CITY OF MADISON BENCHMARKING COMMITTEE

11/10/2014

The Source On Energy Efficiency

Midwest Energy Efficiency Alliance

MEEA is a non-profit organization bridging the gap between energy efficiency policy, development, and program implementation
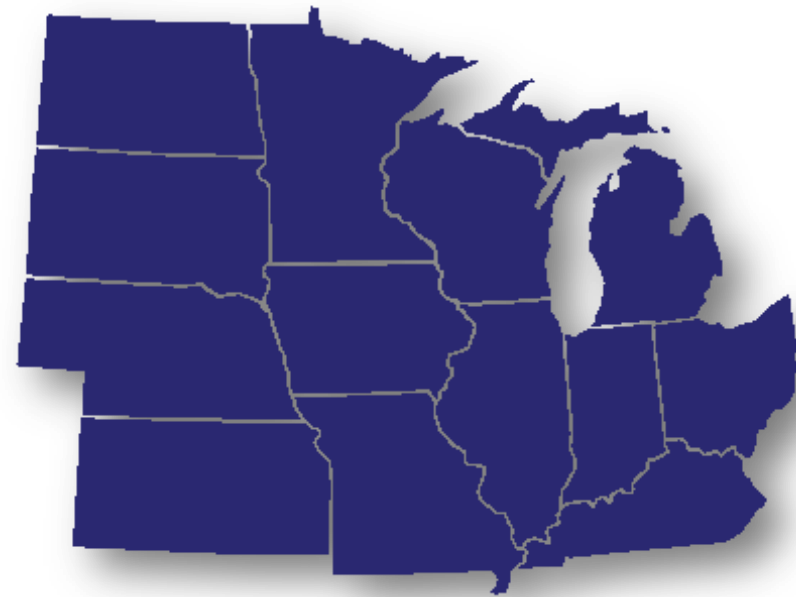

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Building Energy Benchmarking

General Definition:

The process of tracking the energy consumed, over time, of an existing building and comparing the results to similar buildings or an applicable standard.

Image Courtesy of Portland State University

Key Terms: Existing Building, Energy Use, Measurement, Comparison, Commercial, Multi-Family

Measuring Energy Use in Buildings

Image Courtesy of EPA

- For cars we use:
Miles per gallon

- For lighting efficiency we use:
Lumens per Watt

- For Cooling equipment efficiency we use:
kW / ton

- For buildings we use Energy Use Intensity (EUI):
**Annual energy consumption / floor area / year
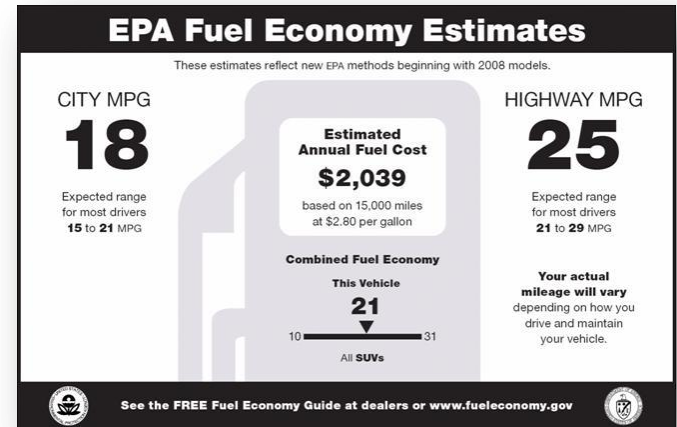or kBtu / square foot / year
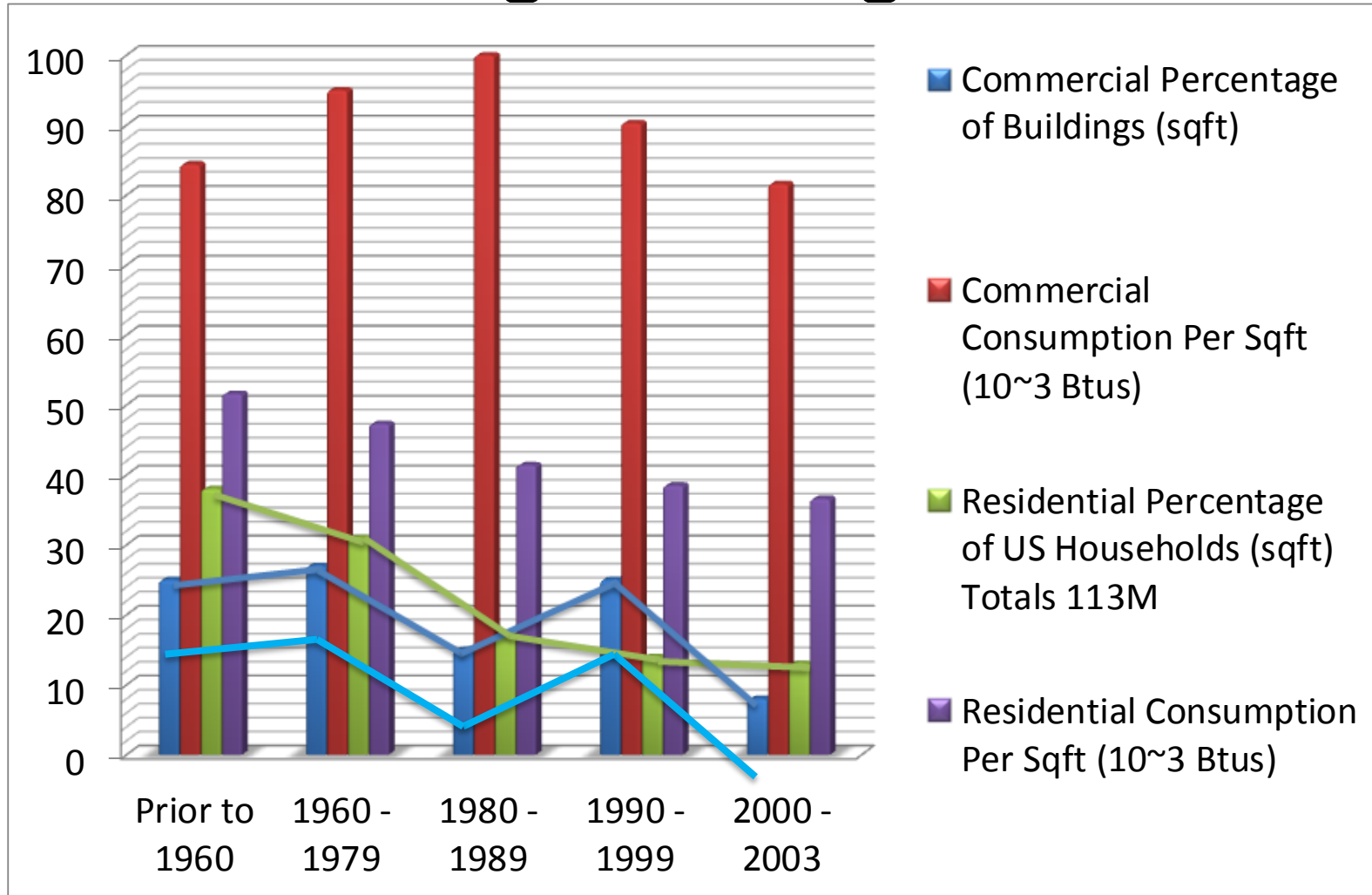or even CO2e / square foot / year**

Existing Building Stock

Source: International Energy Agency - Energy Efficiency in the North American Existing Building Stock, 2007 and US DOE EERE 2007 Buildings Energy Data Book

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Benefits of Measuring Energy Use

Operations

1- Create Annual Energy Budgets.

2 - Influence Behavior Change of Tenants.

3 - Use in Real Estate Transactions.

Post-Project

1 - Verify Savings from Completed Project.

2 – Earn Recognition in Certification Programs (Energy Star, Green Globes, LEED).

Municipal Goals

1 - Use for Basis to Determine Progress Towards Sustainability / GHG Goals.

2 – Allow Assistance to be Targeted Towards Higher-than-Average Energy Users.

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Real $avings of Benchmarking

EPA ENERGY STAR Portfolio Manager Study Results (2012):

Consistent benchmarking in buildings results in energy savings and improved performance.
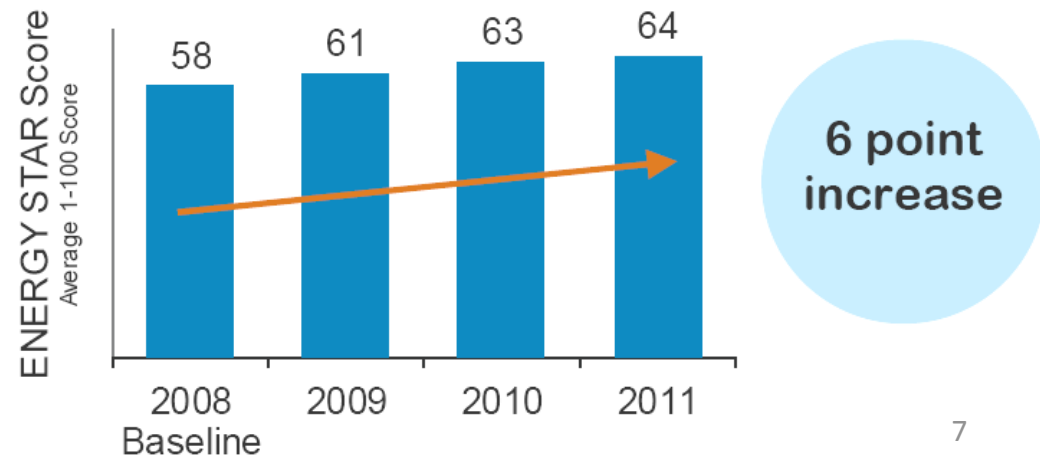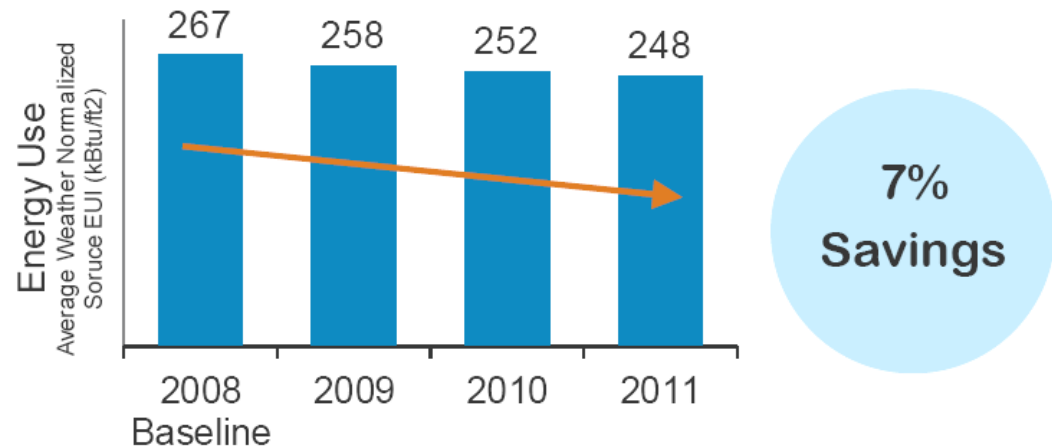
Portfolio Manager Results Assist to:

1. Identify under-performing buildings
2. Set investment priorities
3. Track improvements

Source:
www.energystar.gov/datatrends

Energy Savings in Portfolio Manager

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National Trends of Benchmarking & Transparency Policies

Seattle WA:
- 1/2010
- Municipal, commercial, multifamily
- Tenant & transactional disclosure only

Minneapolis MN:
- Passed 2/2013
- Municipal, commercial
- Public disclosure

Cambridge, MA:
- 7/2014
- Municipal, commercial
- Public disclosure
- Energy and Water

Boston, MA:
- 5/2013
- Municipal, commercial multi-family
- Public disclosure
- Mandatory Audits

New York, NY:
- 12/2009
- Municipal, commercial, multi-family
- Public Disclosure
- Mandatory Audits, Retro-commissioning, Lighting upgrades

Chicago, IL:
- 9/2013
- Municipal, commercial, multi-family
- Data verification
- Public disclosure

San Francisco, CA:
- 2/2011
- Municipal, commercial
- Public & transactional disclosure
- Mandatory audits

Austin, TX:
- 11/2008
- Municipal, commercial, multi-family
- Transactional disclosure
- Mandatory audits for multifamily

Washington DC:
- 7/2008
- Municipal, commercial, multi-family
- Public disclosure

Philadelphia, PA:
- 6/2012
- Commercial
- Public & Transactional disclosure

Midwest Benchmarking Legislation Status

RToS

RToS

Updated October 2014
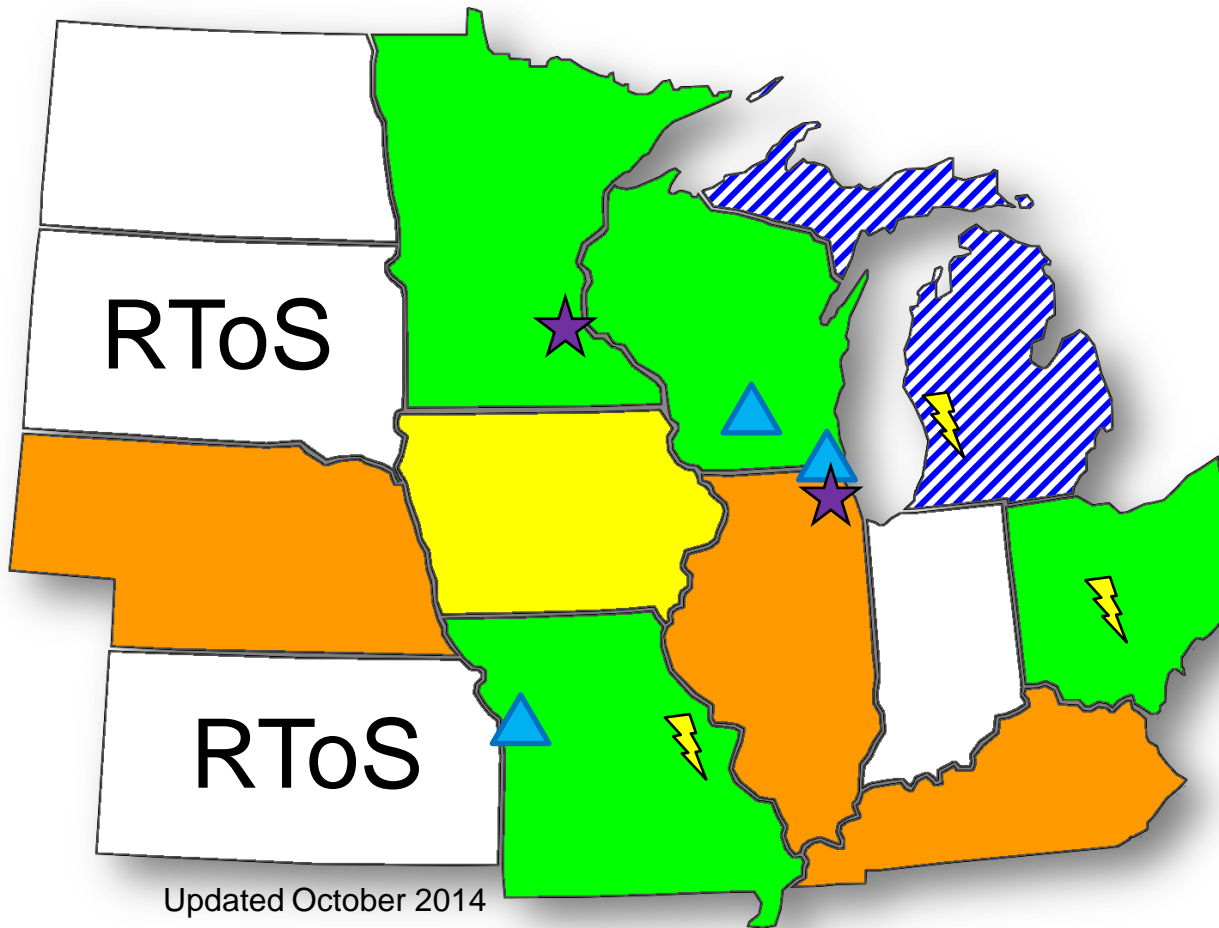
State Owned/Operated Building Benchmarking

- State Pilot Underway
- State Pilot Complete
- State Owned Considering
- State Owned Enacted

Municipal + Private Owned Benchmarking Ordinance

- Challenge Program Underway in Municipality
- Considering Legislation by Municipality
- Adopted by Municipality

RToS — Voluntary Residential Time of Sale Disclosure

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A Key to Compliance: Automated Utility Data Disclosure

Utility → **Building Owner** → **Disclosure Program**

Allow Aggregated Consumer Energy Usage Data to <u>Flow Directly</u> from Utility Database to Disclosure Program

Specifics of BEB&D Ordinances

- **Applicability Goal - All Buildings**
  - Public + Commercial (and Residential) Building Performance Measurement

- **Submission**
  - Every year, the building owner submits 12 months of energy use data (previous year) using a prescribed benchmarking tool / software

- **Staggered Yearly Reporting, by:**
  - Ownership Class
  - Building Size (Typically +100K, 50K)
  - Roll into City Produced Annual Report

- **Who's Responsible for Conforming?**
  - Property Owner, **NOT** the Tenants

Image Courtesy of fmadvisors dotcom

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Steps Towards Engaging Benchmarking Legislation

1. **Follow Goals Established in City/State Sustainability Plan or other Initiative**
2. **Create Utility Automated (Aggregated) Data Disclosure**
3. **Lead with Public Buildings First**
4. **Develop a Stakeholder Group**
5. **Draft Legislation**
6. **Create Support/Implementation Program – can include:**
   A. Education Class / Outreach
   B. Support Documentation / FAQ
   C. Phone Bank / Hotline
   D. Tenant Challenge Program(s)

*Link to Utility Rebate Programs

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