



ENERGY STAR Update Healthcare Edition

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NEEA's BetterBricks Initiative



- The commercial building initiative of the: **Northwest Energy Efficiency Alliance (NEEA)** which is supported by Northwest utilities.
- Advocates for changes to energy-related business practices in Northwest buildings.
- www.betterbricks.com



ASHE Region 10 E2C



- Region 10 E2C is a commitment from ASHE region 10 members to collectively achieve region-wide energy savings of 10% over a two-year period ending Fall 2012

- A total of 85 healthcare facilities in the states of Alaska, Idaho, Montana, Oregon and Washington representing over 28 million square feet is actively being benchmarked with ENERGY STAR® Portfolio Manager



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ASHE Region 10 E2C Peer Technical Forums

- BetterBricks, local utilities and ENERGY STAR® provide the Peer Technical Forums to support the tasks of benchmarking and energy savings for E2C participants

- All 2011 Forums have been recorded. To view previous forums:

<http://asheregion10e2c.betterbricks.com/calendar>



Today's Agenda



- New ENERGY STAR scores for Hospitals
 - How does EPA create an energy performance scale?
 - ASHE survey results
 - Preparing your portfolio
- New ENERGY STAR scale for senior care communities



Portfolio Manager:
Cornerstone of ENERGY
STAR for Healthcare

ENERGY STAR Portfolio Manager



- EPA's free, online energy measurement and tracking tool
- Houses the energy performance scale

Portfolio Manager Attributes	
Track performance	<ul style="list-style-type: none"> – Energy & water meters for a facility – Review historical data or before/after major upgrades or O&M
Weather normalized	<ul style="list-style-type: none"> – Source energy and energy intensity
Compare	<ul style="list-style-type: none"> – Average EUI for your space category to your performance over time – Group similar buildings together for benchmarking comparison
View percent improvement	<ul style="list-style-type: none"> – Verify and track results (energy, \$\$, CO₂)



ENERGY STAR Score: Technical Foundation



The Score Does

- Evaluate source energy consumption from utility bills
- Take into account operational characteristics (e.g., size, number of employees, climate)
- Depend on a statistically representative sample of a commercial building population

The Score Does Not

- Fluctuate based on the population of hospitals in Portfolio Manager
- Sum the energy use of each piece of equipment
- Explain why a building operates as it does



Eligible to Receive an ENERGY STAR Score



Bank/Financial Institutions



Courthouses



Data Centers



Dormitories



Hospitals



Hotels



Houses of Worship



K-12 Schools



Medical Offices



Office Buildings



Retail Stores



Senior Care Communities



Supermarkets



Warehouses



Wastewater Treatment Plants



ENERGY STAR Scores Measure Environmental Achievement



- ASHE



- GGHC



- Green Globes



- U.S. EPA



- USGBC

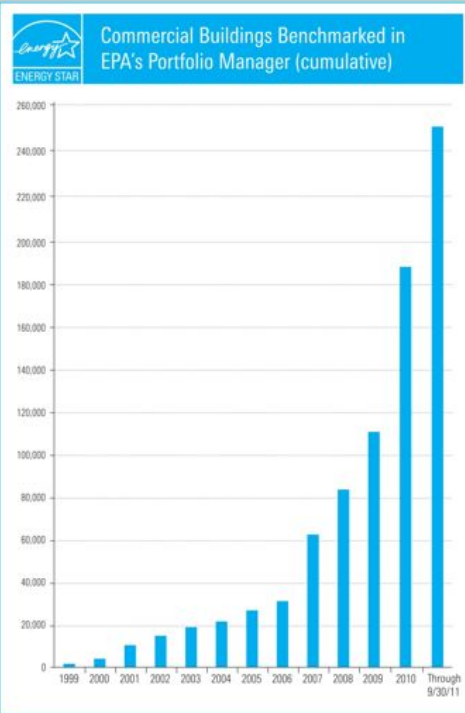


EPA 2030 Challenge



Market Penetration

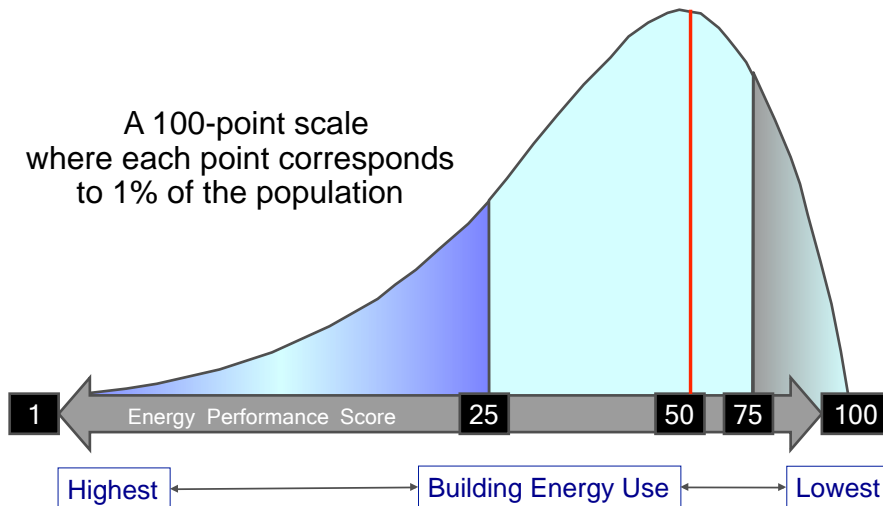
- More than **250,000** buildings have received ENERGY STAR scores
- Greater than 22 billion square feet
- 25% of commercial buildings market
- **85%+** of the **GMS** hospital market

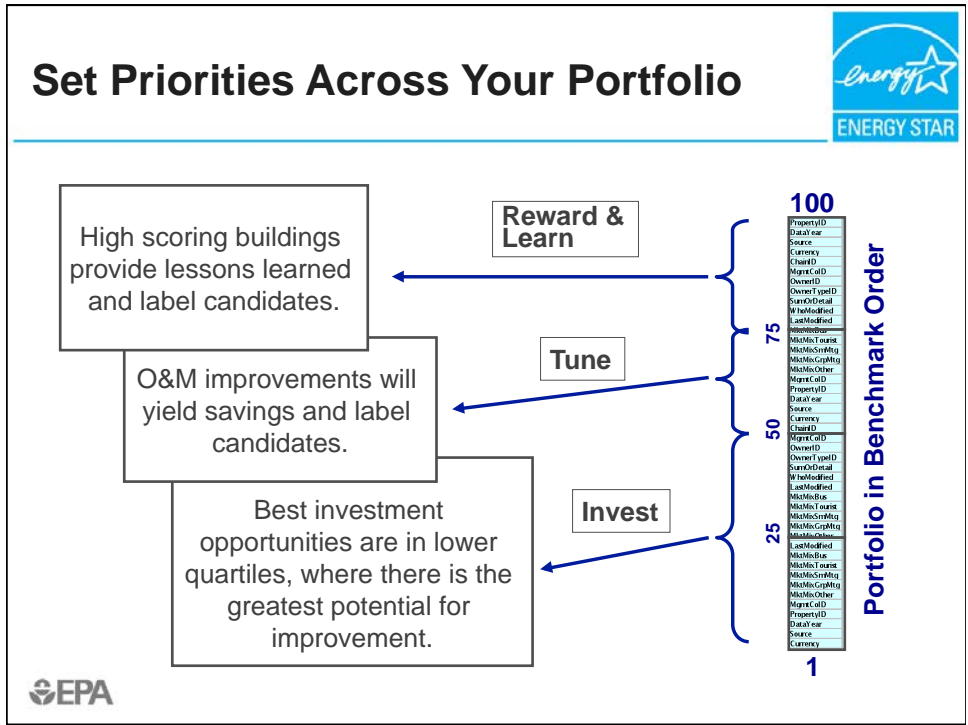


The ENERGY STAR Energy Performance Scale




A 100-point scale where each point corresponds to 1% of the population







Energy Decisions are Business Decisions



Enhanced energy performance leads to reduced operating expenses and...

- Better equipment operation and extended useful life
- Potential labor cost savings
- Enhanced patient comfort
- Enhanced image from increased environmental stewardship





ASHE Energy Survey

Changes in Healthcare since 1997



- Increase in the size of hospitals
- Greater use of energy intensive medical equipment
- Higher use of electronic records
- Increased adoption of sustainability goals



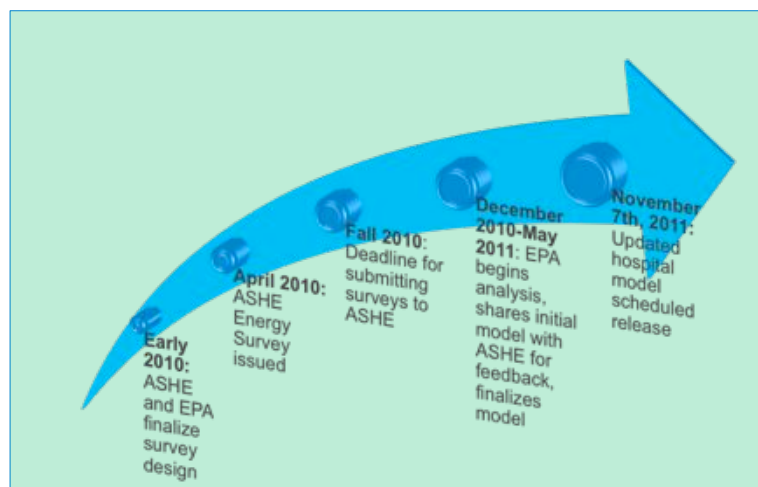
The ASHE Energy Survey



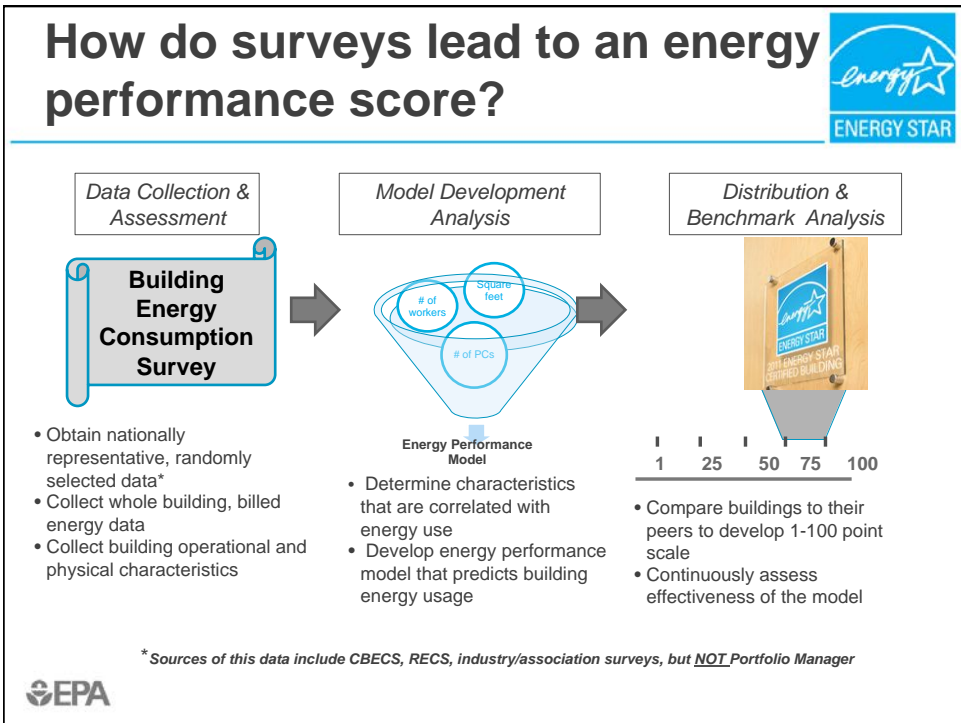
- New questions allowed EPA to
 - expand the rating system to new healthcare spaces
 - discover new energy drivers not probed in 1997 EPRI survey
 - account for likely change in hospital EUIs as energy intensities have shifted since 1997.



Survey Timeline



ASHE Energy Survey Results



ASHE Energy Survey: The Results



- 477 surveys received
- Applied analytical and building filters
 - Filtered if no energy reported, no square footage reported, incomplete operational descriptors, etc.
 - Narrowed data set to include General Medical Surgical Hospitals
- Filtered dataset of 191 facilities
- Applied a linear regression model to determine the most significant drivers of energy use in Hospitals



ASHE Energy Survey: Key Statistics



Characteristic	ASHE Energy Survey Findings*
Sample Size	191
Average Source Energy Use Intensity (EUI)	485 KBtu/ft ² /year (Source)
Average Square Footage	448,061 SF
Average Staffed Beds	197
Average MRI Machines	1
Average FTE Workers	1,167



*Weighted Average

Data Inputs for New Hospital Model



Previous Acute Care/Children's Hospital Benchmark	New General Medical and Surgical Hospital Benchmark
Building or campus address	Building or campus address
Year built	Year built
Gross square footage	Gross square footage
Number of licensed beds	Number staffed beds
Number of floors in tallest building	Optional
On-site tertiary care services	Optional
At least 12 consecutive months of energy use data for all fuel types	At least 12 consecutive months of energy use data for all fuel types
<i>Not included</i>	Number of FTEs
<i>Not included</i>	Number of MRI machines



Eligibility Requirements to Receive a Score – Part 1



Hospital types

- General Medical and Surgical hospitals
- Critical Access hospitals
- Children's hospitals

Hospital Configurations

- Stand-alone building
- Campus of buildings

Hospital Size

- Minimum gross square footage: 20,000 ft²
- Maximum: no maximum size cap



Eligibility Requirements to Receive a Score – Part 2



Medical Services

Eligible facilities provide acute care services intended to treat patients for short periods of time, including emergency medical care, physician's office services, diagnostic care, ambulatory care, surgical care, and **limited** specialty services such as rehabilitation and cancer care.

Use the 50%+ Rule

More than 50% of the gross floor area of all buildings must be used for general medical and surgical services. More than 50% of beds must be licensed for acute care services.

Ineligible Hospital Types

Hospitals that use more than 50% of the gross floor area or have more than 50% of their licensed beds for medical services such as long-term care, psychiatric care, skilled nursing, and/or specialty care are not considered eligible hospitals under this definition.



Definitions



Year Built: The year in which most of the hospital was built.

Gross Square Footage: The total floor area, expressed in square feet for a given space. The total must include the floor area for all supporting functions, such as lobbies, stairways, restrooms, storage areas, elevator shafts, etc., in the facility.

Staffed Beds: Beds that are licensed and physically available for which staff is on hand to attend to the patient who occupies the bed. Staffed beds include adult and pediatric beds that are occupied and those that are vacant at the end of the reporting period.

FTEs: An FTE (full time equivalent) is a standard of one employee working for 8 hours per day, 5 days per week, 52 weeks per year. An FTE of 1.0 means that the person is equivalent to a full-time worker.

Magnetic Resonance Imaging (MRI) equipment: An MRI uses a magnetic field and pulses of radio wave energy to visualize internal structures and organs.



A Change in the Weather (variable)



Cooling Degree Days was selected as the strongest variable to account for weather in the model

- Analyzed Degree Days, HDD, and CDD in statistical regressions
- Found Cooling Degree Days outperformed other variables

No Bias - Hospitals with a higher number of heating degree days are not expected to score higher (or lower) than those with a lower number of heating degree days.

CDD is not a required input. Portfolio Manager automatically determines CDD based on the building's zip code.



In the Noise



THESE WERE *NOT FOUND TO BE* STATISTICALLY SIGNIFICANT VARIABLES.

- Ø *Dietary department*
- Ø *Laboratory*
- Ø *Other Diagnostic Equipment (X-rays, CAT/CT/ PET scans, Fluoroscopy)*
- Ø *Relative proportion of department's size (delivery, trauma, procedure rooms, OR, etc.)*



Updating your PM account



- Start collecting new data inputs now
- Enter new data when Portfolio Manager is updated to ensure you have an accurate score
 - Default values will automatically be populated for new values until you replace them.
- If working with an automated benchmarking provider, ensure they have the needed data to upload



New Senior Care Scale

Senior Care Communities

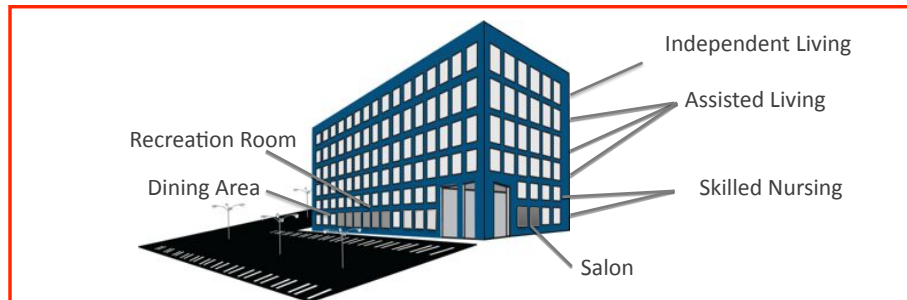


- Assisted Living
- Skilled Nursing
- Nursing Home
- Supportive Care
- Dementia Care
- Continuing Care Retirement Community

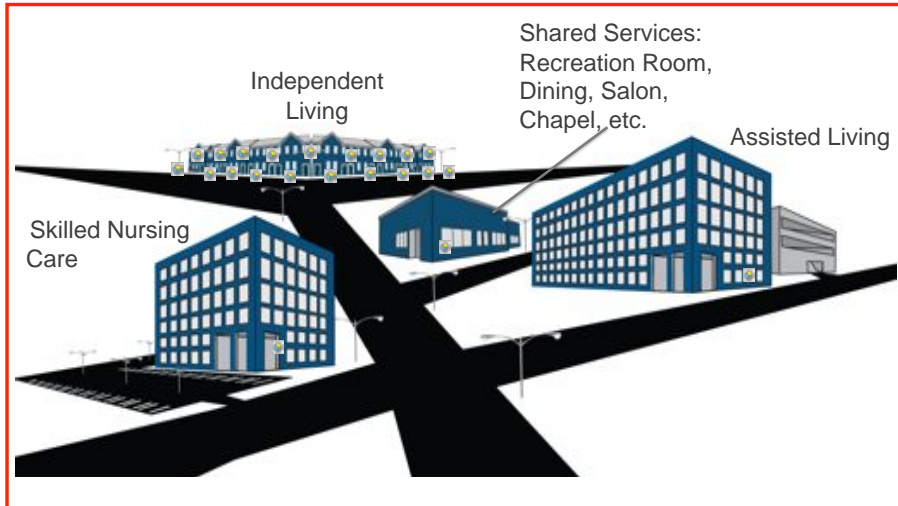
Long Term Care Hospitals are not eligible for the senior care ENERGY STAR rating



Eligible to Benchmark as Senior Care Community

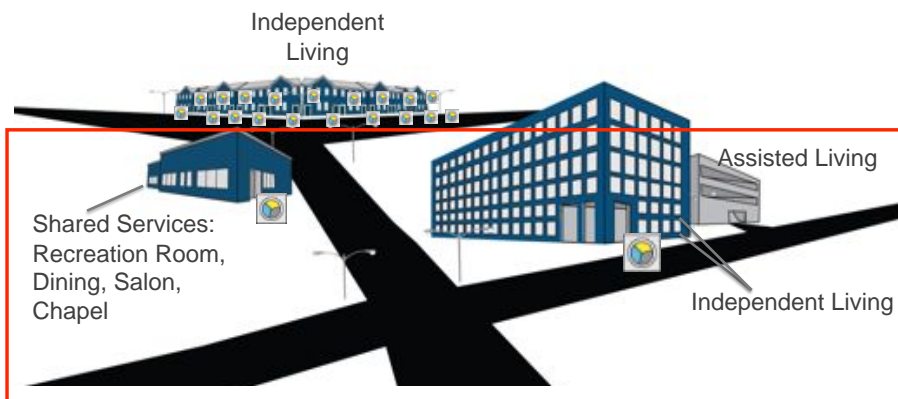


Eligible to Benchmark as Senior Care Community



Independent Living is **less than 50%** of the units

Eligibility Depends on Metering



Independent Living is **50% or more** of the units

Eligibility Depends on Metering



Independent Living is **50% or more** of the units

Data Inputs for Senior Care score



Energy inputs

12 months of energy consumption data

Operational Inputs

- ✓ Total Number of Units
- ✓ Average Number of Residents
- ✓ Total Resident Capacity
- ✓ # of Commercial Refrigeration Units
- ✓ # of Commercial Washing Machines
- ✓ # of Residential Washing Machines
- ✓ # of Residential Electronic Lift Systems
- ✓ % Building that is:
 - ✓ Cooled
 - ✓ Heated



Thank you!



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ENERGY STAR

U.S. Environmental Protection Agency

www.energystar.gov/benchmark



Resources

Ashe Region 10 E2c

<http://asheregion10e2c.betterbricks.com/>

BetterBricks

<http://www.betterbricks.com/operations>

<http://www.betterbricks.com/healthcare>

AIA Guidelines For Design And Construction Of Hospitals And Medical Facilities

http://info.aia.org/nwsltr_aah.cfm?pagename=aah_gd_hospcons

BetterBricks' Guide To The Design And Construction Of High Performance Hospitals

http://www.betterbricks.com/graphics/assets/documents/dc_healthcare_broch0208_final.pdf

Green Guide To Healthcare

<http://www.gghc.org/>





Thank you!