PHILADELPHIA BUILDING BENCHMARKING

YEAR ONE REPORT

INTRODUCTION

250m
Square ft.
(Non-residential)

Represents
25%
of total
Citywide
square footage

64
Average
ENERGY STAR
Score

1,700
Buildings

This report describes Philadelphia's Year One Energy Benchmarking results for large commercial facilities. Benchmarking helps building owners understand energy usage in order to save money and reduce carbon emissions.

ABOUT THIS REPORT

The Mayor's Office of Sustainability (MOS) launched the citywide benchmarking program to help rate performance across the city's building stock, beginning with large non-residential facilities 50,000 square feet or greater. This report analyzes the first year of reporting (completed in 2013), which covers energy and water usage for the 2012 calendar year.

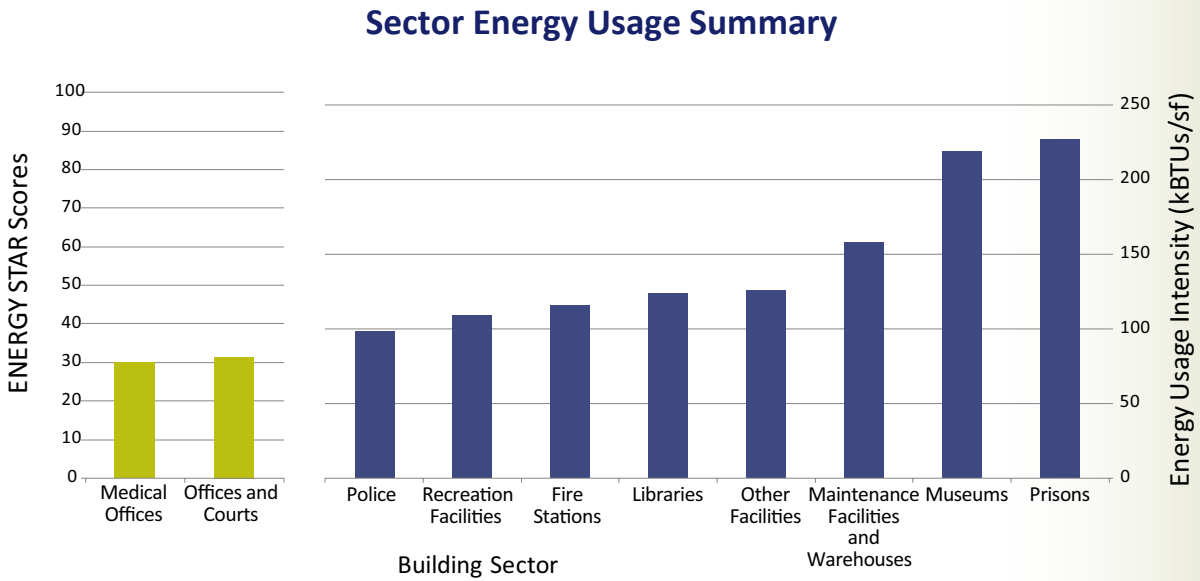
KEY FINDINGS

- Ratable buildings in Philadelphia have an average ENERGY STAR score of 64, well above the nationwide average of 50.
- Hundreds of buildings fall below this nationwide average, demonstrating the opportunity represented by energy efficiency retrofits.
- Compliance rates were similar to benchmarking programs in other cities, but improved outreach and support is planned for Year 2.

WHY BENCHMARKING?

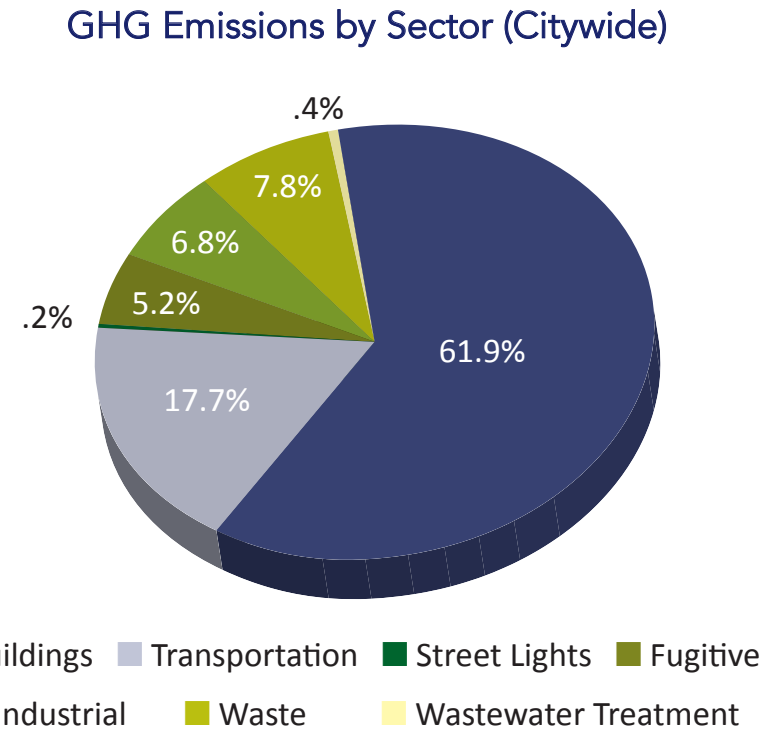
In 2012, City Council passed legislation mandating energy and water use reporting for non-residential buildings 50,000 square feet or larger. The first reporting deadline was set for Fall 2013.

The City of Philadelphia is already benchmarking its municipal facilities, including office buildings, fire stations, libraries and prisons. See the first report on municipal benchmarking here.



The City's first Municipal Benchmarking Report analyzed energy usage by sector for public buildings across Philadelphia

WHY BENCHMARKING?

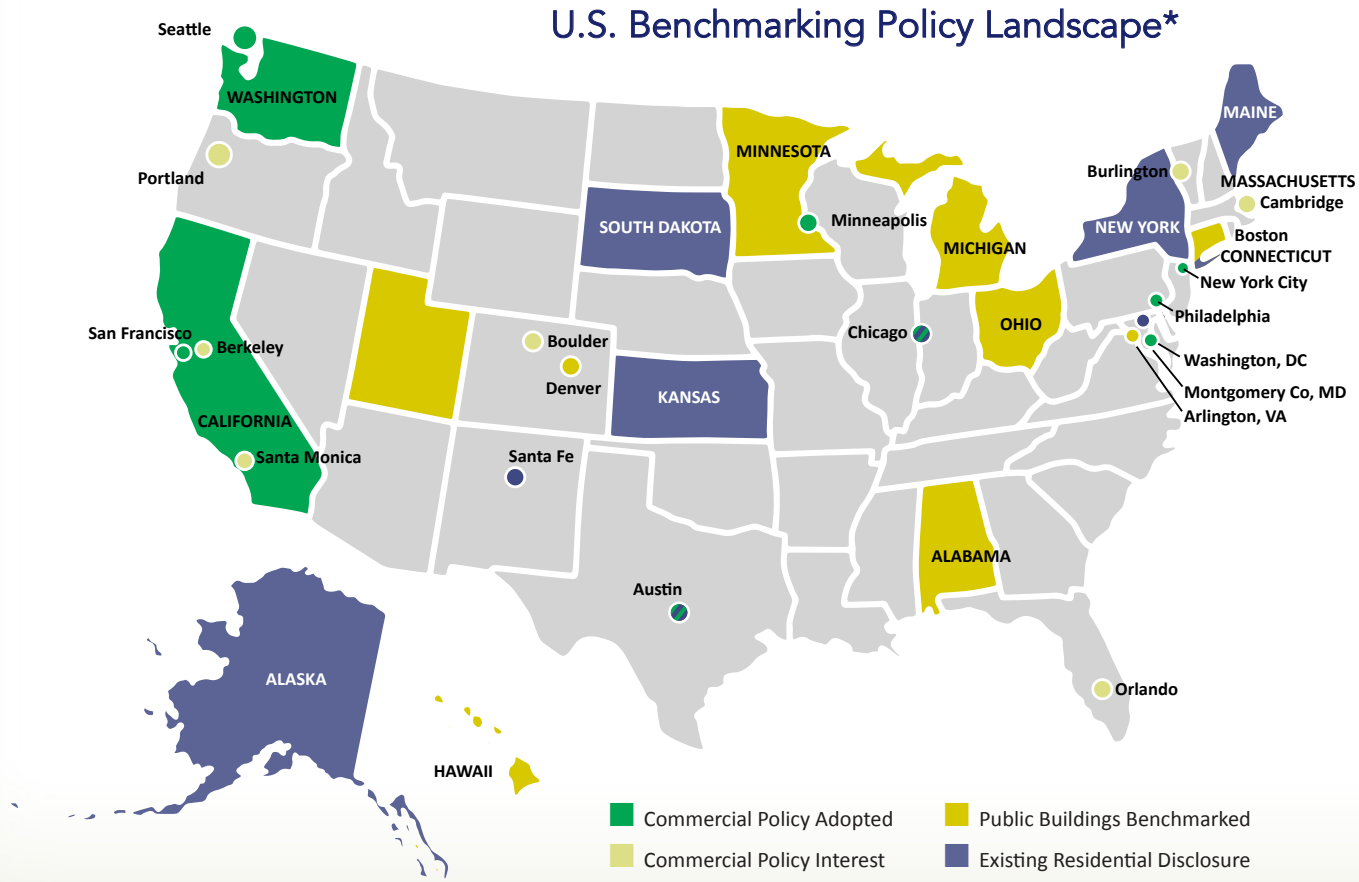


Buildings account for almost 62% of all greenhouse gas emissions in Philadelphia

Improving the efficiency of our commercial building stock is one of the most powerful tools we have to reduce the City's carbon footprint. Benchmarking gives building owners, managers and tenants the right information to make decisions and take action to reduce their energy and water costs.

NATIONWIDE CONTEXT

Philadelphia is not alone in mandating energy and water benchmarking. Many of America's largest cities have passed similar laws, with more jurisdictions considering action.

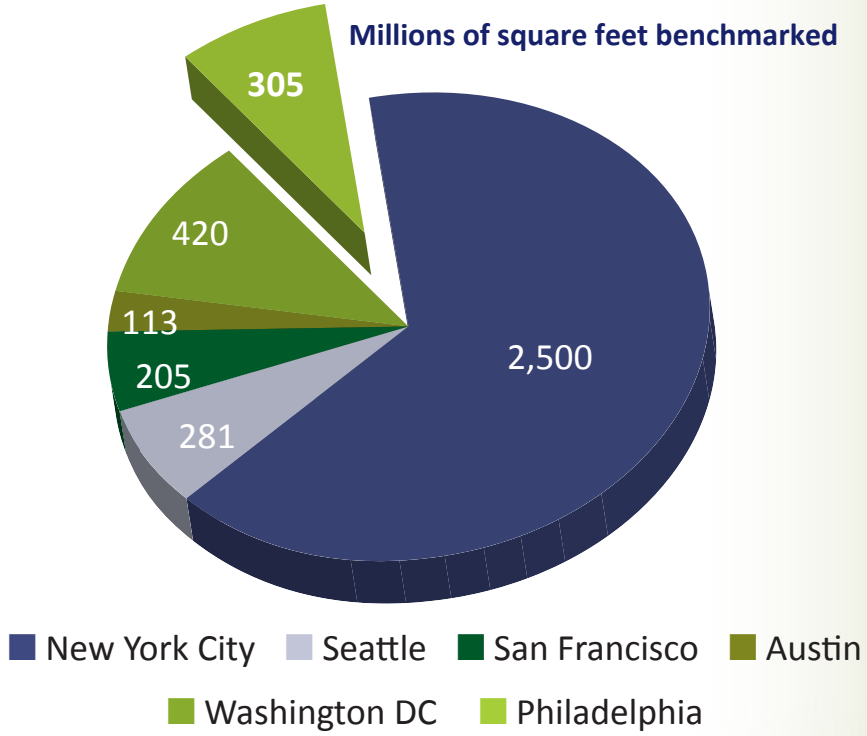


Source: Institute for Market Transformation

NATIONWIDE CONTEXT

In addition to mandating benchmarking, Philadelphia joins several cities nationwide that require public disclosure of a limited subset of benchmarking metrics. Similar to rating the energy efficiency of home appliances, the goal of making this information public is to help both building owners and tenants make more informed decisions. Public disclosure in Philadelphia will begin in late summer 2014.

Philadelphia and eight other cities are already implementing benchmarking and disclosure laws



BENCHMARKING 101

To benchmark, building managers enter building characteristics and energy and water usage information into ENERGY STAR Portfolio Manager, a free, web-based tool provided by the EPA. Portfolio Manager is the industry standard for benchmarking and disclosure programs.

Users who successfully benchmark their building(s) receive scores reflecting both their energy efficiency (see below) and their annualized water consumption. These scores are normalized for the size of the building, with ENERGY STAR scores further adjusted for weather and building usage.

Any building can be entered into Portfolio Manager. Interested in benchmarking your property? Get started, and visit www.phila.gov/benchmarking for details on publishing your score.

EUI or ENERGY STAR?

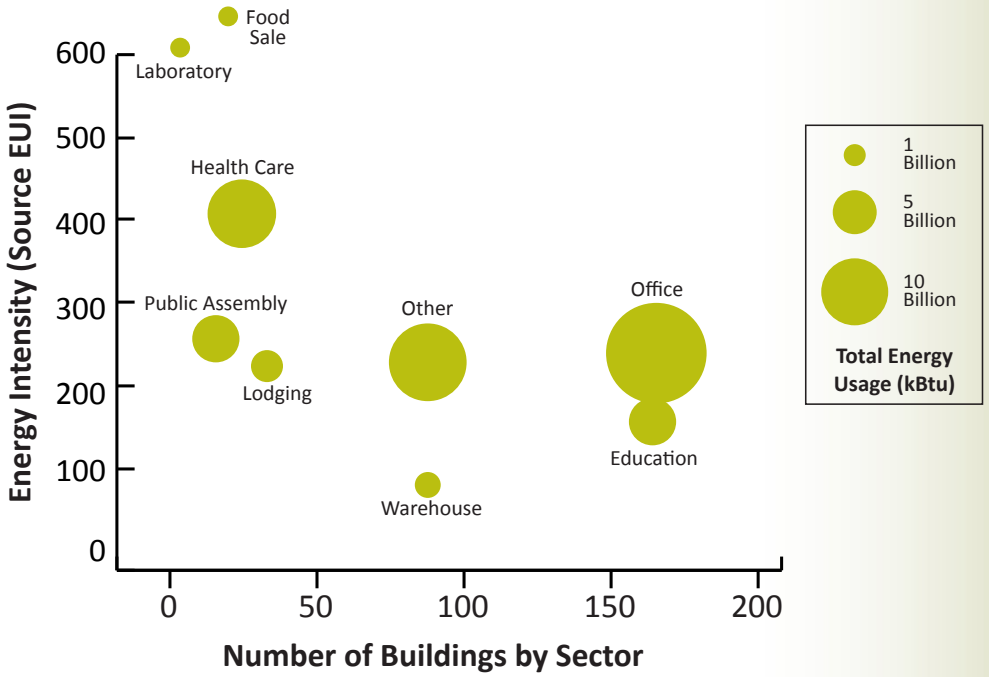
EUI	ENERGY STAR
A measure of a site's energy use by building square footage. *Lower* numbers indicate *better* energy efficiency.	A scale of 1-100 reflecting a building's overall energy usage compared to peer buildings nationwide. An ES score of 50 is average, with *higher* scores reflecting *better-performing* buildings.

CITYWIDE BUILDING CHARACTERISTICS

Buildings of all shapes and sizes have submitted benchmarking reports, but offices, schools (K-12 and higher education), and warehouses have reported the most facilities thus far.

The most energy-intensive sectors were food sales (which includes grocery stores), laboratories, and health care facilities (including hospitals).

Though hospitals and other health care facilities represent only a small number of reported buildings, the energy-intensive nature of these facilities makes this sector one of Philadelphia's best opportunities for savings through improved building performance.



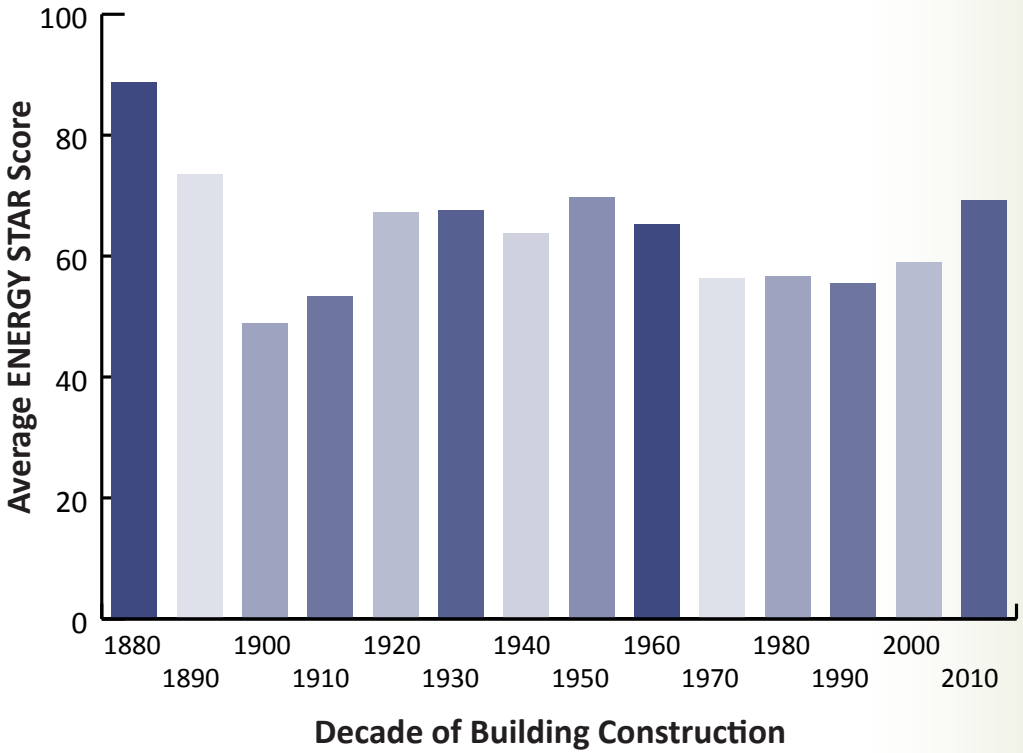
Sectors in the top-left quadrant of this graphic reported the highest energy intensity, while those in the bottom-right had lower energy intensity with a greater number of total submissions

CITYWIDE BUILDING CHARACTERISTICS

The majority of reported buildings were constructed after 1950, reflecting both the post-war building boom and the more recent growth in commercial construction.

Among those buildings eligible for an ENERGY STAR rating, buildings constructed in the late 19th century or mid-20th century performed best, but generally there appears to be little correlation between building age and score.

This matches similar findings from benchmarking reports in New York and Washington, D.C.

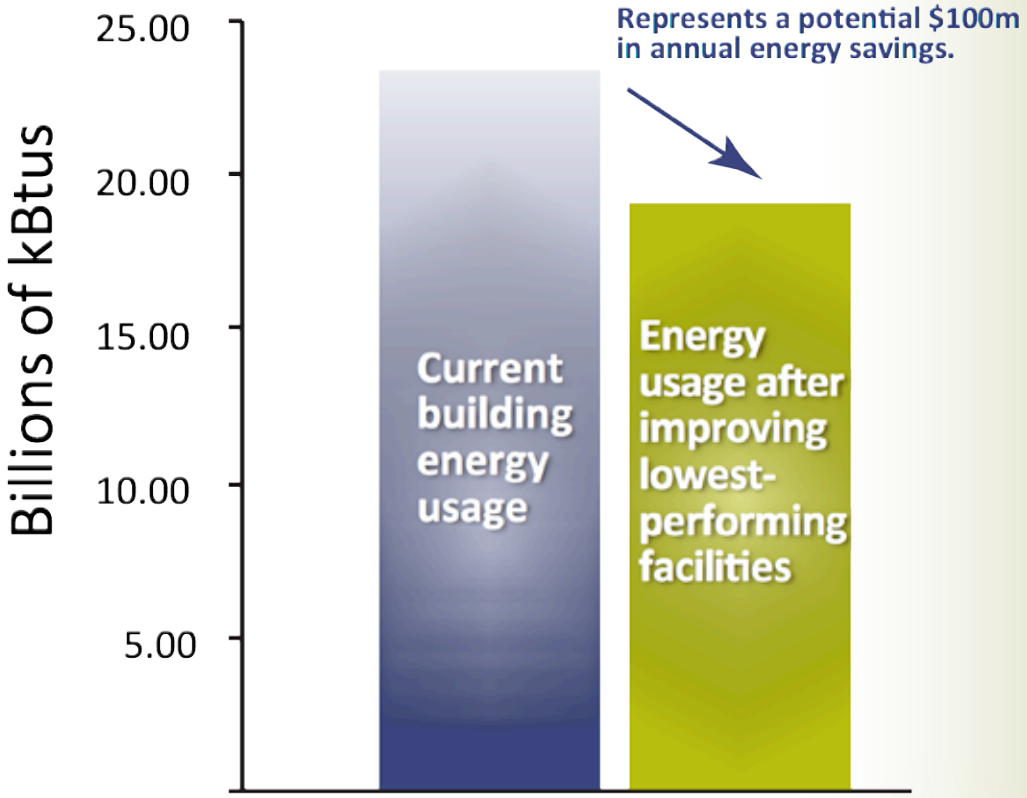


CITYWIDE ENERGY USAGE

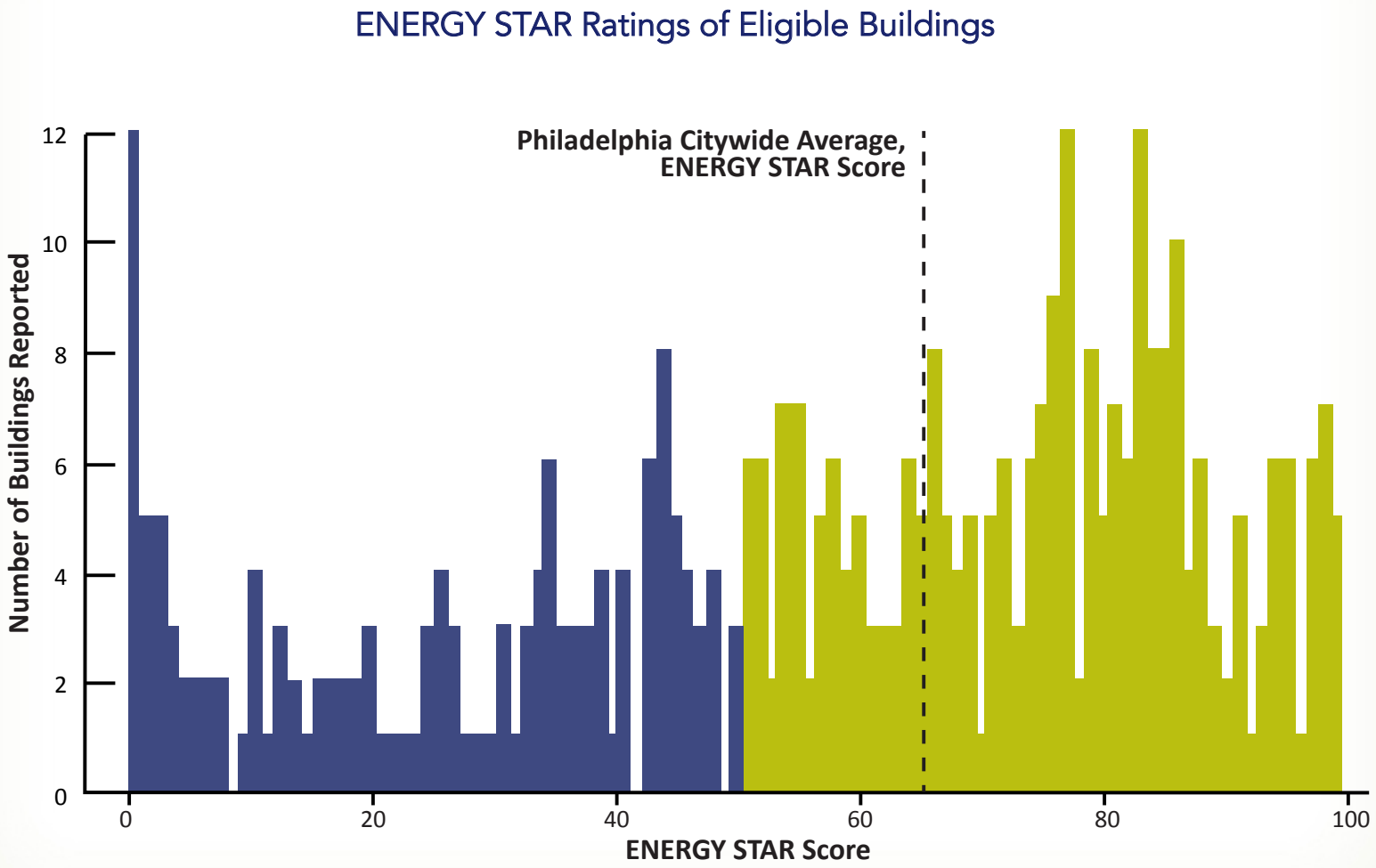
The buildings in this portfolio reported using over 23 billion kBtus of energy in 2012. This represents **around 17% of citywide building energy use.**

Improved energy performance results in significant cost savings. Bringing low-performing facilities up to median levels of efficiency could save building owners over $100 million in annual energy costs, money that can be re-invested in businesses, employees, and communities.

Total Energy Reduction of 23% Across 1600+ Buildings and 3.5% Citywide

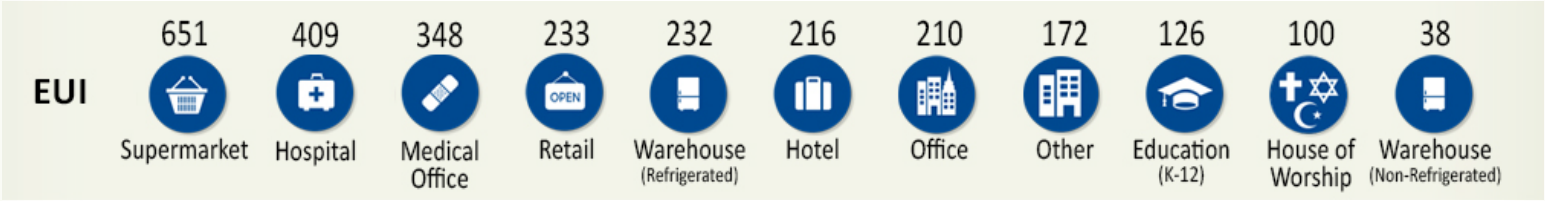


CITYWIDE ENERGY USAGE

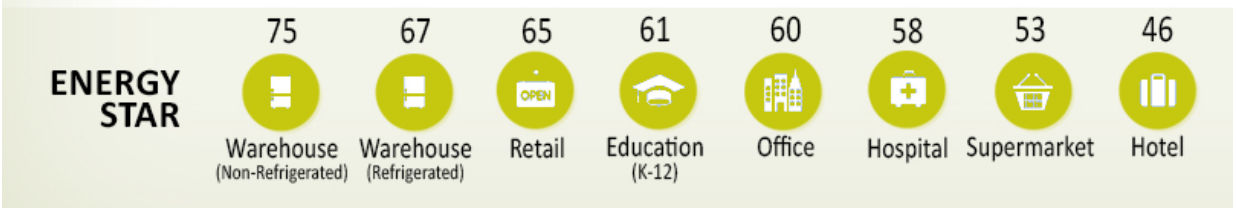


For the 774 buildings eligible for an ENERGY STAR score, the average rating was 64 – more than 14 points higher than the nationwide average.

SECTOR SUMMARY



Sector Summary by Source EUI (kBtu/per square foot)



Sector Summary by ENERGY STAR Score (1-100)

Offices: *Office buildings performed well above the nationwide average of 50, and nearly half would be eligible for ENERGY STAR certification.*

Schools: *K-12 facilities (including School District of Philadelphia, charters, and private schools) also outperformed national averages.*

Supermarkets: *Despite the high Source EUI, the above-average ENERGY STAR rating for this sector indicates Philadelphia's supermarkets outperform similar buildings nationwide.*

Hotels*: The lowest-performing sector by ES score, hotels provide the greatest sector-wide opportunity for improvement among reported buildings.*

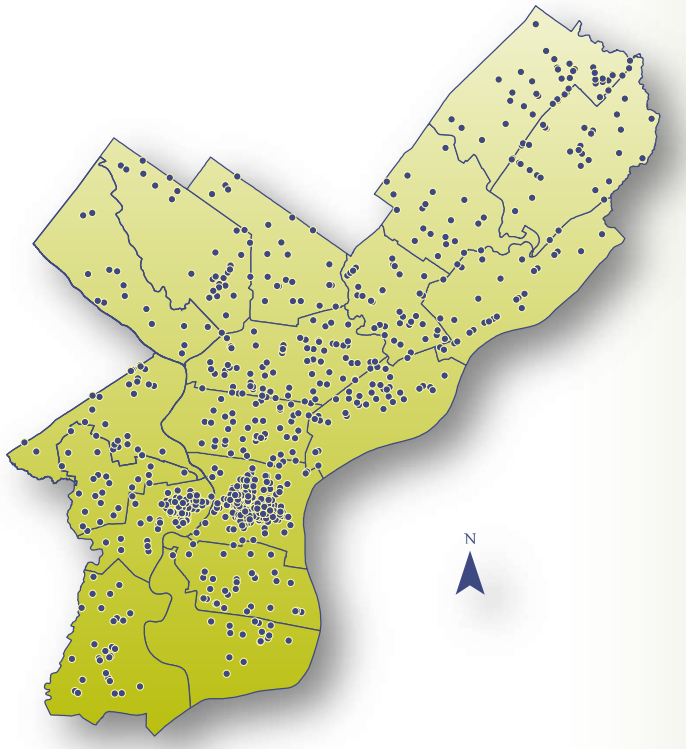
Warehouses: *Dozens of warehouses reported energy usage in the City of Philadelphia, with the vast majority using less than 100 kBtus of energy per square foot of space. As a result of this low energy usage, the Philadelphia warehouse sector reported an average ENERGY STAR score of between 67 (for refrigerated facilities) and 75 (non-refrigerated), by far the best performance of any sector in this report.*

NEXT STEPS: 2013 REPORTING

The deadline for reporting 2013 energy and water usage is **June 30, 2014**. Following this deadline, a limited subset of data will be publicly disclosed, providing potential buyers and tenants with information on utility usage of the largest non-residential buildings in Philadelphia.

2012 data will serve as a baseline for future reporting. Beginning in 2013, building owners will be able to track their facility's performance in Portfolio Manager, comparing yearly performance to better understand the impact of capital and operational changes in their buildings.

Buildings across Philadelphia reported during the first year of benchmarking

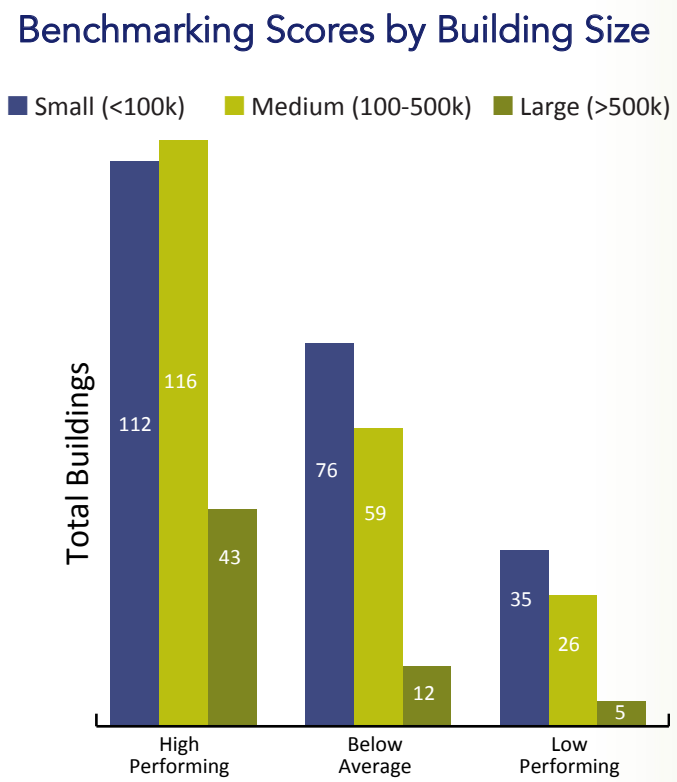


86%
Compliance Rate

NEXT STEPS: INVESTMENT

Of those buildings eligible for an ENERGY STAR score, over 200 facilities (40 million square feet of floor space) performed at or below the citywide average.

Buildings that score at or above the citywide average (and those that aren't ratable under the ENERGY STAR system) can be candidates for low-cost audit and retro-commissioning programs, too.



NEXT STEPS: INVESTMENT

Matching these buildings with utility incentive opportunities and/or low-cost loan programs will help building owners save money and the City meet its long-term carbon reduction goals:

ACKNOWLEDGEMENTS

This report was produced by Alex Dews and Rich Freeh at the Mayor's Office of Sustainability, with graphic and web design support from LevLane.

Data analysis was performed by MOS in conjunction with Professor David Hsu, Albert Han, and Daniel Suh at the University of Pennsylvania, supported by the Energy Efficient Buildings Hub.

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