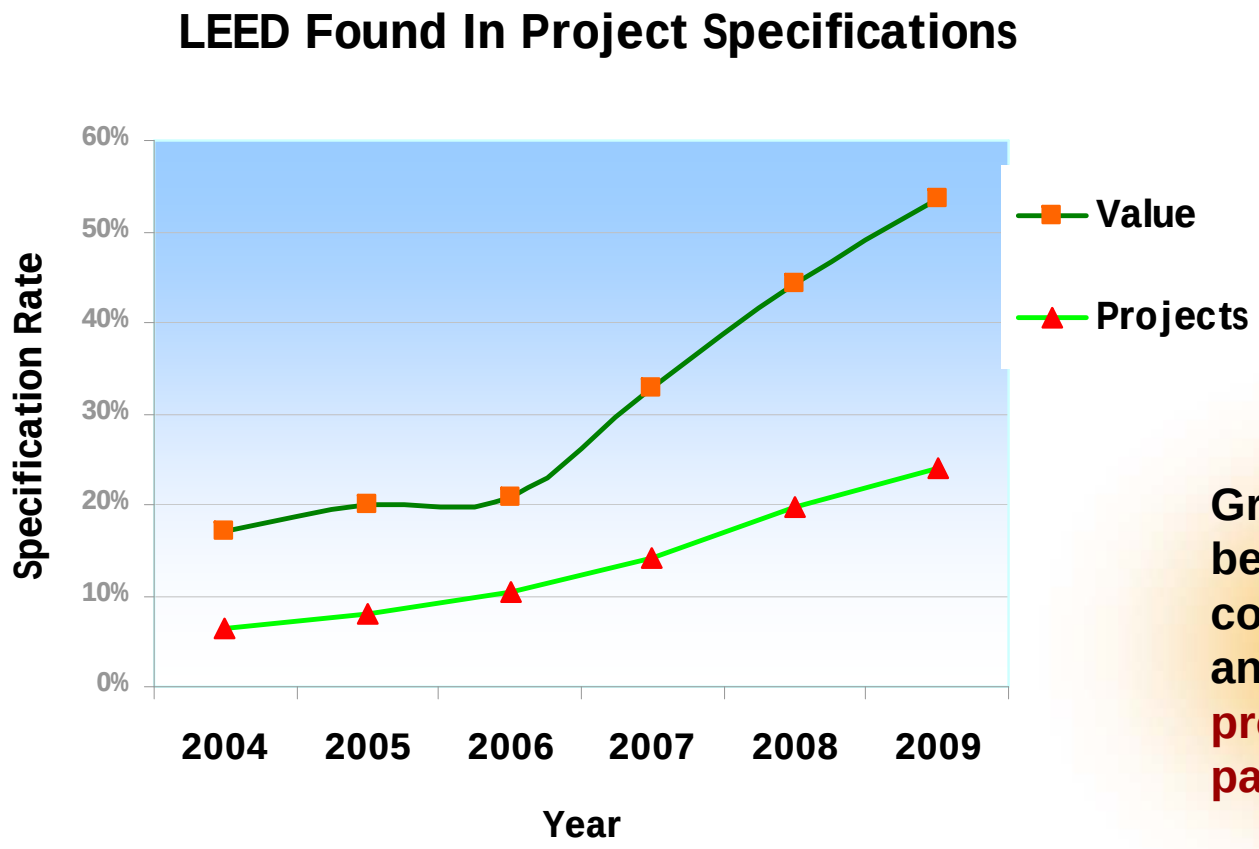
LEED Registration rises steadily despite down economy

LEED Certification level actually increases during downturn!



Source: United States Green Building Council, 2010

LEED in Project Specifications



Source: McGraw-Hill Construction, 2010 (data through 12/09)

Green Building is becoming more common in general and for larger projects in particular

Green Retrofit & Renovation

Opportunity in Existing Nonresidential Buildings

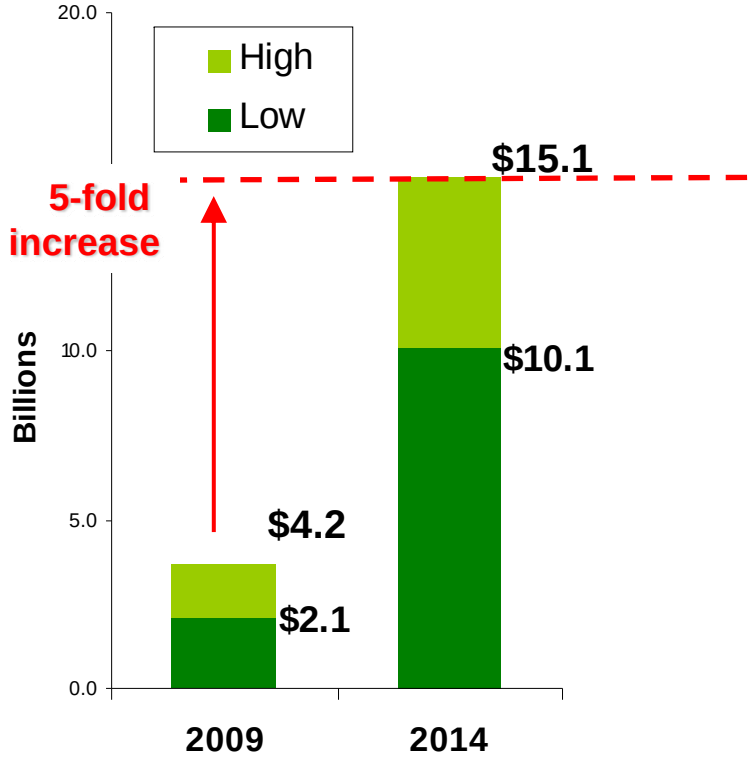
According to MHC Building Stock Database & Construction Forecast, in '08/'09:

- **Total building stock (nonresidential) in 2008:**
  - 4.4 million+ buildings[1]
  - **New:** 1.4 billion sq. ft. (1.8% of total)
  - **Existing:** 75+ billion sq.ft. (98.2%)
- **2009 Construction Spending:**
  - **New: $196 billion**
  - **Major renovation: $60-80 billion** – only a small percentage of buildings
- **Green Market Size:**
  - **Today: $34 billion** (5-10% all nonresidential buildings)
  - **Five Years: $85 billion** (20% new; 30% existing)
  - **To meet Kyoto standards, approximately two-thirds of existing commercial buildings would need to be retrofit**

[1] U.S. Department of Energy, Energy Information Administration

Green Share of Renovation/Retrofit Market Growing

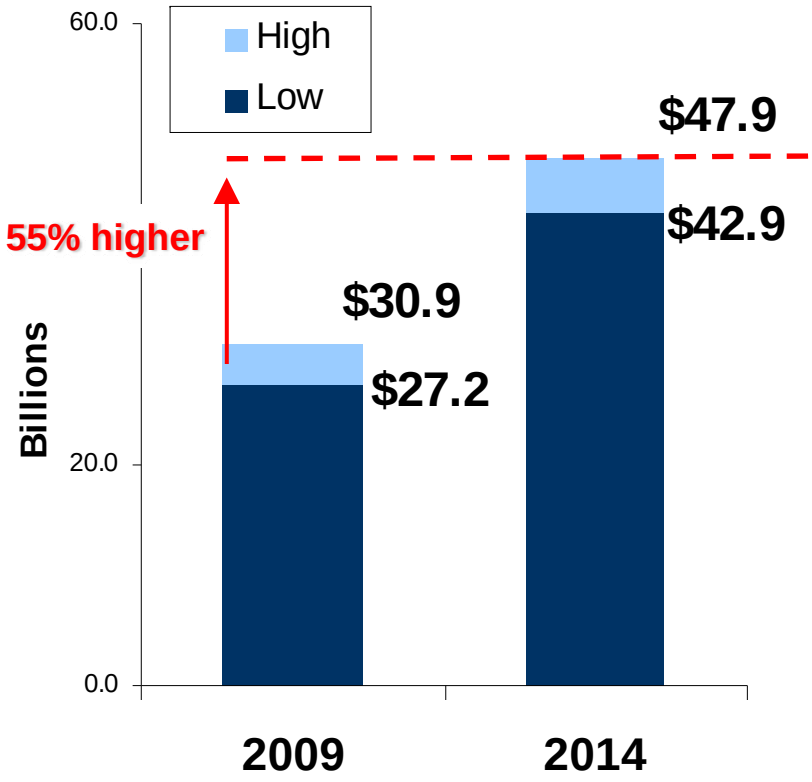
- **Green Renovation/ Retrofit growing five-fold over next five years**
  - 2009: 5-9% **of $41.8 billion total major renovation/retrofit spending**
  - 2014: 20-30% **of $50+ billion total major renovation/retrofit spending**
- **In 10-15 years:**
  - **Green building retrofit to hit tipping point**
  - **Base market growing**
    - See changing building mandates and competitive positioning emerge



Source: Green Retrofit & Renovation SmartMarket Report, McGraw-Hill Construction, 2009

Energy-Efficient Building Retrofit Comprising Significant Market Share

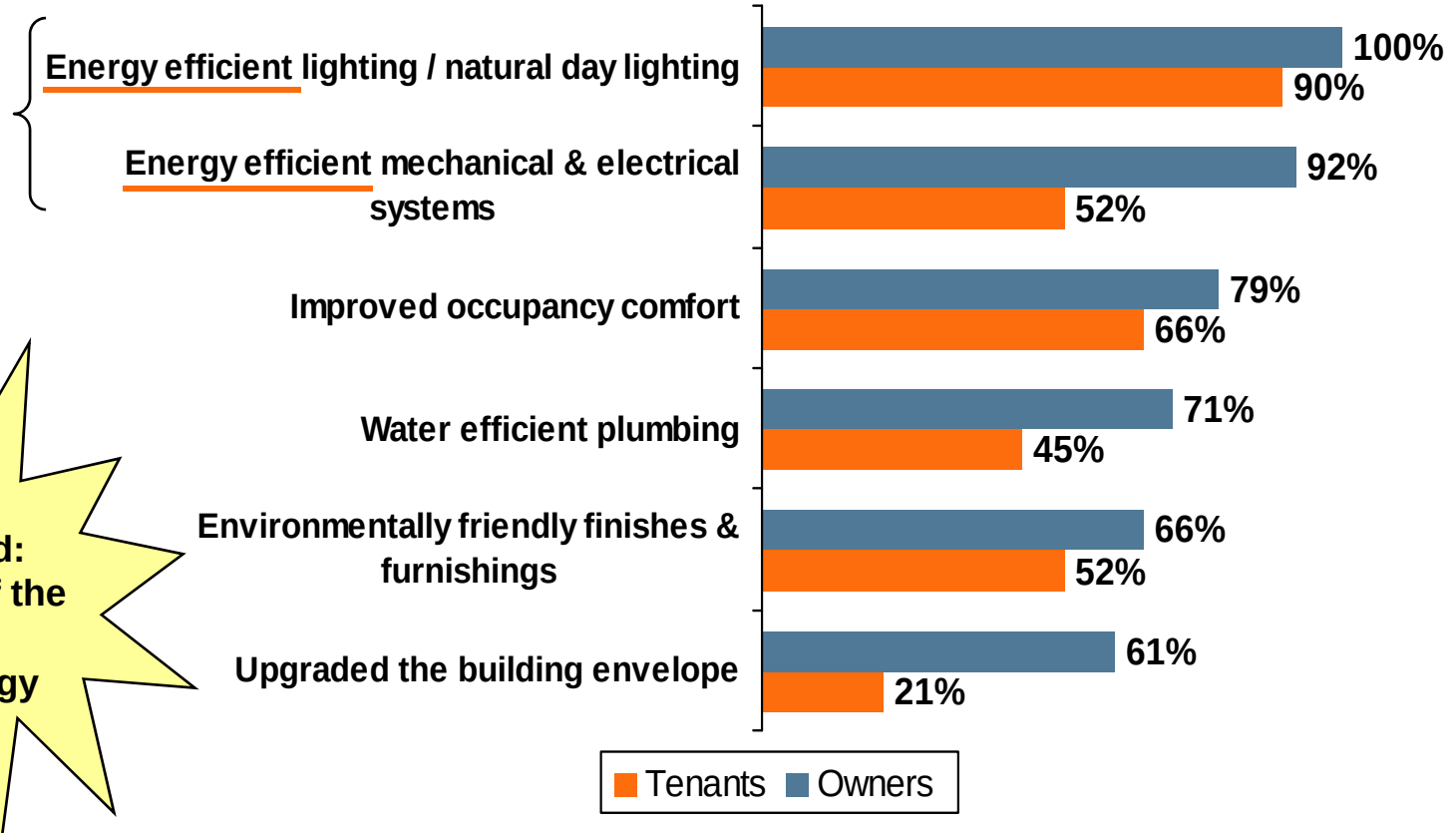
- **Significant opportunity for Energy-Efficient Buildings**
  - 2009: 66-75% of **$41.8 billion total major retrofit/renovation spending**
  - 2014: 85-95% of **$50+ billion total major retrofit/renovation spending**
- **Market even larger!** **Smaller projects can up to double these figures.**



Source: Green Retrofit & Renovation SmartMarket Report, McGraw-Hill Construction, 2009

Most Common Green Retrofit Practices

Almost **all Owners** installed energy efficient lighting and mechanical / electrical systems



Key Trend: "State off the Shelf" Technology

Source: Green Retrofit & Renovation SmartMarket Report, McGraw-Hill Construction, 2009

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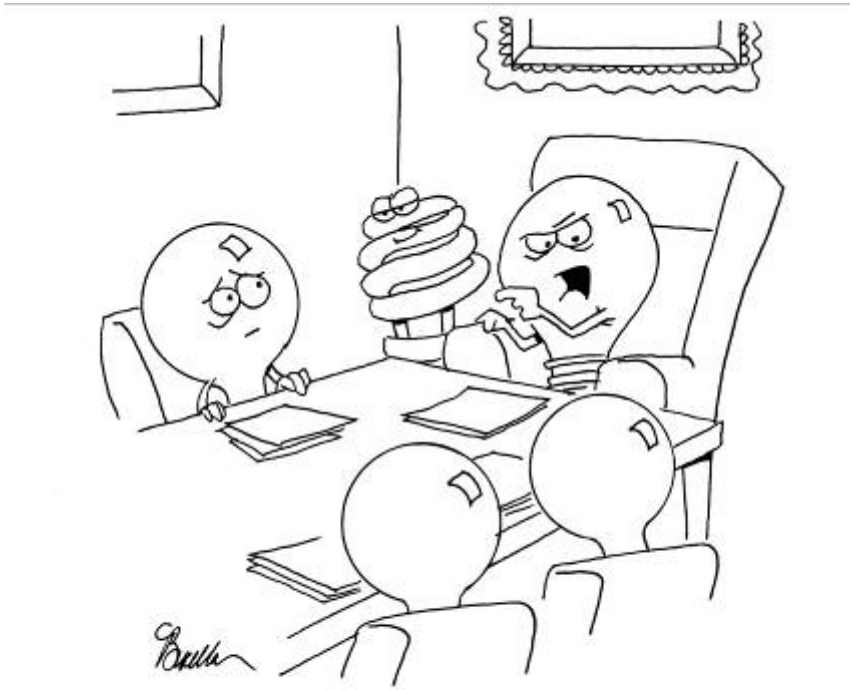
Energy Efficiency – An Old Idea Now Newly Popular



"Why can't the rest of you be more like Stanton? He's full of new ideas."

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Energy Efficiency will be Key in Green Retrofits and Renovations

> **… providing incentives for energy efficiency and clean energy are the right thing to do for our future, because the nation that leads the clean energy economy will be the nation that leads the global economy.**

President Barack Obama

State of the Union Address, January 2010

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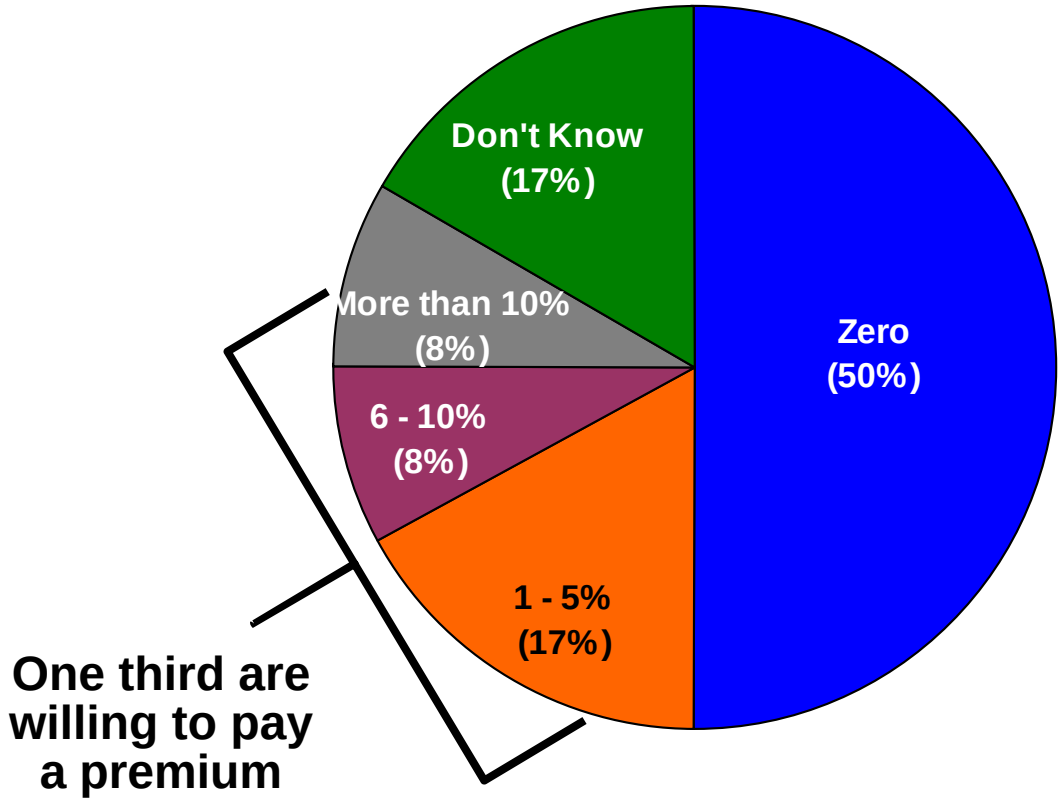
Perceived Business Benefits from Green Retrofits and Renovations

	Bldg Owners
➔ **Increase in ROI:**	**37% expect 11% or more**
➔ **Occupancy Increase (in 1 year):**	**24% expect 11% or more**
➔ **Building Value Increase (in 3 years):**	**32% expect 5% or more**
➔ **Rent Increase (in 3 years):**	**19% expect 5% or more**

Source: Green Retrofit & Renovation SmartMarket Report, McGraw-Hill Construction, 2009

Tenants Will Pay a Premium for Green Renovated/ Retrofitted Space



Tenant demand provides a major opportunity for green retrofit market growth

Source: Green Retrofit & Renovation SmartMarket Report, McGraw-Hill Construction, 2009

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Case Study Results: Energy, Water & Payback Savings

One Harvard Circle, W. Palm Beach, FL

- **Energy Savings from 10% to 59%**
- **Water Savings from 22% to 79%**
- **Paybacks within 5 years or less**

Source: Green Retrofit & Renovation SmartMarket Report, McGraw-Hill Construction, 2009

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Case Study Results: Tenant Occupancy and Rent

100 Montgomery Office in San Francisco: After renovation: 1.4% rent increase (from $37,514 to $38,058) – Able to compete successfully in difficult Class A Market

PlayhouseSquare Idea Center, Cleveland OH: Converted a Class C building into a desirable High-Tech space from 90% vacancy to fully-occupied in 2 years

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Iconic U.S. Green Retrofits

Willis (Sears) Tower

Cost:

$350 Million

Energy Consumption:

Reduce 80%

Highlight:

Addition of 50 story, off-the-grid, sustainable hotel

Empire State Building

Cost:

$500 Million

Energy Consumption:

Reduce 38%

Highlight:

Replicable model for affordable retrofits

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U.S. Corporate Sustainability

Corporations are Focusing on Demographics of Future Consumers

"I miss being the target demographic."

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Changing Ethics: Driving Corporate Focus on Market Demand

Percentage of 13- to 25-Year-Olds Who Say They:

- Switch Brands for a Cause: 89%
- Pay Attention to Messages on a Cause: 74%
- Deciding Where to Shop: 69%
- When Recommending Products: 66%

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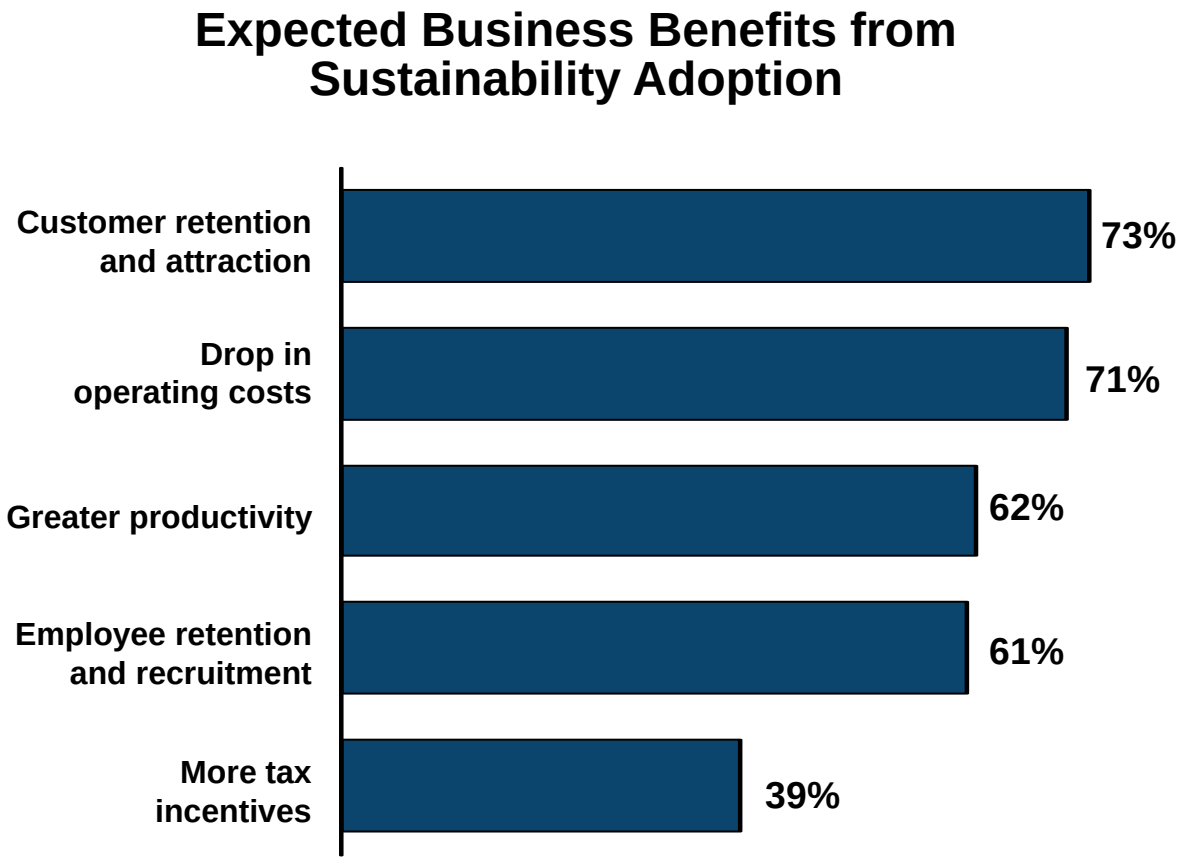
Sustainability is Tied to Business Benefits

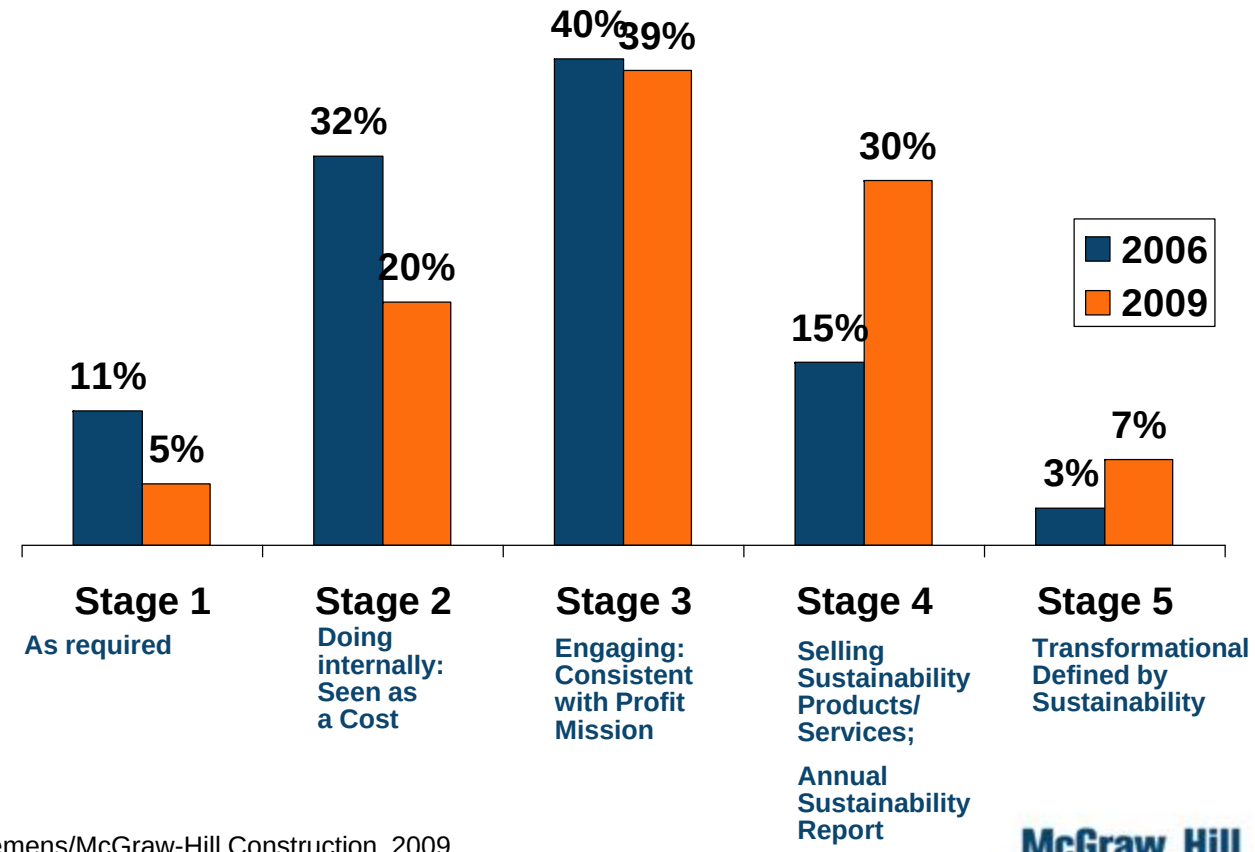


Source: 2009 Greening of Corporate America, Siemens/McGraw-Hill Construction, 2009

Sustainability is Becoming "Business as Usual" in Corporate America

- Doubling of firms at highest stages of sustainability commitments
- Dramatic drop of firms at lowest stages

Levels of Corporate Commitment to Sustainability

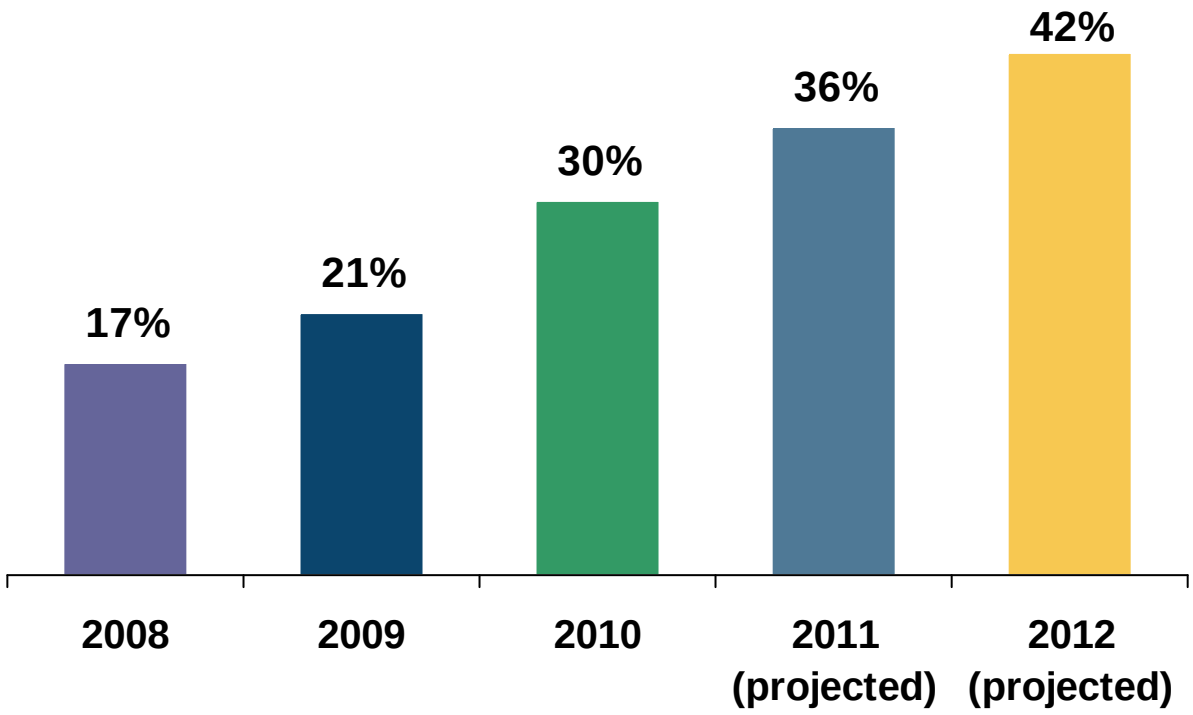


Source: 2009 Greening of Corporate America, Siemens/McGraw-Hill Construction, 2009

Corporations Increasing Investment in Green Building

Growth in Corporate Green Building Over Time

Firms with Over 60% of Building Portfolio Green



Source: 2009 Greening of Corporate America, Siemens/McGraw-Hill Construction, 2009

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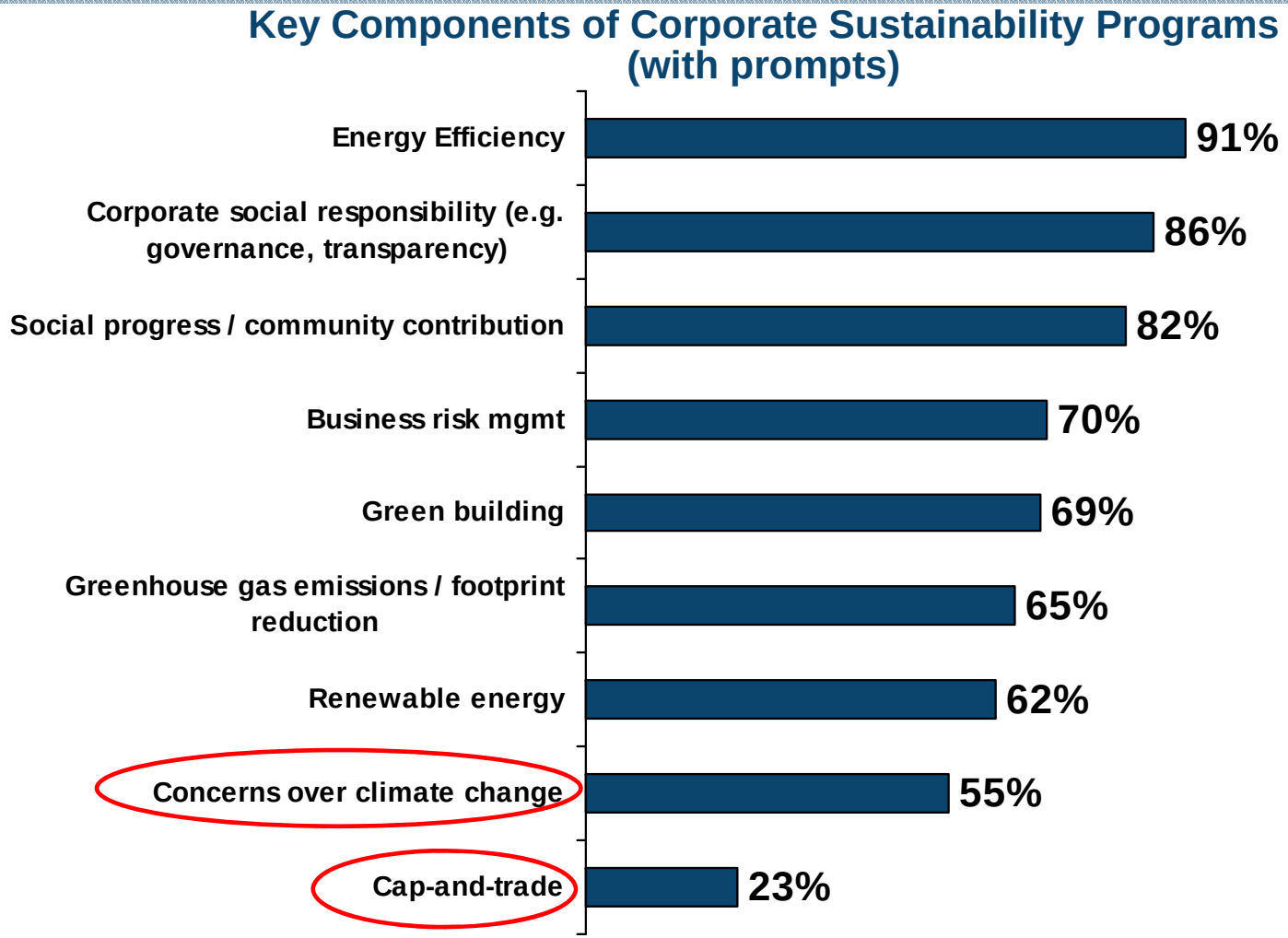
Energy Efficiency is Top Component of Sustainability Programs



Source: 2009 Greening of Corporate America, Siemans and McGraw-Hill Construction, 2009

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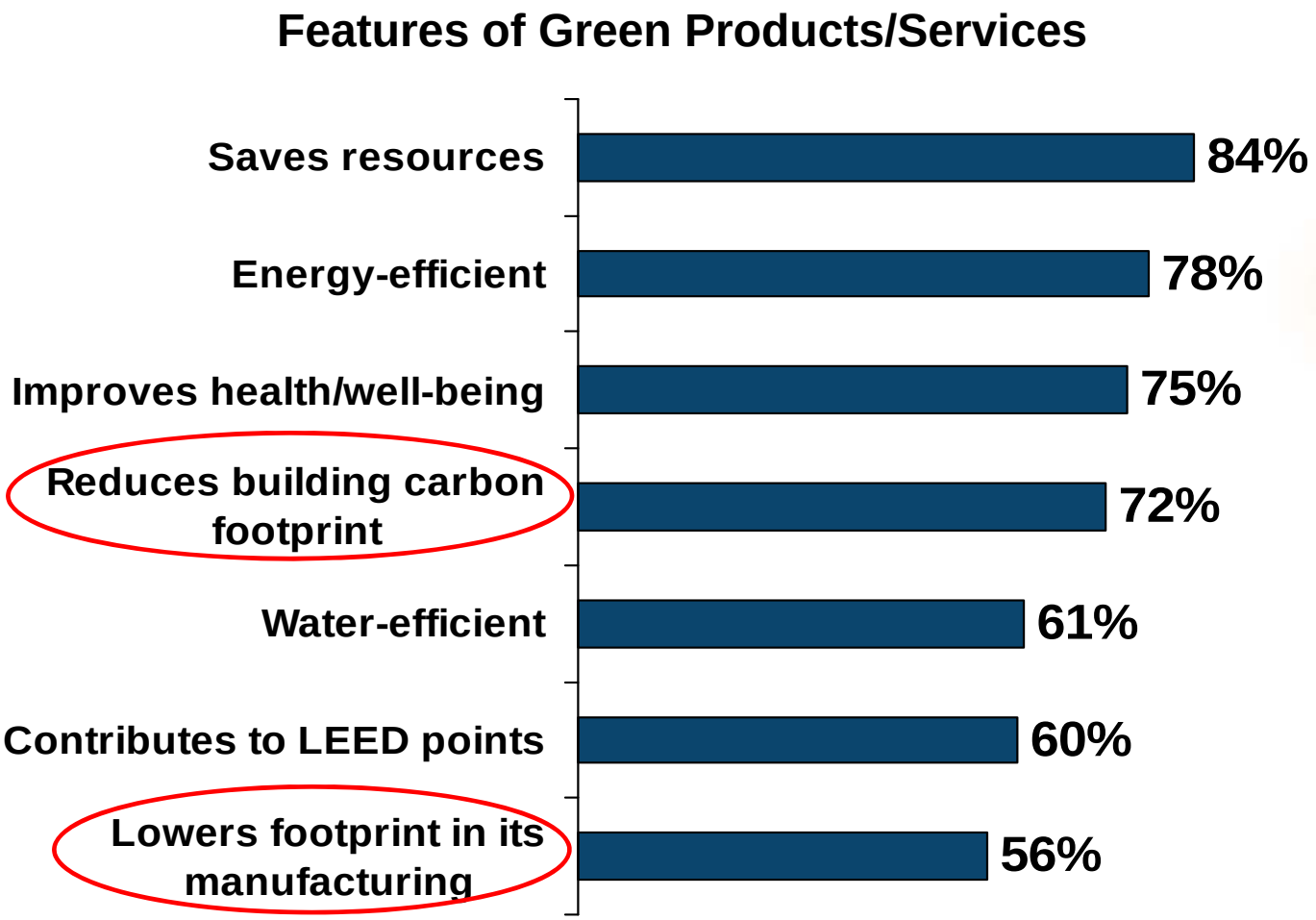
Sustainability is Changing the Market; Green Products/Services Are Emerging



56% of firms offer green products or services!

Source: 2009 Greening of Corporate America, Siemans and McGraw-Hill Constructio, 2009

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Water Efficiency

Water Efficiency is Critical to Green Building

- **Built environment consumes**
  - 12% water in U.S.
  - 20% water in the world
- **Demand outpacing supply**
- **Water supplies diminishing:**
  - Rise in global temperatures
  - Extreme weather conditions
  - Natural disasters
  - Global population growth
- **Use of water relates to energy use and CO_2 emissions**
  - Water heating accounts for 11.5% of all buildings' energy consumption

Data Source: U.S. Geological Survey, EPA and EIA and U.S. DOE

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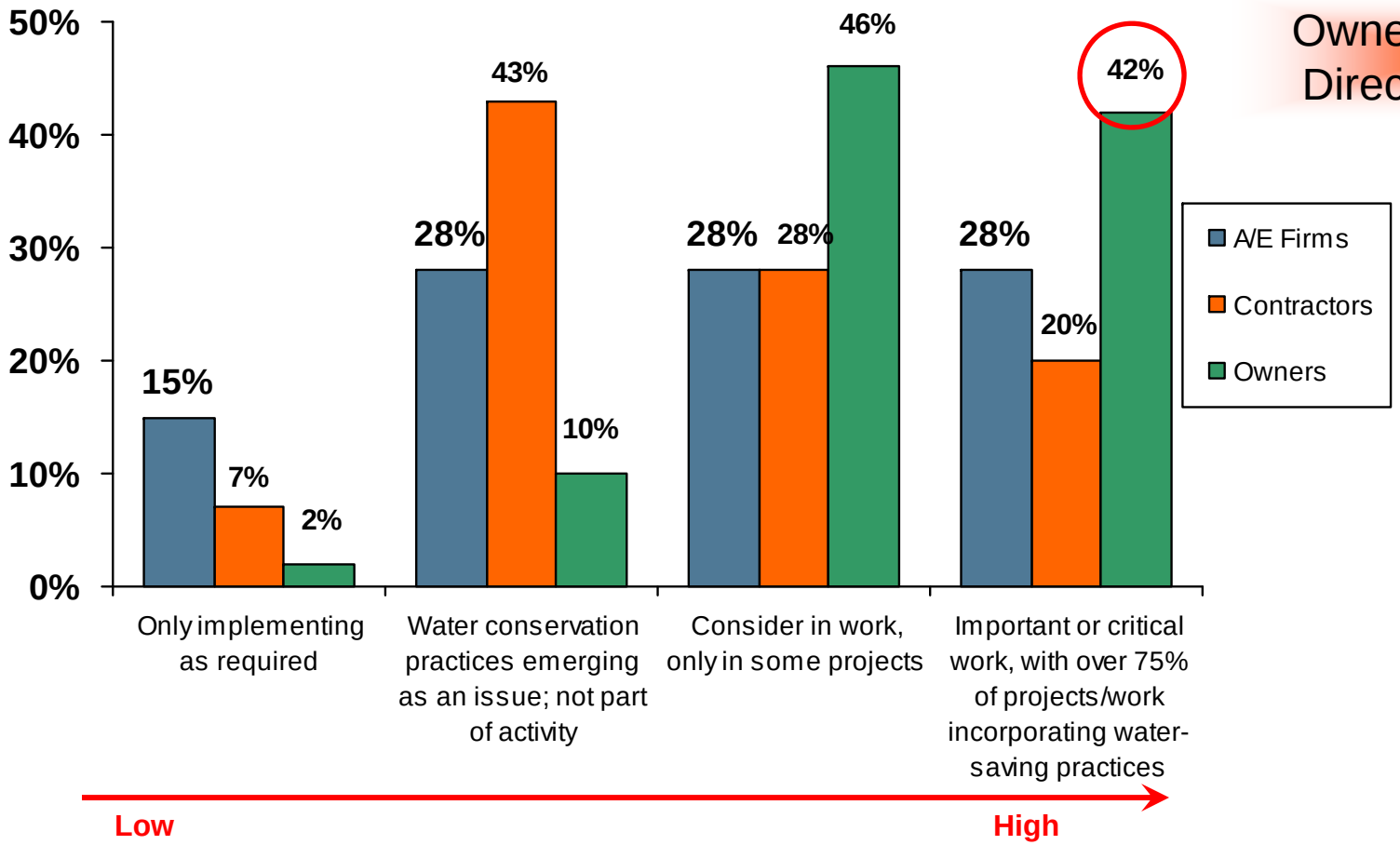
Growing Commitment to Water Efficient Practices



Owners Seeing Direct Impacts

*Note: "Don't Know" cited by contractors (2%) and A/E firms (1%)

Source: Water Use in Buildings SmartMarket Report, McGraw-Hill Construction, 2009

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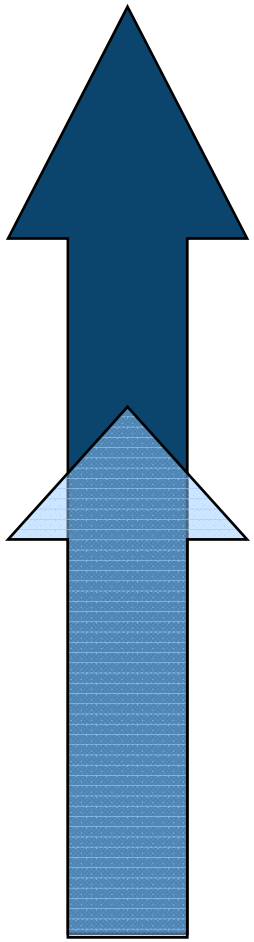
Water Efficiency Involvement Growing Dramatically

➔**Government & Education Buildings:** **Sectors with heaviest use of water-efficient technologies**



2013 Use:
- A/E Firms = 51%
- Owners = 50%

2008 Use:
- A/E Firms = 35%
- Owners = 30%

Source: Water Use in Buildings SmartMarket Report, McGraw-Hill Construction, 2009

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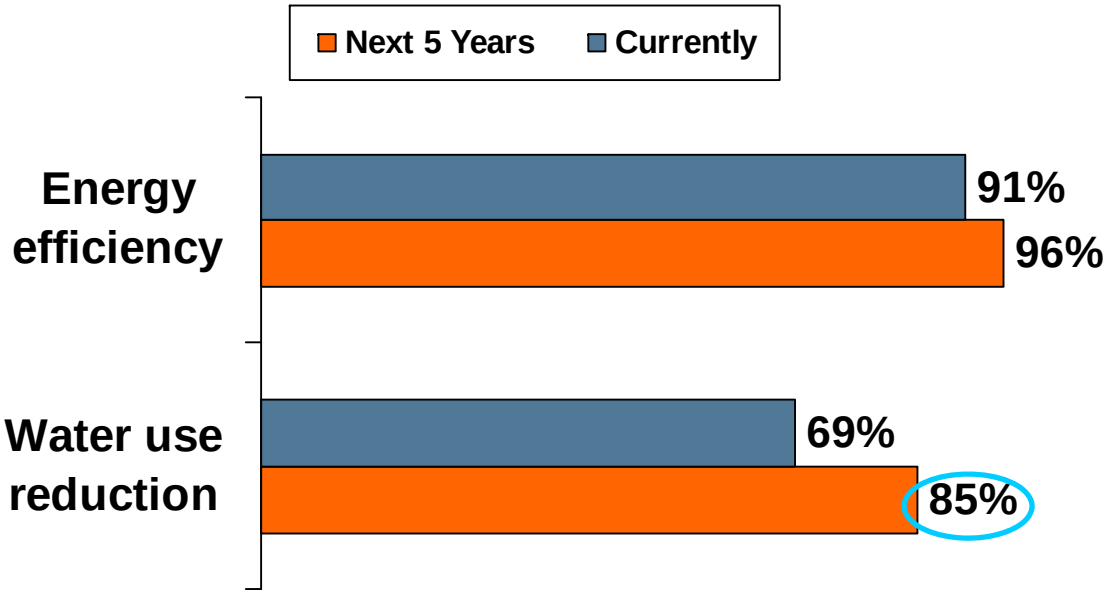
Water Efficiency Rapidly Growing in Importance

- Becoming one of the most important aspects of a green building
- **Correlation between saving water and saving energy**



Source: Water Use in Buildings SmartMarket Report, McGraw-Hill Construction, 2009

Perceived Business Benefits from Water Efficiency in Buildings

	Currently
➔ **Reduction Water Use:**	**15%**
➔ **Decreased Energy Use:**	**10-11%**
➔ **Reduction Operating Costs:**	**11-12%**

Source: Water Use in Buildings SmartMarket Report, McGraw-Hill Construction, 2009

"You don't know what you've got until it's gone" – Joni Mitchell

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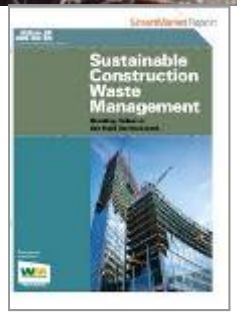
Sustainable Construction Waste Management



Sustainable Waste Management: Key Component to Green Building

- **Construction and Demolition (C&D) waste filling landfills = 143.5 million tons (2008)**
  - 72% sent to landfills
  - Only 28% (40.2 million tons) reused, recycled
- **Need for greater waste diversion practices driven by:**
  - Customer demands
  - Increasing pressure from state and local governments
  - Attaining green building certification

Data Source: Waste Market Overview & Outlook 2009

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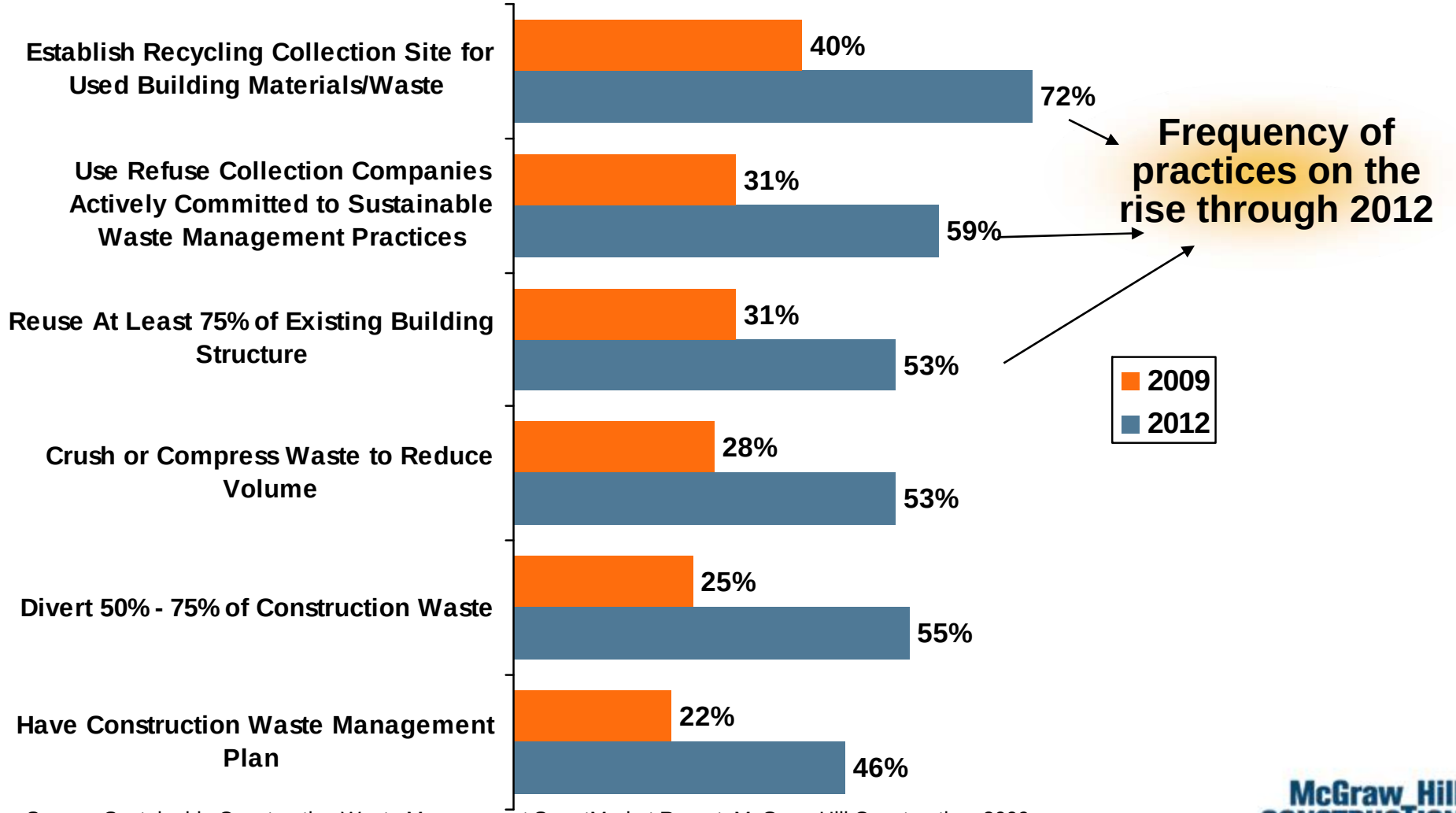
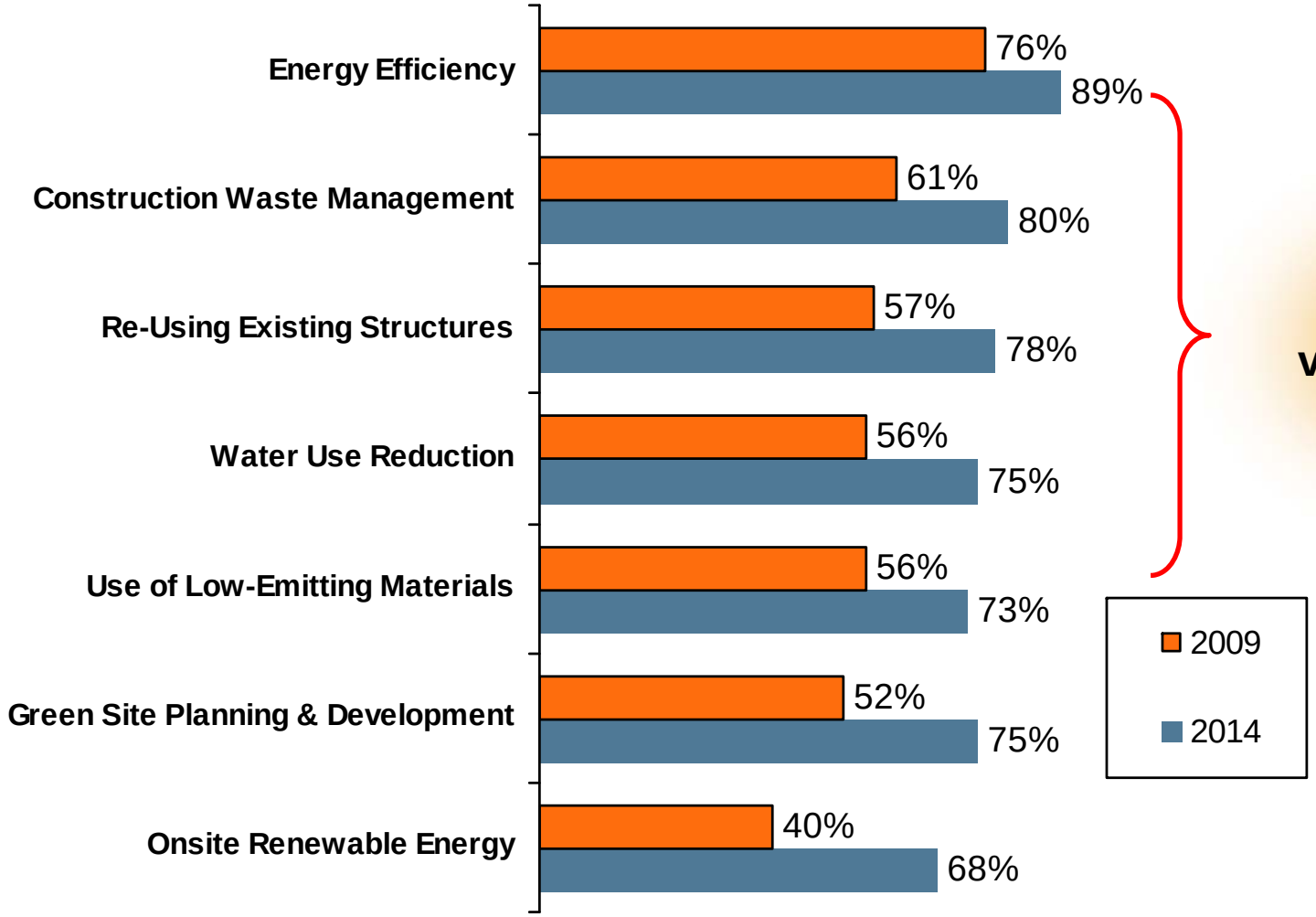
Frequency of Sustainable Waste Handling Practices on the Rise



Source: Sustainable Construction Waste Management SmartMarket Report, McGraw-Hill Construction, 2009

Importance of Green Building & Responsible Waste Management



Industry shift to holistic view green buildings

Source: Sustainable Construction Waste Management SmartMarket Report, McGraw-Hill Construction, 2009

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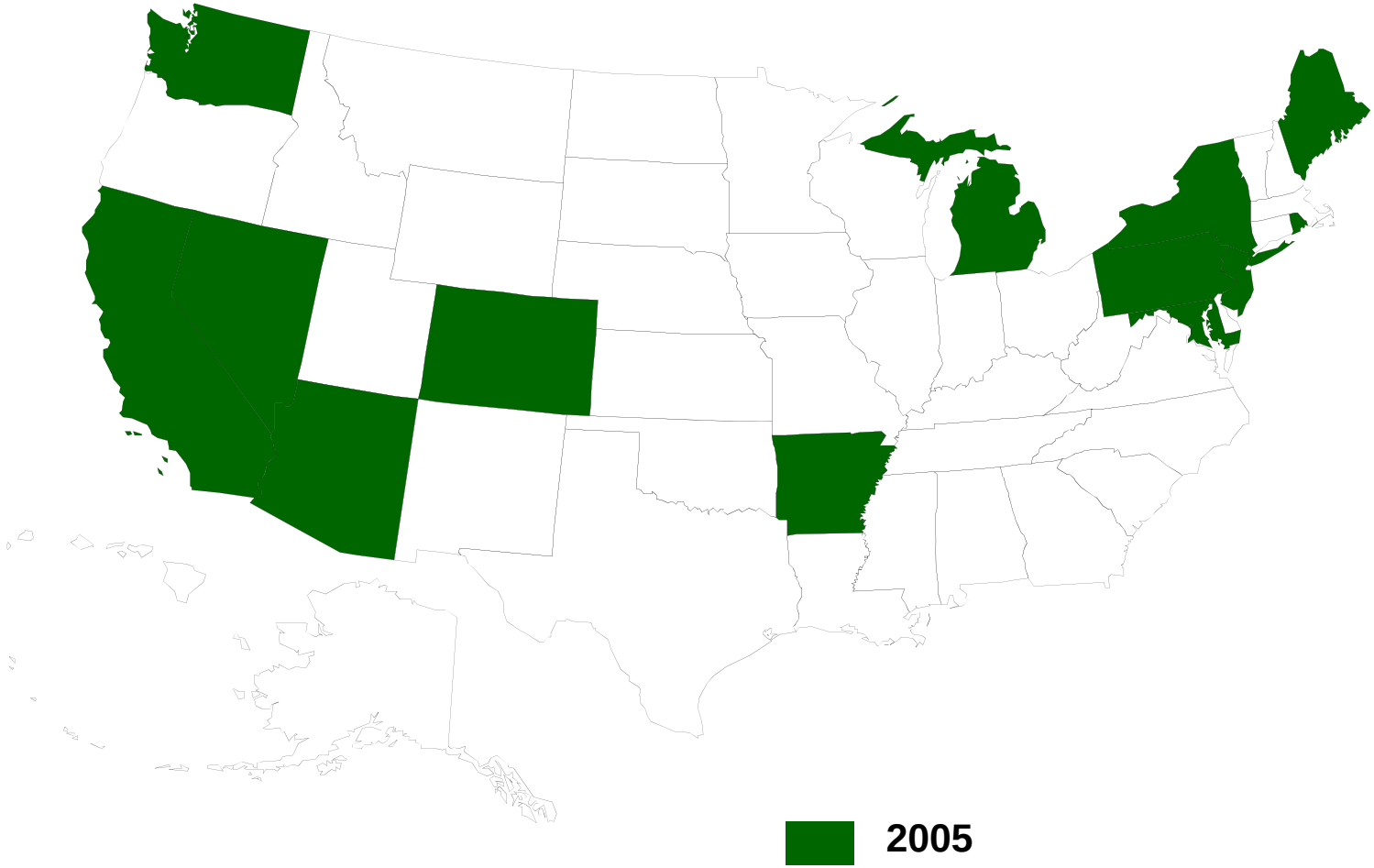
Legislation & Green

Increasing State Government Influence



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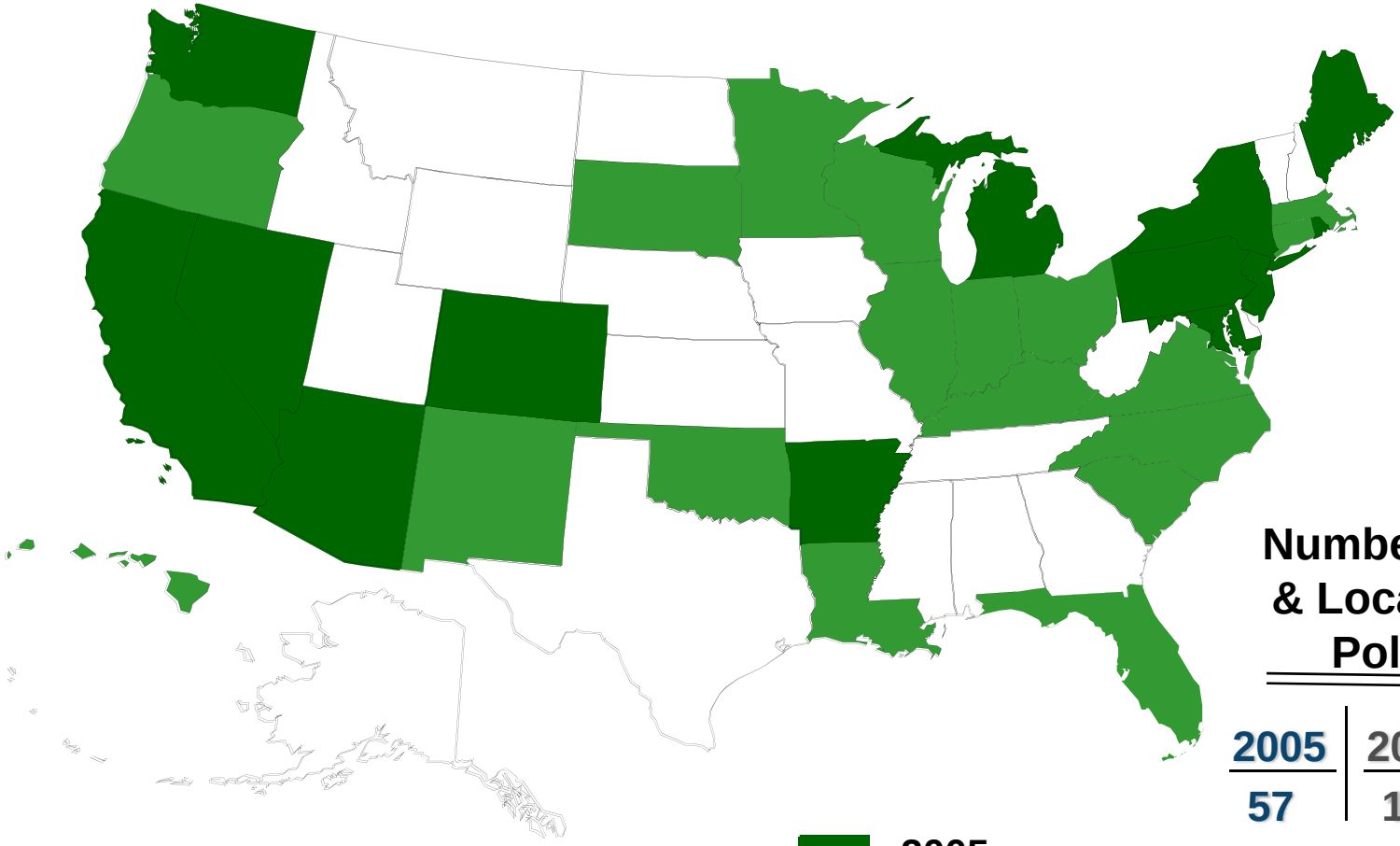
Increasing State Government Influence



Number of City & Local Gov't Policies

2005	2008	2009
57	156	253

Green Wins in Energy Expenditures

Stimulus Bill (ARRA):

- **Investment in Renewable Energy & Conservation**
  - **"Smart-Grid" activities** → $11bn
  - **Energy efficiency grants** → $6.3bn
  - **Renewable energy loan guarantees** → $6bn
- **Green Renovations and Retrofits → $9.7bn**

253,000 jobs are expected in ARRA investments in renewable energy and manufacturing

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Green Wins in Stimulus:
Renovation Gets a Boost in Green

- **Much of Public Building $$ to Green Renovation Projects**
  - GSA → $4.5 billion
  - DOD → $4.2 billion
  - VA → $1 billion
- **Tax breaks for Residential Energy Efficiency expanded & extended**

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USGBC Jobs Study

- **“jobs created as a result of green building investment”**

<u>USGBC Study Conclusions</u>

From 2000–2008, the green construction market has:

- Generated **$173 billion dollars in GDP**
- Supported over **2.4 million jobs**
- Provided $123 billion dollars in labor earnings

From 2009–2013, this study forecasts that green construction will:

- Generate an **additional $554 billion dollars in GDP**
- Support over **7.9 million jobs**
- Provide $396 billion in labor earnings

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Concluding Thoughts

Key Trends and Opportunities in Green Building

- **Green Building markets continue to grow strongly despite the down economy**
- **The business benefits of green building are driving the market**
- **Green Retrofit/Renovation will be a major growth area in the next few years**
- **Sustainability is becoming "business as usual" in Corporate America**
- **Green Practices gaining momentum:**
  - Water Efficiency
  - Sustainable Waste Management
- **Government support of green practices continues to expand**

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“Small acts, when multiplied by millions of people, can transform the world.”

— Howard Zinn

Thank You!

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