ENERGY STAR Market Insights and Updates

ENERGY STAR:
A win-win partnership that
benefits business and society

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October 24, 2017

ENERGY STAR partners: An efficiency community

Many players
Many roles and responsibilities
Common goals: Financial and environmental value

EPA's ENERGY STAR piece

- Help facilitate the community by providing transparency, standardization and education:
  - ✓ Understandable benchmarks and metrics
  - ✓ Objective resources distilled from proven practices
  - ✓ Strong brand recognition
  - ✓ Motivation for improvement
  - ✓ Badge of success for top performance
  - ✓ Community and network of experts

Partners together

- Strengthen business networks
- Develop new partnerships
- Learn from each other about proven solutions and new technologies
- Pursue untapped opportunities to work together to bring energy efficiency to scale

AEP Ohio AEP Texas Central Air-King, Ltd. Allergan Ameren Missouri American Society for Healthcare Engineering (ASHE) Andersen Corporation Arizona Public Service AT&T Austin Energy AZ Energy Efficient Home Baltimore Gas and Electric Company (BG&E) Beacon Capital Partners, LLC Beazer Homes USA, Inc Beko US Inc. - Arcelik A.S. Bentall Kennedy Best Buy Co., Inc. Best Energy Rating and Consulting LLC Big Ass Solutions BOMA International Bozzuto Management Company Brighton Homes Bristol-Myers Squibb Building Energy Burton Energy Group CalPortland Company CAMBA Housing Ventures, Inc. Canon U.S.A., Inc. CBRE Celanese Corporation Cenergistic CenterPoint Energy Chinburg Properties City of Chicago City of Seattle CodeGreen Solutions Colgate-Palmolive Company Columbia Gas of Ohio, Inc. (a NiSource company) ComEd Consumers Energy Corning Incorporated Cushman & Wakefield Delaware Sustainable Energy Utility Delmarva Power Delta Products Corporation Des Moines Public Schools DPIS Engineering, LLC E3 Energy LLC E3 INNOVATE, LLC Eastman Chemical Company EATON Ecova Efficiency Vermont Energize Connecticut in partnership with Eversource, United Illuminating, Connecticut Natural Gas, and Southern Connecticut Gas Energy Incentives, Inc. Energy Inspectors Corporation Energy Upgrade California EnergyLogic, Inc. EnergyPrint EnerNOC, Inc. Evergreen Public Schools Eversource Energy Fairfax County Public Schools Fannie Mae Focus on Energy Food Lion, LLC Four Walls, Inc. Fulton Homes GDS Associates GE Lighting General Motors Company Goby Inc. Grede Holdings LLC greeNEWit GreenSavers Gresham-Barlow School District Guaranteed Watt Saver (GWS) Habitat for Humanity of Greater Nashville Hanesbrands Inc. HCP, Inc. Hines Hoshizaki America, Inc. Houston Habitat for Humanity HP Inc. Illinois Office of Energy & Recycling at the Department of Commerce and

Welcome to the Leadership Circle: Partner of the Year 2017:

Leaders in Energy Management and ENERGY STAR

Economic Opportunity Intertape Polymer Group, Inc. IREM ITW Food Equipment Group Ivey Residential, LLC J.C. Penney Company, Inc. Jacksonville Building Science JLL KB Home Kenton County School District Kentucky School Boards Association Kilroy Realty Corporation Koch Industries, Inc. Kohl's Department Stores, Inc. Loudoun County Public Schools Mandalay Homes Manitowoc Foodservice, Inc. Mansfield Independent School District Maximum Energy Professionals MaxLite Memorial Hermann Healthcare System Merck & Co., Inc. Meritage Homes Metro Lighting National Grid (MA) National Grid (RI) National Multifamily Housing Council Nationwide Marketing Group New Tradition Homes New York State Energy Research and Development Authority (NYSERDA) NH CORE Utilities Nissan North America, Inc. Olin Brass Panasonic Eco Solutions North America Parmenter Patuxent Environmental Group Pentair Aquatic Systems Potomac Electric Power Company (Pepco) Principal Real Estate Investors, LLC ProVia Providence Homes Public Service Company of Oklahoma (PSO) Raytheon Company Ricoh USA, Inc. Salt River Project Agricultural Improvement and Power District Sears Holdings Corporation Servidyne SkyeTec Energy Rating Services Soft-Lite LLC Southern Maryland Electric Cooperative (SMECO) Southwestern Electric Power Company (AEP SWEPCO) Staples the Office Superstore, LLC Sustainable Investment Group Target Corporation Texas-New Mexico Power Company The Home Depot The Lighting and Products Sponsors of Mass Save Thermo-Scan Inspections (TSI Energy Solutions) TIAA Tishman Speyer Top Build Home Services USAA Real Estate Company Virginia Beach City Public Schools Virginia State Corporation Commission Whirlpool Corporation

Best practices demonstrated by ENERGY STAR award winners

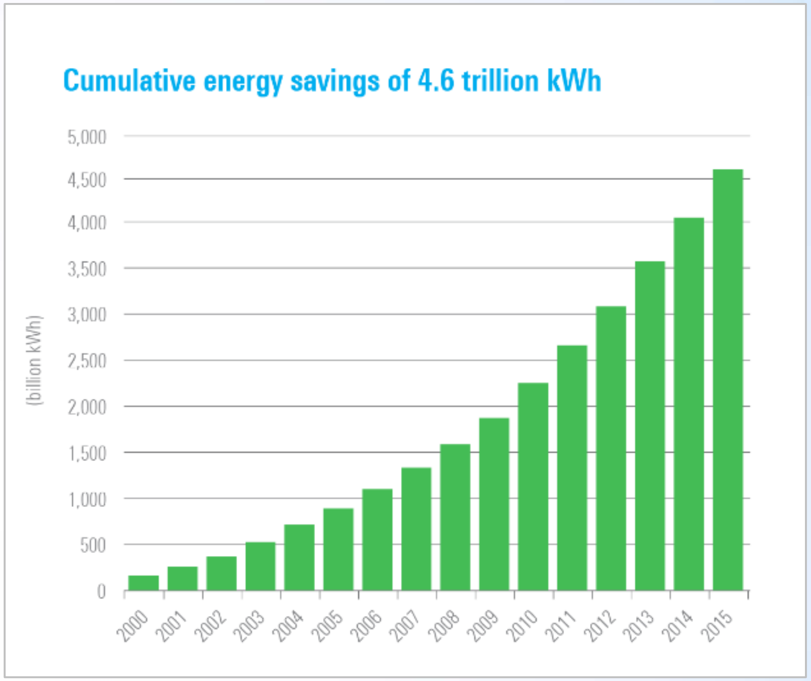
- LED retrofits
- Energy performance reports
- Employee engagement
- Solar/renewable energy
- Demand response

Building demand for EE investment

ENERGY STAR partners= 6,000
Energy savings:
Commercial buildings= $7.8 billion
Industrial plants= $2.6 billion

Building market for products/ services

Partners= 1,000
Energy Services Markets: ~$8 Billion
Jobs= 290,000 workers manufacture Energy Star products



Building a market framework

Benchmarking policies: 27
Square footage covered: 11 billion
Voluntary programs: <40

Utility C&I programs: $2.8 billion
Utility Data Access: 10% benchmarking
< 6 million customers

ENERGY STAR

Recent ENERGY STAR updates

- Making it easier to find solutions:
  - New utility data and state and local policy maps
  - New directory to find licensed professionals
- Reaching new audiences with energy efficiency opportunities:
  - Tenant engagement
  - Host your own competitions
  - College curriculum (with broader educational uses)
- Improving Portfolio Manager:
  - 1-100 ENERGY STAR score updates on track for 2018
  - Updated dashboard features
  - Demand tracking
  - New multifamily housing water score


Insights into the
Commercial Building Market

If U.S. buildings and plants were their own country, they would rank third in the world in greenhouse gas emissions, behind only China and the United States.

Building Sector Activity

Top 5 market sectors same in 2003 and 2012

Except warehouse category moved from #3 to #2

	2003	2012
1	**Office** 12.2 Billion ft2	**Office** 16.0 Billion ft2
2	**Mercantile** 11.2 Billion ft2	**Warehouse** 13.0 Billion ft2
3	**Warehouse** 10.1 Billion ft2	**Education** 12.2 Billion ft2
4	**Education** 9.9 Billion ft2	**Mercantile** 11.3 Billion ft2
5	**Enclosed and Strip Malls** 6.9 Billion ft2	**Enclosed and Strip Malls** 5.9 Billion ft2

Building sector benchmarking penetration varies in Portfolio Manager

- Office
- School
- Retail
- In-Patient Healthcare

- Lodging
- Public Order and Safety
- Warehouse

- Public assembly
- Religious Worship
- Malls
- Foodservice

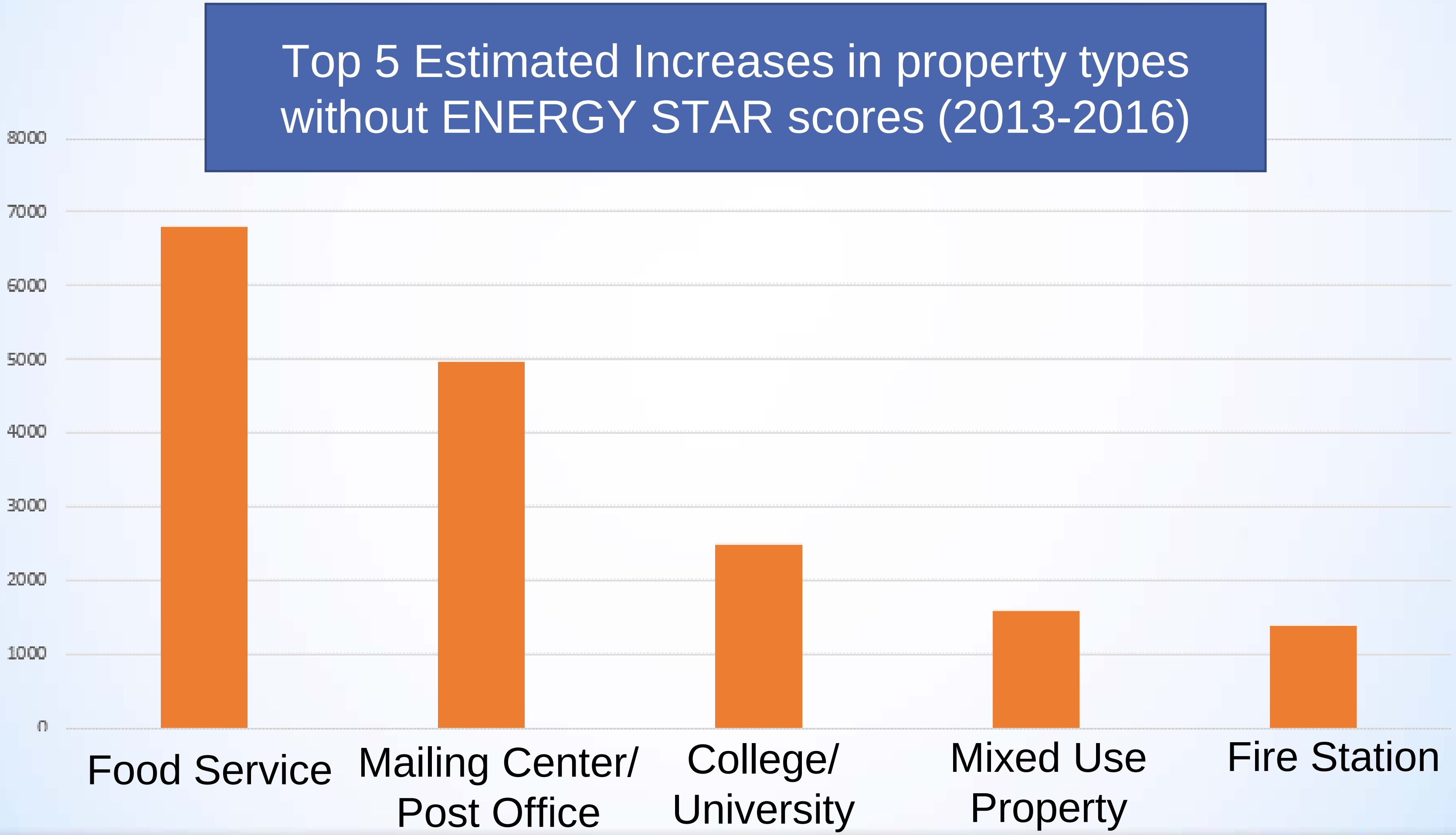
100%

50%

10%

Estimated market penetration by square footage

Benchmarking growing in building sectors without ENERGY STAR scores



Factors impacting market penetration

Drivers

- ENERGY STAR scores
- Service Providers
- Education and awareness:
  - Trade associations
  - Training
  - ENERGY STAR partner
- Sustainability goals and reporting
- Building ownership when the building is the business

Exceptions: Warehouse, religious worship, lodging

Barriers

- No ENERGY STAR scores
- Building ownership:
  - Split incentives
  - Tenant engagement
  - Access to energy data
  - Diffuse ownership
- Limited education and awareness
- Smaller buildings and class B/C office

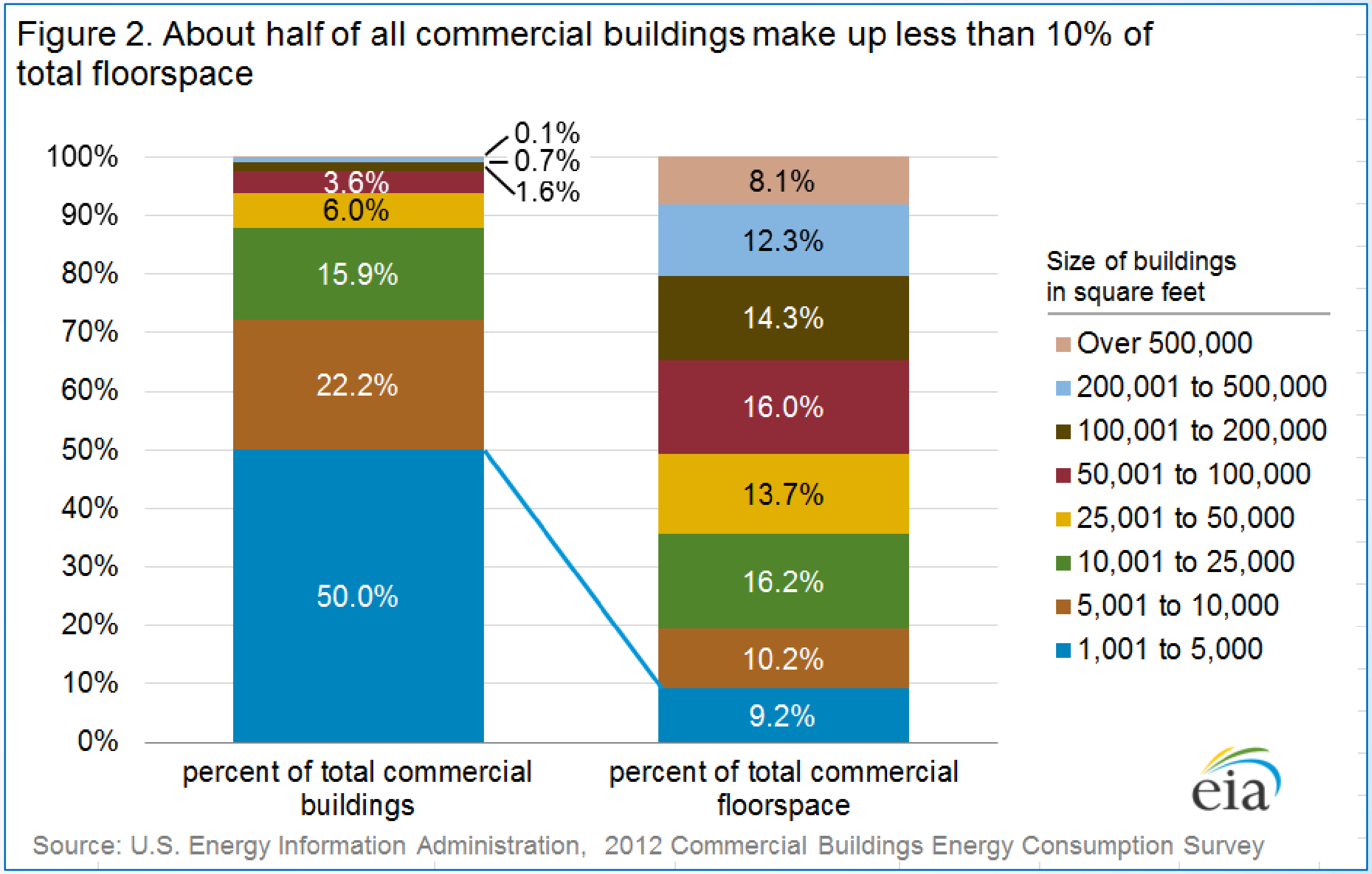
Exceptions: Fire and police stations

Building Size

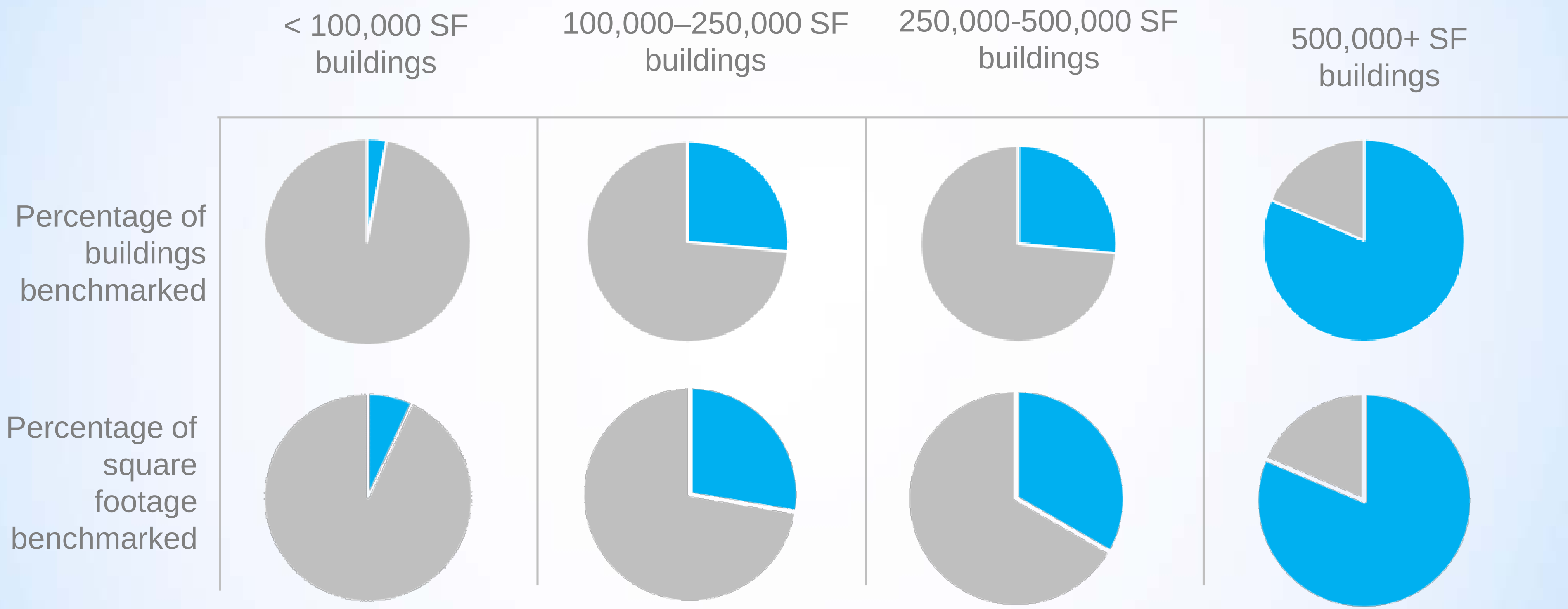
5.6 million commercial buildings in the U.S

Average Size= 15,700 square feet

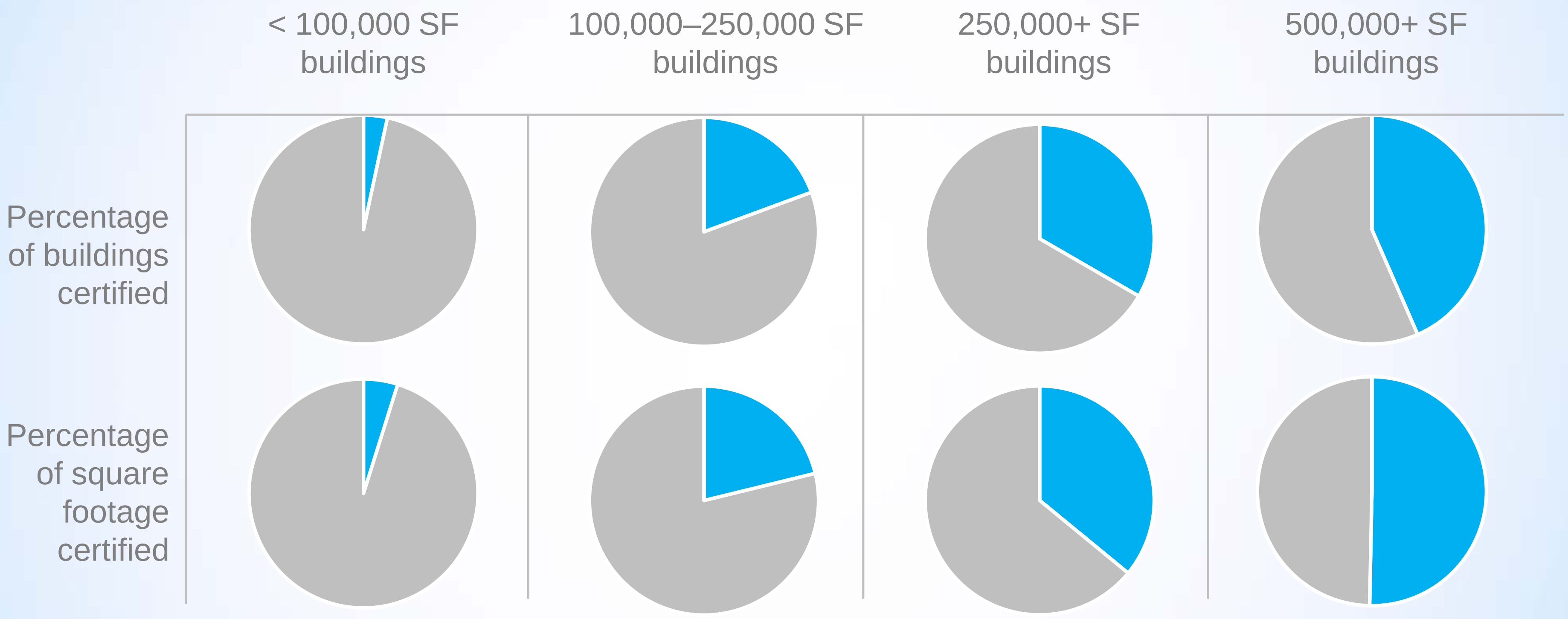
- ✓ Smallest 50% account for 9.2% of floor area
- ✓ Largest 0.8% account for 20.4% of floor area



~50% of national floorspace has been benchmarked across 9% of buildings



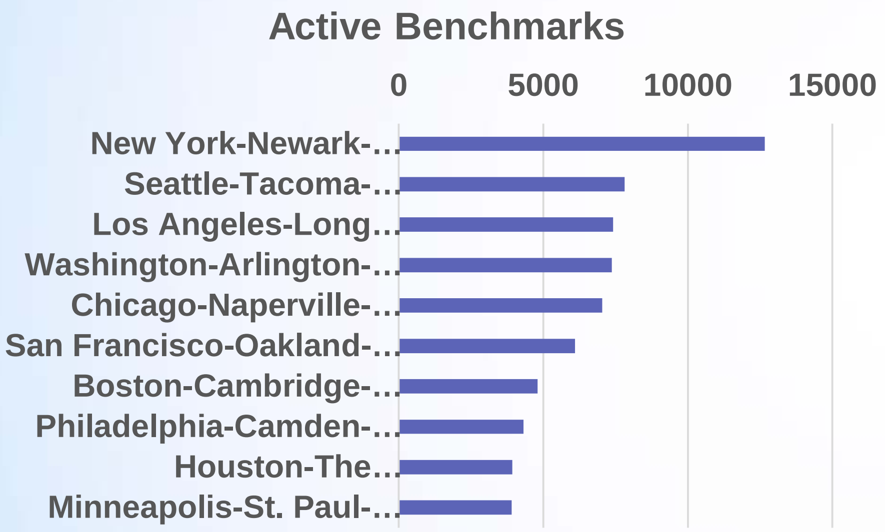
Certified buildings by floor area



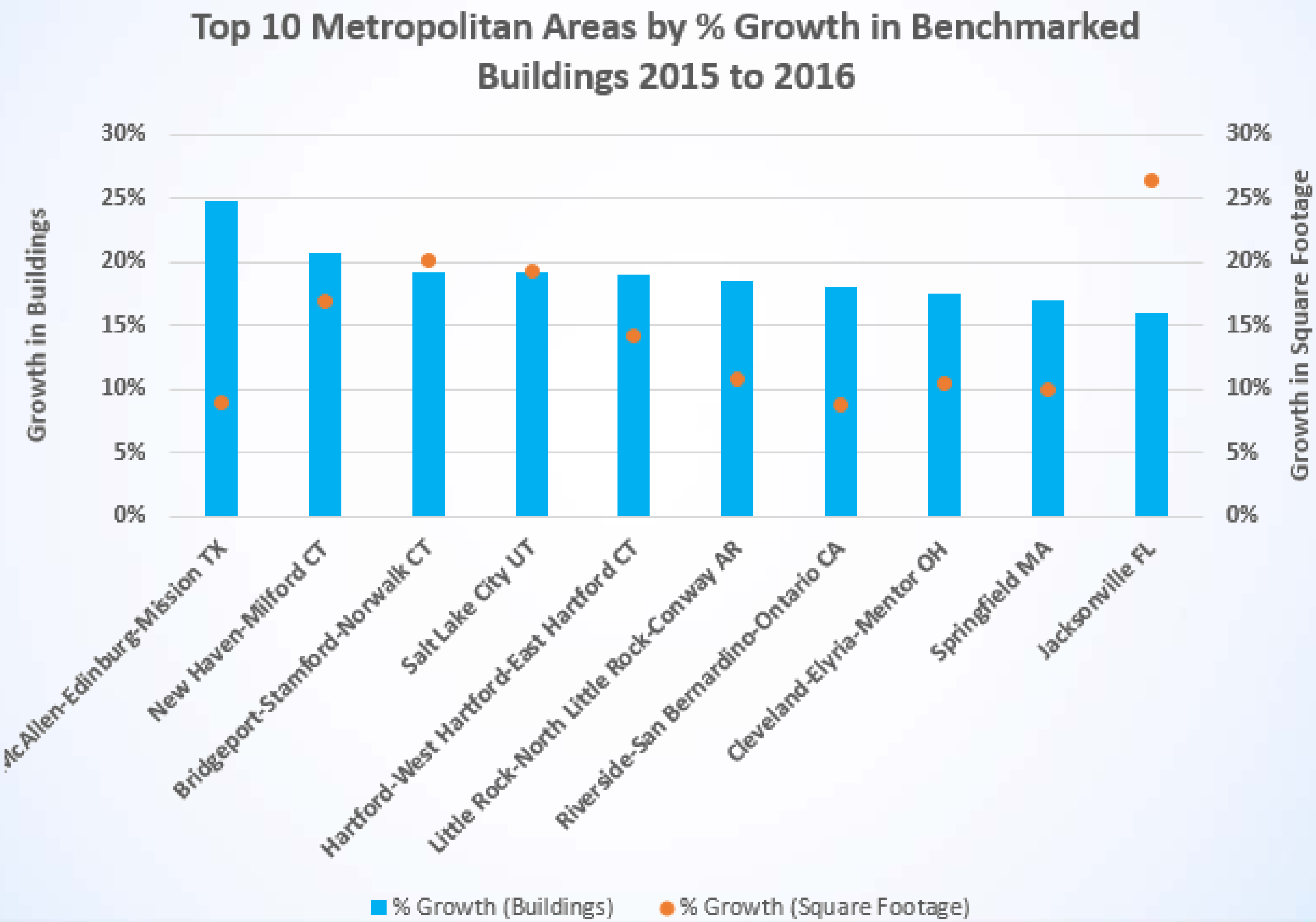
Represents percentages of ENERGY STAR certified buildings in the top 30 U.S. markets. Percentages are, on average, similar in the 20 smallest markets.

Geographic distribution

Top benchmarking and certification metro areas (totals)



Growth in benchmarking occurring in smaller jurisdictions



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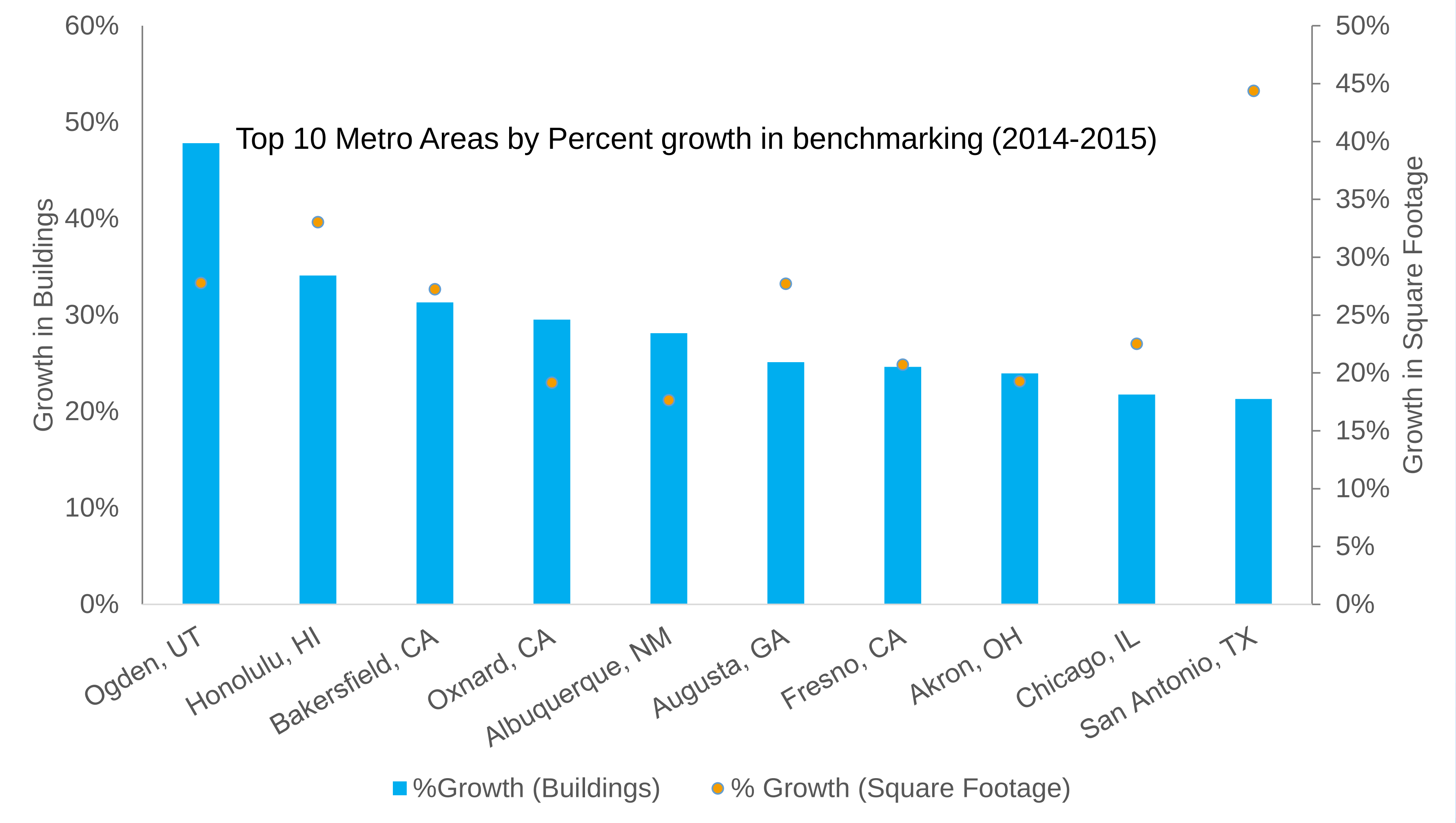
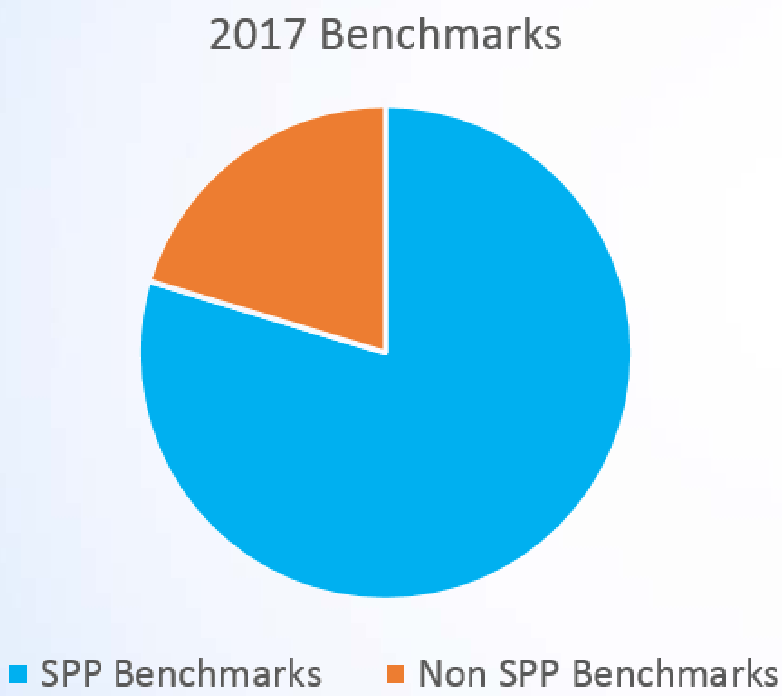
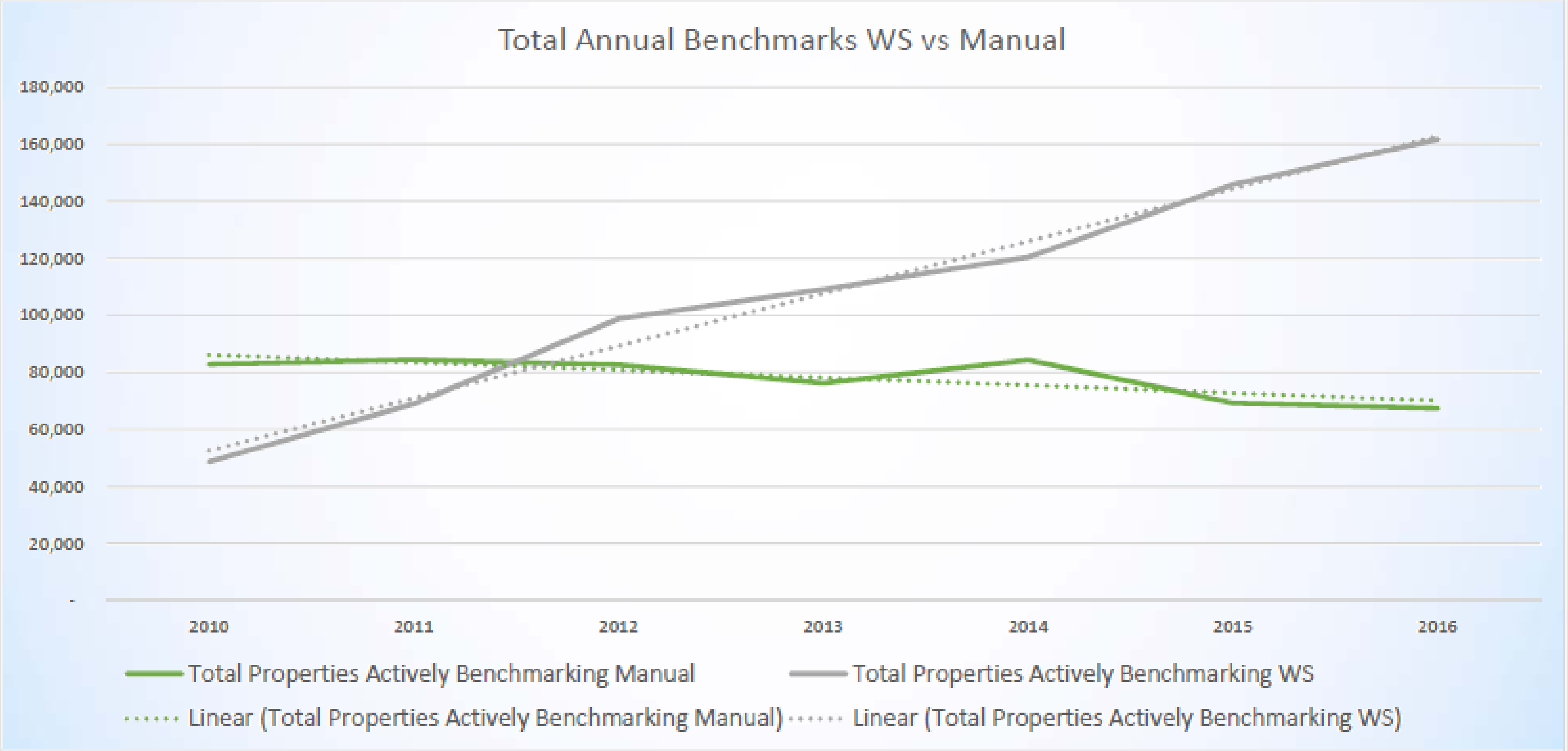



Service and Product
Provider Activity

Service and Product Providers **contributed over 80% of benchmarking volume and over 70% of certification volume** in the first half of 2017

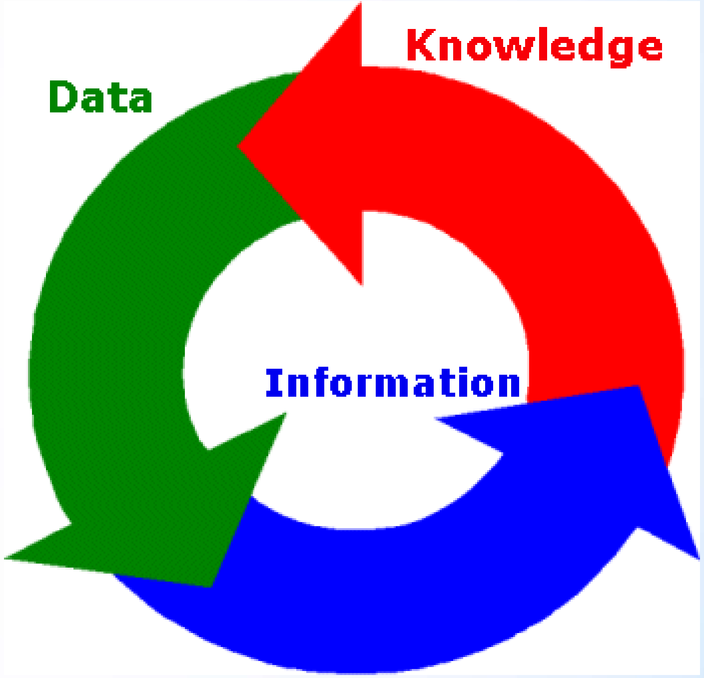


Benchmarking through web services is significantly outpacing manual entry



Increase entrants to benchmarking and drive action

- Turn data into information and knowledge:
  - Spend less time on gathering data
- More time for energy management and improvement




Recognition and Improvement

Johnson Controls Energy Efficiency Indicator Survey 2017 indicates that **benchmarking and certification drive investment and improvement**

What are the most effective policies driving investments in energy improvement?

52% Government policy continues to be important, with 52 percent of organizations rating it as a very or extremely significant driver for investment.

83% Identified building performance benchmarking and certification as very or extremely important in driving investments in energy improvement.

81% Identified government leadership in leasing, building design and retrofits as very or extremely important in driving investments in energy improvement.

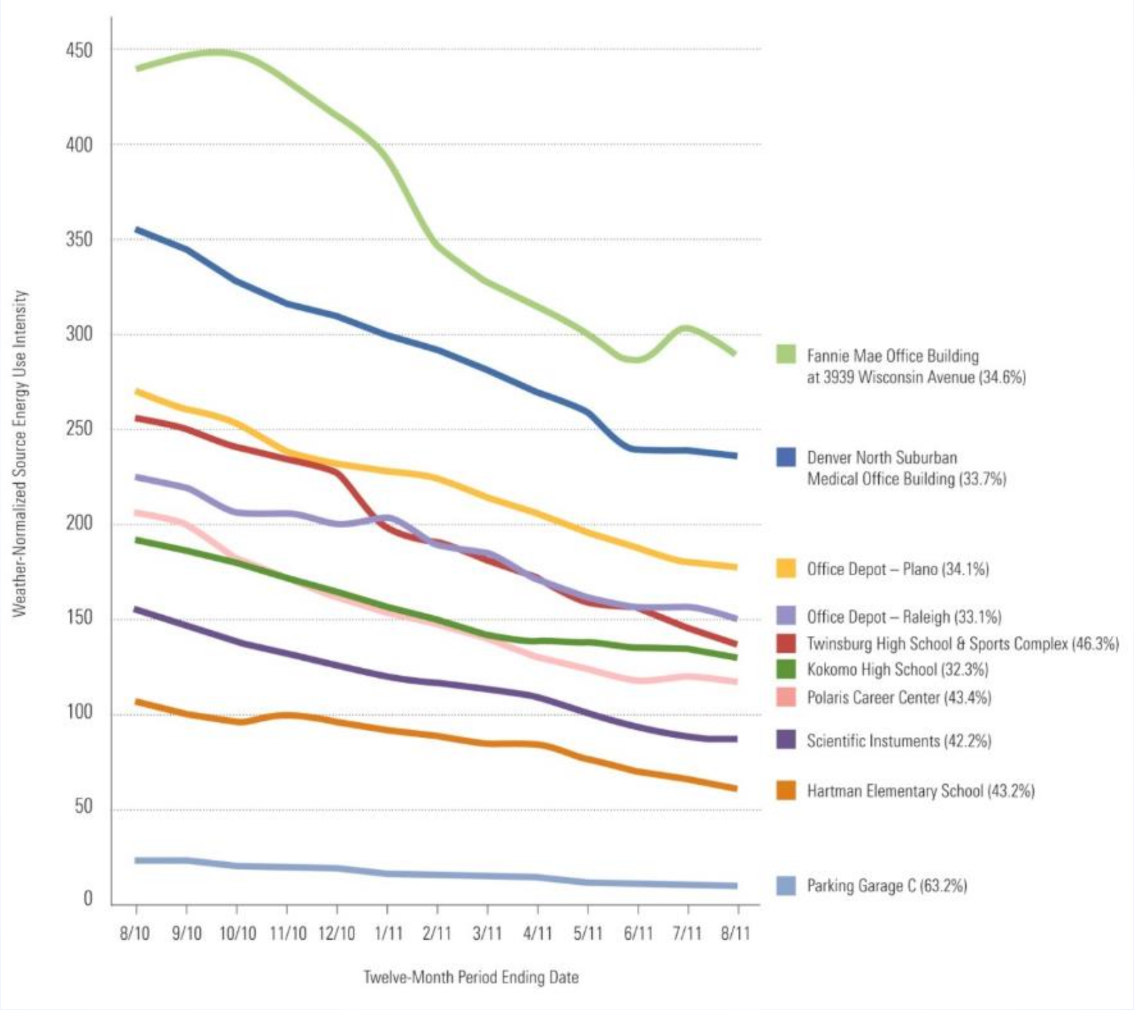
Certification continues to grow overall and for recertification

Property types with biggest opportunities for certification growth

- These five property types have the most benchmarked properties that are eligible for certification but are not yet certified (28,000 properties combined)

What is the value of certification?

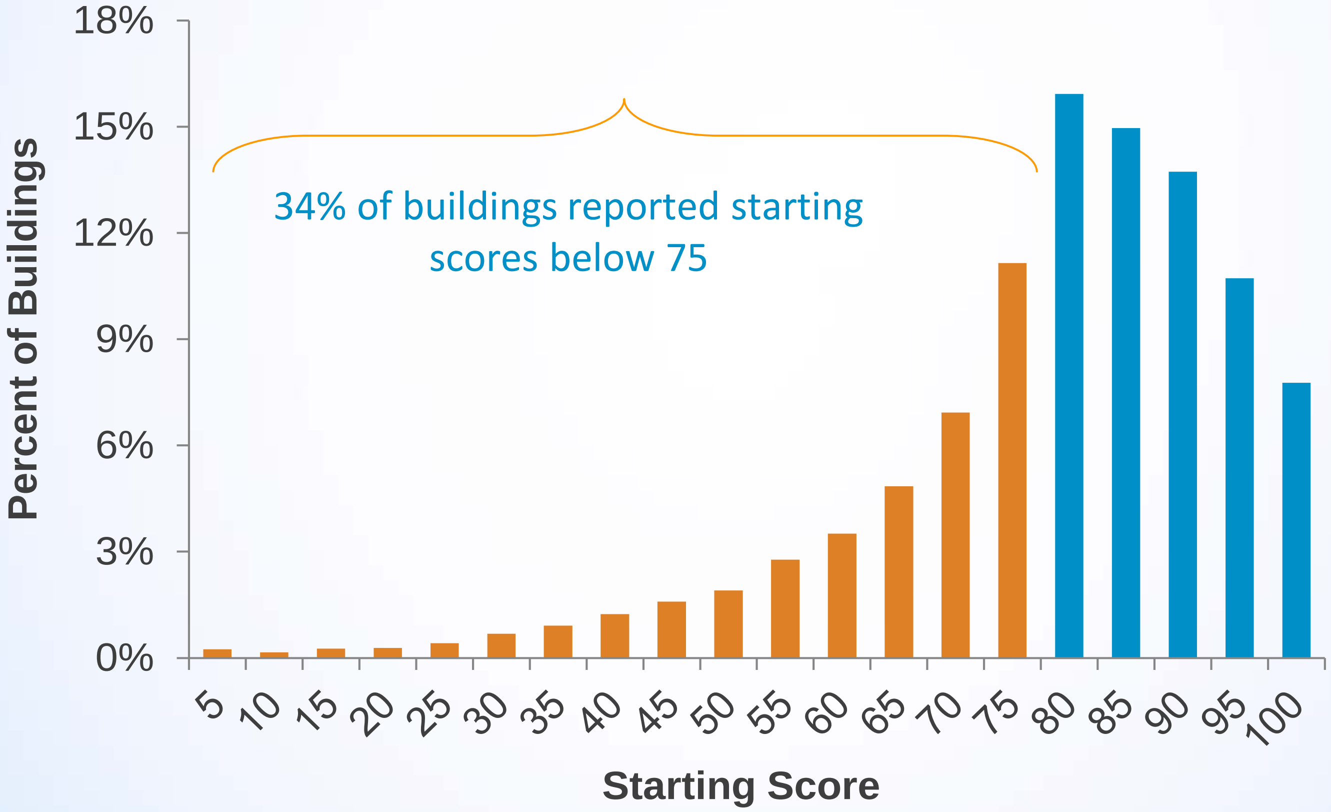
Competitions drive savings



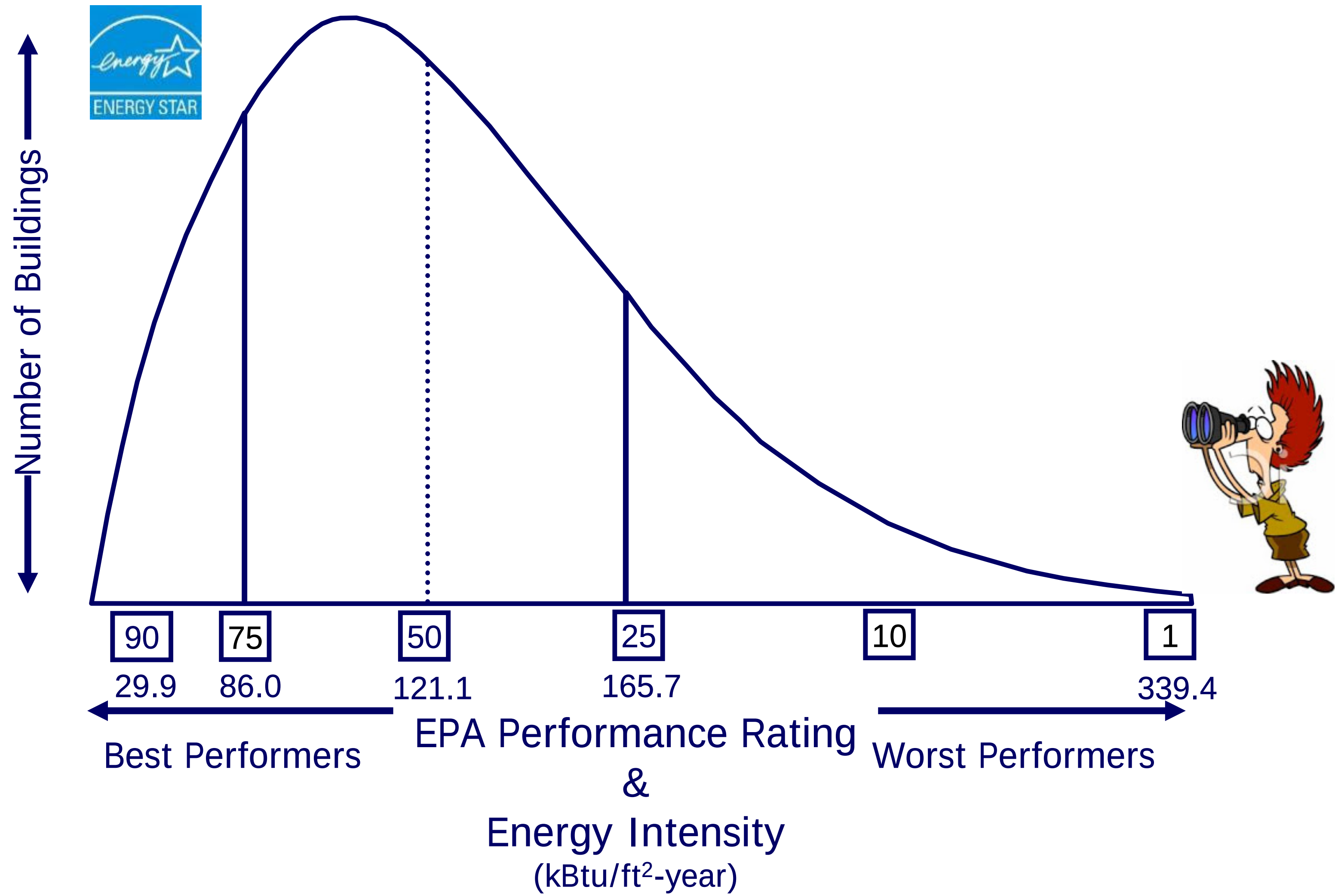
US EPA ENERGY STAR CHALLENGE FOR INDUSTRY

10% improvement within 5 years

Where did ENERGY STAR certified buildings start benchmarking?



The buildings we most need to reach are the ones farthest from any possibility of recognition.



What do the trends tell us?

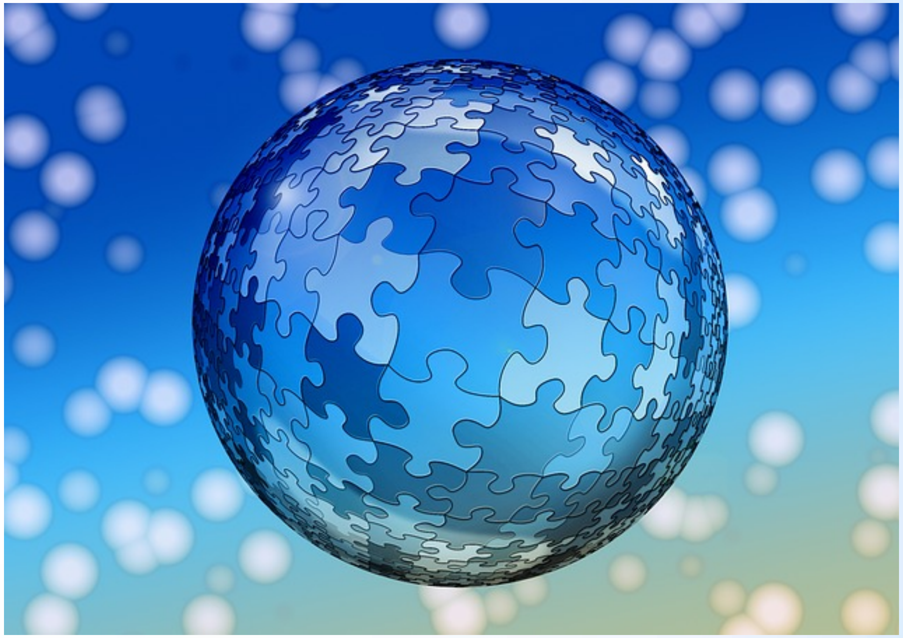
- Good market penetration in benchmarking
  - *50% of the floor space still remains- smaller and hard to reach*
- Some building sectors have deep penetration
  - *Barriers remain in other sectors*
- Local and state policies driving action, especially in larger jurisdictions
  - *Action is growing in smaller jurisdictions*
- Service providers driving benchmarking
  - *Can deliver benefits to customers through certification and awareness*
- Improvement in building efficiency occurring
  - *Much more opportunity exists*

Next steps for EPA

- Reach additional sectors through tailored resources addressing business barriers
- Reach smaller buildings and organizations through our partner network
- Evaluate building-specific improvement recognition with low administration cost that doesn't conflict with ENERGY STAR certification

Opportunities for our partnership

- ✓ Communities engage
- ✓ Businesses mentor
- ✓ School districts lead by example
- ✓ Association chapters and NGOs educate
- ✓ Utilities provide programs and data access
- ✓ Product/service providers offer solutions



……to realize savings for businesses and organizations, grow the local economy, create jobs and improve environmental quality.

Use ENERGY STAR to tap into immediate brand recognition and consistency