

Increasing ENERGY STAR ratings through reduced utility consumption & improved data validation



OUR PRESENTERS



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Goby

Agenda


- ENERGY STAR Metrics
 - Who was affected?
 - What's the damage?
 - What else changed?
 - How can we fix it?
 - What can you do to help?



ENERGY STAR Metrics Update

- What was updated?
 - 1-100 ENERGY STAR score models (based on CBECS 2012)
 - Offices
 - K-12 Schools
 - Retail/Supermarkets
 - Hotels
 - Warehouses
 - Houses of Worship
 - Bank Branches



**ENERGY STAR®** Statement of Energy Performance
LEARN MORE AT energystar.gov

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ENERGY STAR® Score¹

Sample Property
Primary Property Function: Office
Gross Floor Area (ft²): 50,419
Built: 1951
For Year Ending: July 31, 2014
Date Generated: October 01, 2014

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information		
Property Address Sample Property 123 Main St Boston, Massachusetts 02134	Property Owner Property Inc. 123 Early Bird St. Washington, DC 20460 202-999-9876	Primary Contact Jane Doe 123 Early Bird St. Washington, DC 20460 555-123-4567 jane_doe@propertyinc.com
Property ID: 3681885		

Energy Consumption and Energy Use Intensity (EUI)			
Site EUI 75.7 kBtu/ft ²	Annual Energy by Fuel Electric - Grid (kBtu) 2,453,824 (64%) Natural Gas (kBtu) 1,273,766 (33%) Propane (kBtu) 91,000 (2%)	National Median Comparison National Median Site EUI (kBtu/ft ²) 103.5 National Median Source EUI (kBtu/ft ²) 247.6 % Diff from National Median Source EUI -27%	
Source EUI 181.2 kBtu/ft ²		Annual Emissions Greenhouse Gas Emissions (Metric Tons CO2e/year)	311


Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____ Date: _____

Licensed Professional

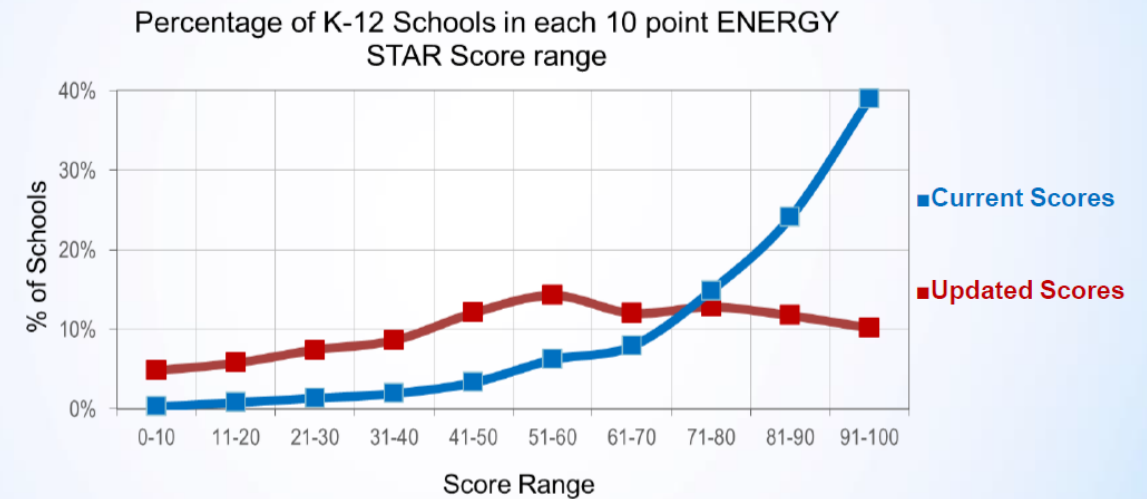
John Smith
4 Privet Dr
Arlington, VA 22201
703-111-1234
john_smith@energyinspectors.com


Professional Engineer Stamp
(if applicable)

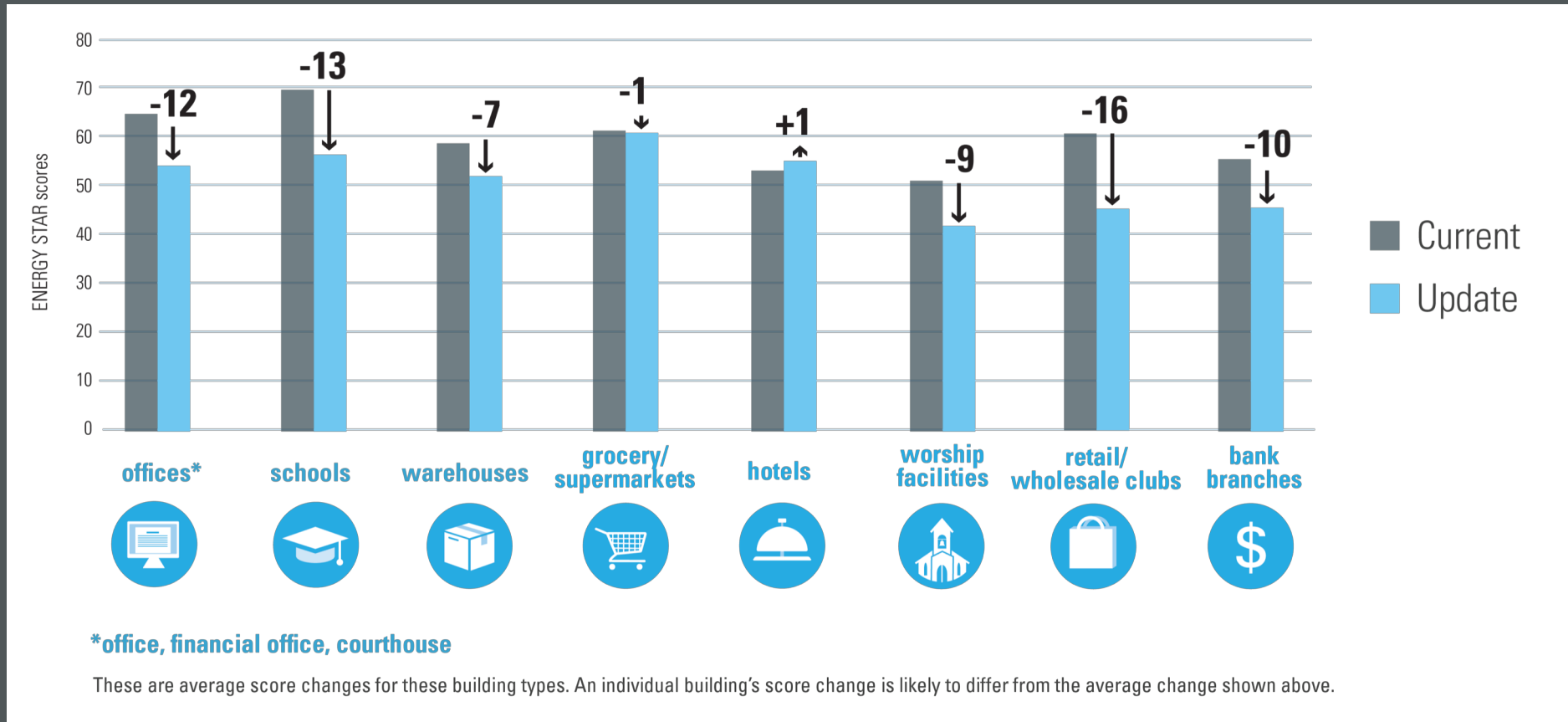
ENERGY STAR Metrics Update

- 2012 Commercial Buildings Energy Consumption Survey (CBECS)
- More current data than 2003 CBECS used for current score

ENERGY STAR scores need to be recalibrated over time



Metrics Update - Outcomes



Metrics Update - Outcomes

- Data Center Energy Estimates
 - New option to “apply estimates” for the IT energy
 - Generally helpful to account for high energy using server rack rooms
- Update to Source Energy Factor - ALL buildings affected
 - Electricity factor dropping from 3.1 to 2.8 due to more efficient grid
 - Could be +/- 3 points depending on fuel mixture

Metrics Update – Goby Observations

Office Buildings: Average Change by Point Tier

- 95+ – 6 point reduction
- 90-94 – 11 point reduction
- 85-89 – 14 point reduction
- 80-84 – 15 point reduction
- 75-79 – 17 point reduction

Approximately half of buildings that used to be above 75 no longer are



Metrics Update – Goby Observations

Office Buildings: Average Change by Region

- New York – 16.5 point reduction
- Illinois – 15.7 point reduction
- Pennsylvania – 14 point reduction
- Texas – 13.2 point reduction
- Florida – 11.5 point reduction
- California – 6.6 point reduction



The State of ENERGY STAR

Current State

- Program on hold for all sectors impacted by the update
- EPA has collected survey comments & feedback
 - Now reviewing comments and re-analyzing data
- Expected to resume certifications on a rolling basis
- Will loosen deadlines for 2018 awards

Unaffected, eligible buildings still due Nov. 15, 2018



Moving Forward

The year of the update

- Review your “new” score
- Update/adjust relevant building characteristics



Next Steps

What Can You Do?

- Ensure your ESPM profile is current & complete
- Help us collect your data updates
 - Generally we need occupant counts, computer counts, vacant square feet, manual energy data, and the corresponding dates changed
 - Send to support@gobyinc.com with your building name in the subject
- **SAVE ENERGY**



Next Steps

Set a Target

- Awarded an 81 in 2018
- Dropped to 65 after metric update
- This building needs to save about \$324,000 in annual energy costs (13%) to get back to 75



Metrics Comparison for Your Property & Your Target [Change Time Period](#)

Metric	Dec 31 2015 (Energy Baseline)	Aug 31 2018 (Energy Current)	Target*	Median Property*
ENERGY STAR score(1-100)	57	65	75	50
Source EUI(kBtu/ft²)	235.8	190.2	165.0	229.8
Site EUI(kBtu/ft²)	134.8	111.8	97.0	135.0
Source Energy Use(kBtu)	219316224.0	176869765.4	153412616.1	213663383.3
Site Energy Use(kBtu)	125327707.8	103949313.1	90163156.5	125573538.6
Energy Cost(\$)	2849142.61	2443169.39	2119146.49	2951414.59
Total GHG Emissions(Metric Tons CO2e)	11148.5	9019.6	7823.4	10896.0

* To compute the metrics at the target and median levels of performance, we will use the fuel mix associated with your property's current energy use.

Energy Audits: Portfolio Manager (ESPM) Inputs

Investigate, update, & validate ESPM inputs

- When was the last time you updated your property details in ESPM?
- Is the square footage still accurate? Did you add another floor or build an addition?
- Have your building loads or use type(s) changed?

Energy Audits: Validate, Update, Investigate

Office Buildings

- Are your hours of operation accurate (40 vs. 75)?
- Has your occupancy changed?
- Did you remember to include parking areas?
- Has the number of workers on main shift changed?
- Did you recently add a data center?



Energy Audits: Validate, Update, Investigate

Hotels

- Has your occupancy rate changed?
- Have the hours/day that guests are on-site changed?
- Was laundry service recently brought in-house?
- Has the number of guest meals served changed over time?
- Has the number of available rooms changed?



Energy Audits: Validate, Update, Investigate

Hospitals

- Recently added an MRI machine?
- Number of FTEs on main shift & night shift still accurate?
- Same number of staffed beds changed?
- Has the gross floor area increased from adding a new wing or other expansion?



Energy Audits: Identify & Implement ECMs

Identify and implement energy conservation opportunities

- Most impactful way to decrease EUI & increase rating
- No matter how good you are, there are always more cost effective energy conservation measures available to take advantage of



Energy Audits: Identify & Implement ECMs

Examples of fast-payback ECMs

- LED Lighting Upgrades
- VFDs for pumps, fans, AHUs, etc.
- EC motors for FCUs, PTACs, WSHPs, Evap fans & other fractional HP loads
- Occupancy-based thermostats for hotels, offices, schools, etc. (unoccupied and nighttime set back)
- Exhaust hood controls (hotels, hospitals, schools, restaurants, etc.)
- Building automation systems (on/off, ramp up/down, setback, modulate)
- Combined heat & power (co-gen); Solar; Batteries

No Upfront Capital = Likelier Project Approval

Implement energy efficiency plans, increase ENERGY STAR rating, and generate positive cash flow without spending capital

- Grants
- Utility rebates
- Equipment lease financing
- On-bill financing (3rd party suppliers & utilities like Eversource, etc.)
- PPAs (solar)
- ESAs (co-gen)
- Property Assessed Clean Energy (PACE) financing

Questions?



Thank You!



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