

# MFAA Conference Making the Case for Energy Efficiency Improvements in your School

Linda Darveau, Carolyn Sarno Goldthwaite and John Balfe September 30, 2015

# **About NEEP**



### **Mission**

Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system

## **Approach**

Overcome markets and transform markets via *Collaboration, Education and Enterprise* 

### Vision

Region embraces **next generation energy efficiency** as a core strategy to meet energy needs in a carbon-constrained world

One of six regional energy efficiency organizations (REEOs) funded by the US Department of Energy (US DOE) to link regions to US DOE guidance, products and programs









ENERGY STAR. The simple choice for energy efficiency.

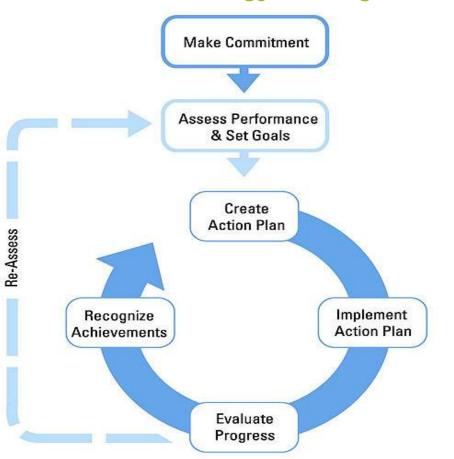
### What is ENERGY STAR?

- Government Partnership Program
- Established by EPA in 1992 to help address climate change
- Focused on the energy efficiency of:
  - Products
  - Homes
  - Buildings & Industrial Plants
- The national symbol for energy efficiency





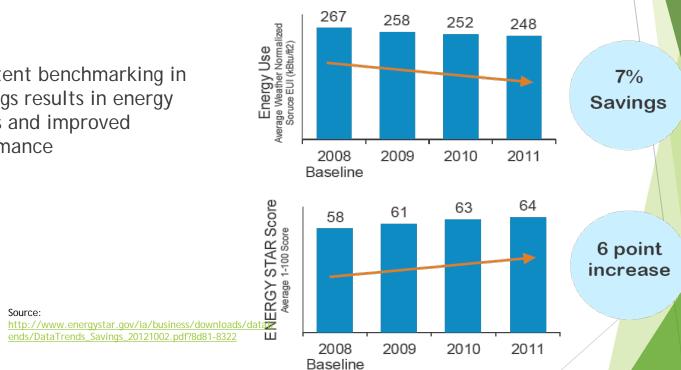
# Successful Energy Management



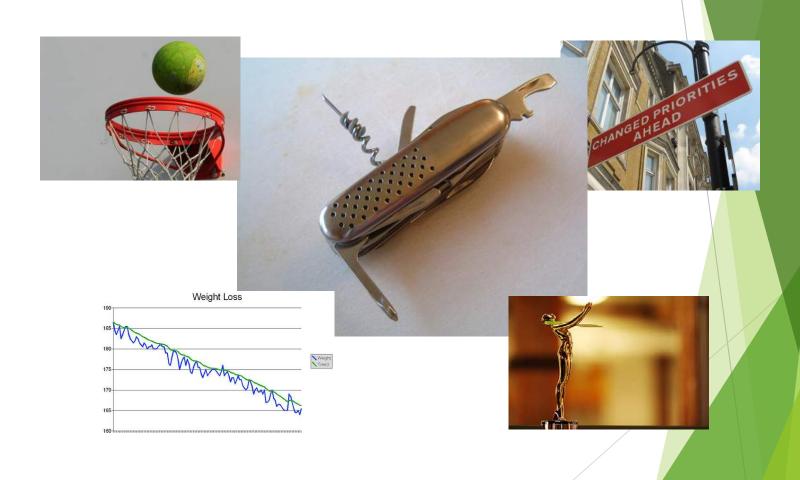
# Value of Benchmarking

### **Energy Savings in Portfolio Manager**

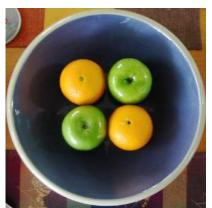
Consistent benchmarking in buildings results in energy savings and improved performance



# Portfolio Manager



## What Does it Do?





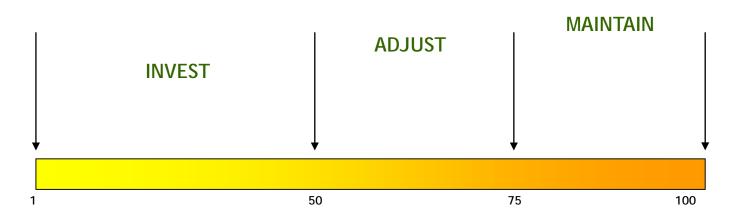






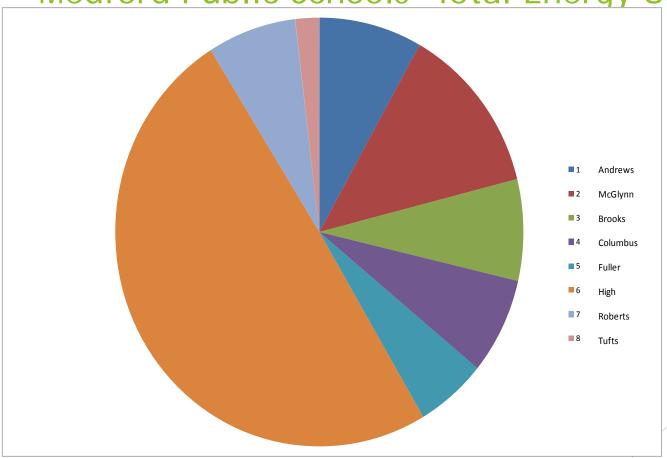


## Now What?

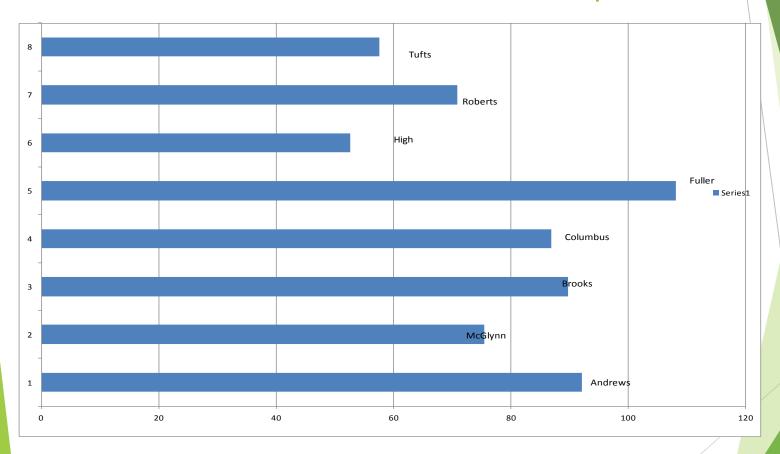


**ENERGY PERFORMANCE RATING** 

Medford Public Schools- Total Energy Use



# Medford Public Schools -EUI -KBTU/Sq Ft



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ENERGY STAR® Portfolio Manager®



# ne

# Impacts of high performance schools on...

- Occupant health
- Educational performance
- School funding

**NE-CHPS** as a guide





# High Performance Schools By the Numbers...



### Health

- 48.6% of children reported missing one or more days of school due to asthma (CDC)
  - 32.9% of adults

# Performance

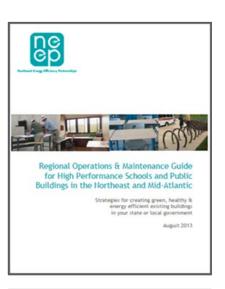
 Improving ventilation rate by 2 cfm/person, increased the proportion of students passing standardized tests by almost 3%



# **Operations and Maintenance Guide**

## **Indoor Environmental Quality**

- Enhance Daylighting
  - Direct incoming sunlight to ceiling or walls
  - Light shelves
  - Conduct daylighting workshop
- Maintaining Ventilation System
  - ASHRAE Standard 62.1
  - Critical to occupant health, performance and attendance



#### Regional Operations & Maintenance Guide for Schools and Public Buildin

#### II. Indoor Environmental Quality

A paidly indeed environment is crucial to the hoolth and performance of building comparts, below of acquired to the next declore, component of their conformation study, but full display and views of the couldons also play a role. Prove I robor environment quality relates the potential for long and deport term for all this problem, which hope limits stiff all downs and student absorbacies. See Electric for the providence of the providence of

#### Maintaining Access to Views

Access to views has proven to be extremely beneficial in all work environments. A human connection to the natural rhydron of the outdoor environment is important to both mental and physical hashits.

procedures

- Make sure that all window blinds and shades are in good operating condition.
- ☐ Establish a cleaning schedule for glazing and shades
- ☐ Exaction a cleaning screedile for grazing and shades
  ☐ Control the growth of vocetation with cotrontal to black

#### acilitating and Maintaining Daylighting Performance

imprigues and statests typically three in dayly spaces, but no with acress to seek, three training, state resists to the total or of analyzing in most healther. Properly designed uppligating is the text two for blammate building vineface, Seweral mornt studen tree above the service of the service properly student student tree down to be a service properly student students and the service properly designed adulgation doesn't provide the service properly and interface and service properly determined to the service properly determined to the service properly determined to the service properly designed adulgation doesn't provide the service properly and interface and service properly determined to the service properly designed adulgation designed adulgation of the service properly designed adulgation of the service properly designed and the service properly designed adulgation of the service properly designed adulgation of the service properly designed and the service properly designed adulgation of the service properly de

In order to enhance and/or maintain the utilization of daylight, the following should be considered:

- Replace simple shades and blinds with window shade systems that allow incoming sunlight to be directed to ceiling and wall surfaces to facilitate glann-free daylighting.
- And, make sure that all window blinds and shades are in good operating condition

  | Ullians blinds and shades to control excess daylighting to avoid glain and prochaining of spaces. East and West consumers are his prochaining of spaces. East and West consumers are his prochaining and
- When repointing walls and criffings select points with high reflectivity values (85 percent or higher) to allow these surfaces to be used to bounce infirect surlight into the space.
- Avoid displaying school projects on windows

☐ Limit the display of school projects on walls that have indirect daylighting potential

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# **RESOURCES**

# available at www.neep.org



- Street Lighting Benchmarking
- Energy Codes
- Multi-Family
- 0 & M
- Real Estate Valuation of EE
- Schools
- Street Lighting
- Zero Net Energy











# **DOE RESOURCES**

#### **Asset Scores**

http://energy.gov/eere/buildings/buildingenergy-asset-score

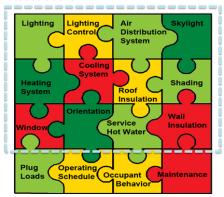
#### **SEE Action**

https://www4.eere.energy.gov/seeaction/

### **Better Buildings**

http://betterbuildingssolutioncenter.energy .gov/

#### **Asset Score**









# THANK YOU!

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