



Efficient and Healthy Schools Recognition Program

Emissions Reduction + Resilience

February 21, 2023

Emissions Reduction + Resilience Recognition Webinar 2:

Understanding Greenhouse Gas Tracking and Reporting in School District

Today's Presenters



Katy Hatcher

U.S. Environmental Protection Agency (US EPA)
ENERGY STAR Public Sector National Manager



Chris Pyke

Senior Vice President for Product for
ArcSkoru, Inc.

Today's Agenda

- Introductions and Level Setting
- Using Baseline Data to Set Goals
- Tracking Greenhouse Gas Emissions in Portfolio Manager: *Katy Hatcher*
- The Evolution of Green Schools: Performance Targets, Electrification, and Experiential Learning: *Chris Pyke*
- Discussion & Office hours

Let us know who is here!

Introduce yourselves in the chat with your **name, title,**
and **school district**

\$4.5 million in awards available for Energy Efficiency capacity building in public schools

Calling all local education agencies (LEAs) to apply for the [Energy CLASS Prize](#). Through this prize, energy managers, or Champions, will receive training on ways to identify, plan, and implement energy upgrades in school facilities, so that students can learn in comfortable and healthy classrooms.

Previous [Energy CLASS Prize Office Hours](#) are available for viewing today and provide answers to common questions about the \$4.5 million prize, including what is required of a full application, eligibility rules, and upcoming deadlines. **Full applications are due on February 28, 2023, by 5 p.m. ET.**

Check out the prize [FAQs](#) or watch the Energy CLASS Prize [Informational Webinar](#) to learn more. [Follow the Energy CLASS Prize on HeroX](#) to stay up to date on all prize-related news.



<https://www.herox.com/energy-class>

Recognition Implementation Track Submissions

Preparation

Interested schools and districts will fill out a recognition application and request assistance from the Campaign if needed.

Winter 2022-2023

March 2023

June 2023

Announcement

Schools and districts receiving recognition will be invited to attend an in-person celebration in June 2023.

Final Submission

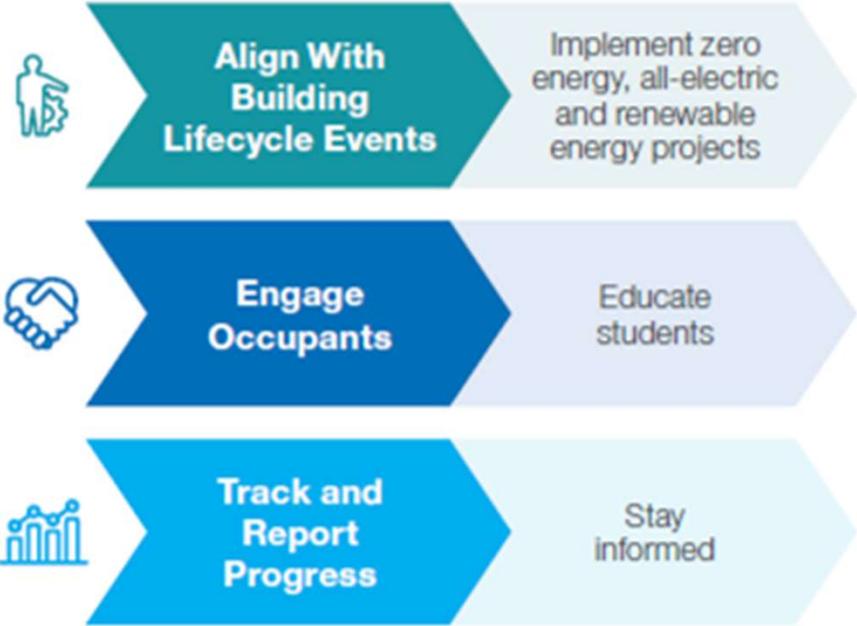
Schools and districts will complete and send application together with supporting materials by March 1, 2023.

<https://efficienthealthyschools.lbl.gov/20222023-recognition>



Using Baseline Data to Set Goals

Key Approaches and Outcomes in Achieving Resilient and Decarbonized Schools

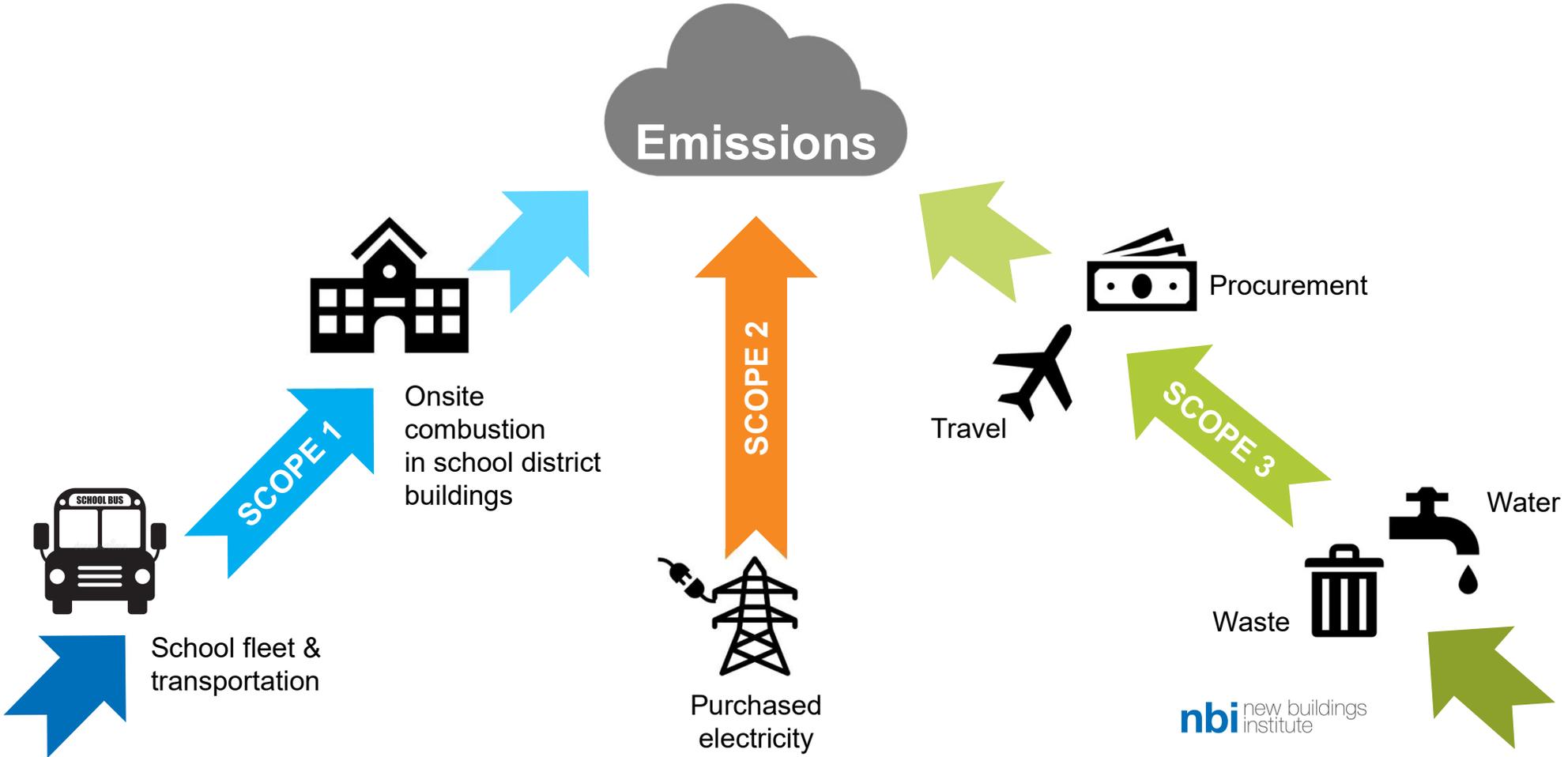


Assessing Building Stock

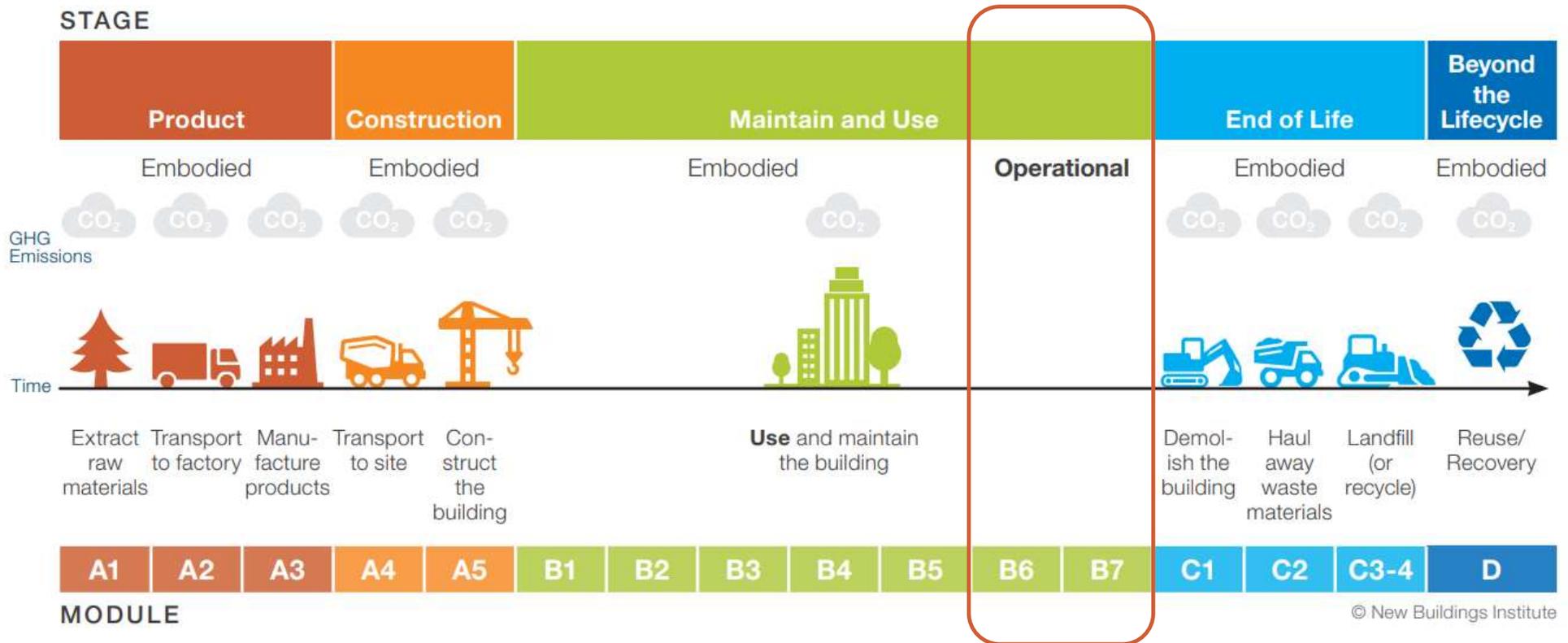


- Develop master facility list
- Benchmark energy, emissions and/or health data
- Set baseline data metrics
 - What metrics are you using?
 - What data year?
- How will you continue to track building data?

Scopes of Emissions in Schools



Where do emissions exist in the building lifecycle?



Goal Setting



Set
Goals

Incorporate goals
into policy plans
and practices

- **Identify any current goals**
 - How old are they?
 - What do they measure or what metrics do they include?
 - What year are they measuring from?
 - Are emissions considered?
- **What kind of goals do you want to set or update?**
 - What year are you measuring from?
 - What is your end goal?

S

M

A

R

T

Specific



What? How?
Who?
Where?
When? Why?

Measured



You can't
improve what
you don't
measure.

Achievable



Challenging
and
attainable.

Relevant



Closely
connected to
the objective.

Timed



A completion
date that
holds
accountable.

GOALS



Portfolio Goals

Goals require clear ways to measure progress. The baseline leverages benchmarking data and documents energy performance and carbon emissions in the school district's facilities for a specific year. This baseline year is then used for future comparisons and to track changes over time. Ideally, it is a specified time in the past for which your district has a complete dataset on its buildings. For many of the example below we have suggested using a 2019 baseline.

Individual Building Goals and Targets

Having absolute energy goals measured as an EUI (as opposed to a percent better than code goal) in place early—before design even begins—is a helpful way to ensure buy in from the design team and manage costs. Use the [Advanced Energy Design Guide for Zero Energy K-12 Schools](#) (Table 3-1: Target EUI) to set climate-specific, new construction and major modernization EUI targets and goals. Appendix B in the [Advanced Energy Design Guide for Zero Energy K-12 Schools](#) can be utilized to identify the appropriate climate zone.



New Construction:

- Achieve LEED, CHPS, or another broad sustainability goal
- Be energy efficient and achieve a site energy use intensity of 17-25 kBtu/square foot/year
- Be all-electric and have no on-site fossil gas combustion
- Incorporate renewable energy sources to offset annual electricity use
- 5 total air changes per hour (ACH) for high indoor air quality
- Reduce life cycle impacts associated with high embodied carbon materials (like steel and concrete)
- Utilize low global warming refrigerants
- Integrate electric vehicle (EV) charging and fleet infrastructure
- Consider grid harmonization and battery storage



Major Modernization:

- Achieve LEED, CHPS, or some other sustainability goal
- Achieve a site energy use intensity of 25-35 kBtu/square foot/year or better
- 5 total air changes per hour (ACH) for high indoor air quality
- Eliminate on-site gas combustion or have a plan to eliminate gas by a target year signed off by the department director
- Reduce life cycle impacts associated with high embodied carbon materials (like steel and concrete),
- Utilize low global warming refrigerants



Retrofits:

- Improve the site energy use intensity by a minimum of 20%, targeting 50% from a YEAR (*decide on baseline year from benchmarking data. 2019 or 2018 suggested*) baseline.
- Include a written plan for future removal of all gas-combusting equipment, specify low global warming potential equipment and low embodied carbon materials



System Replacement:

- Phase out gas infrastructure where possible incorporate efficient, all-electric systems.



Tracking Greenhouse Gas Emissions in Portfolio Manager



ENERGY STAR®
PortfolioManager®



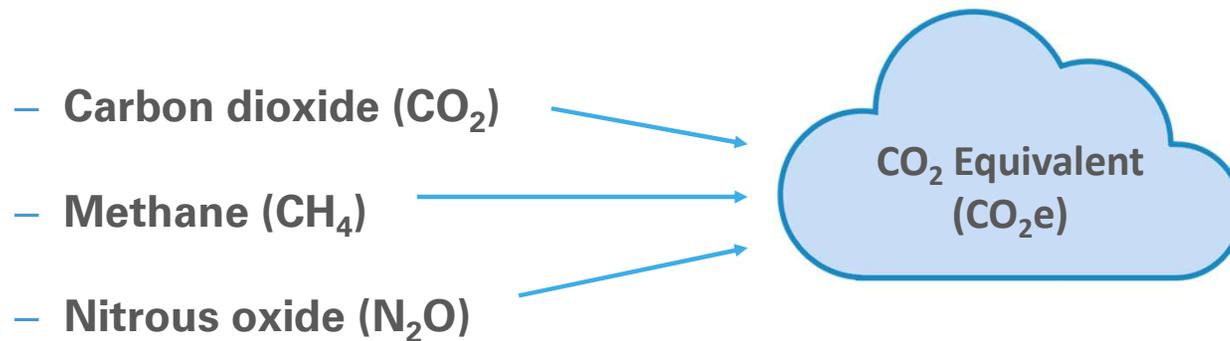
- **280,000** buildings last year
- More than **25%** of all floorspace
- More than **40** local & **6** state benchmarking policies
- **One** foreign government (Canada)

Topics Covered Today

- Understanding the Portfolio Manager GHG emissions inventory
- How to track emissions benefits of Green Power in Portfolio Manager
- Using Portfolio Manager's GHG Emissions reporting functionality



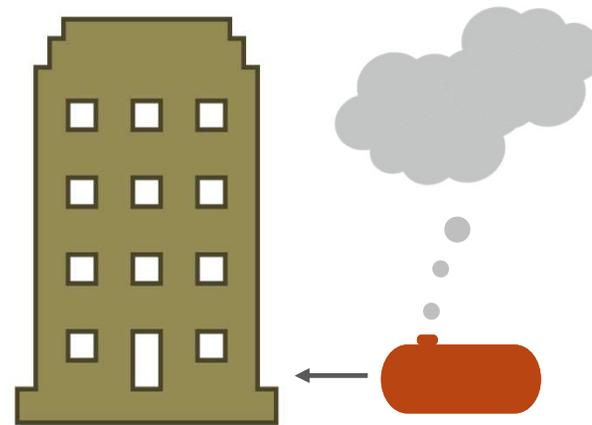
Portfolio Manager Approach to Calculating GHGs



- Methodology is based on the *Greenhouse Gas Protocol Corporate Accounting and Reporting Standard* developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development

Portfolio Manager GHG Inventory: Direct Emissions (Scope 1)

- **Direct emissions** result from the on-site use of primary energy products at a property, such as natural gas, fuel oil, or propane
- Portfolio Manager calculates direct emissions using a **default fuel analysis approach**, which assumes fuel-specific emissions factors for each primary energy product
- This approach only accounts for emissions at your building – any emissions from extracting or delivering these fuels are excluded



Direct GHG Emissions Factors for U.S. and Canada

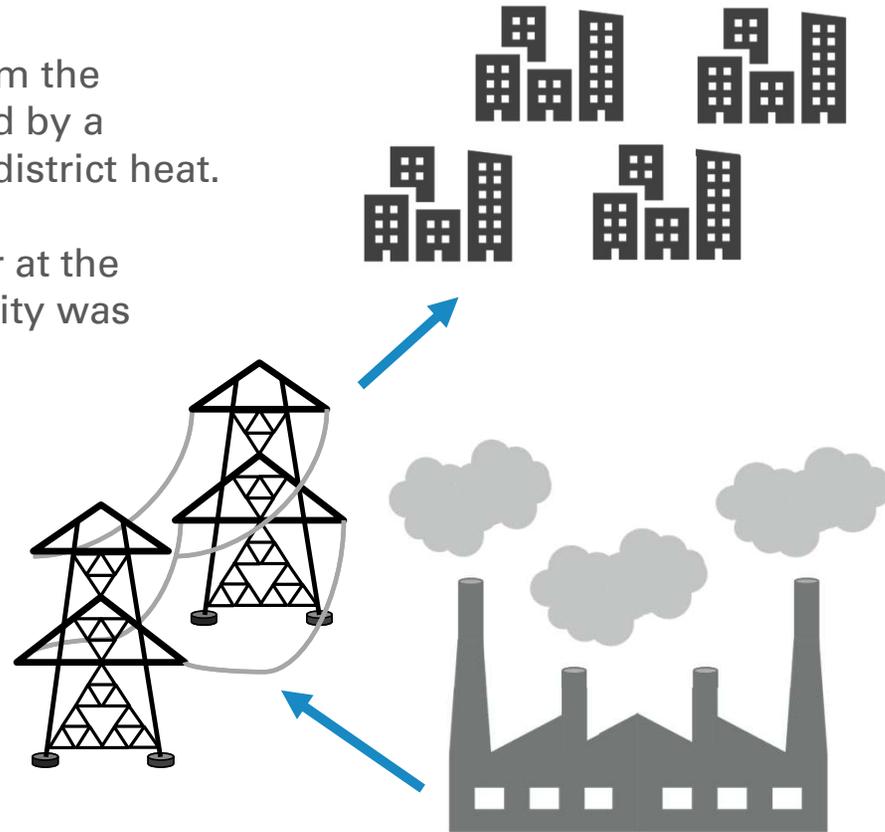
Fuel Type	CO _{2eq} Emissions			
	United States	Canada		
	(kg/MBtu)	(kg/MBtu)	(g/L)	(kg/tonne)
Natural Gas	53.11		<i>By Province</i>	
Propane	64.25	64.52	1,548	-
Fuel Oil (No. 1)	73.50	75.13	2,763	-
Fuel Oil (No. 2)	74.21	75.13	2,763	-
Fuel Oil (No. 4)	75.29	75.13	2,763	-
Fuel Oil (No. 5,6)	75.35	78.86	3,176	-
Diesel Oil	74.21	77.23	2,804	-
Kerosene	77.69	71.96	2,570	-
Coal (anthracite)	104.44	94.76	-	2,488
Coal (bituminous)	94.03	99.47	-	2,357
Coke	114.42	116.36	-	3,180

Emissions factors source: Center for Corporate Climate Leadership GHG Emission Factors Hub

<https://www.epa.gov/climateleadership/center-corporate-climate-leadership-ghg-emission-factors-hub>

Portfolio Manager GHG Inventory: Indirect Emissions (Scope 2)

- **Indirect emissions** result from the purchase of energy delivered by a utility, such as electricity or district heat.
- In this case, emissions occur at the plant where the heat/electricity was originally produced.
- Indirect emissions include:
 - Electricity
 - District steam
 - District hot water
 - District chilled water



Indirect GHG Emissions Factors for all District Fuels

Fuel Type	CO _{2eq} Emissions (kg/MBtu)	
	United States	Canada
District Steam	66.40	88.54
District Hot Water	66.40	88.54
District Chilled Water - Electric Driven Chiller	52.70	17.19
District Chilled Water - Absorption Chiller using Natural Gas	73.89	73.86
District Chilled Water - Engine-Driven Chiller Natural Gas	49.31	49.29

Source data for this table is available on page 9 of the Portfolio Manager GHG Emissions Technical Reference: <https://portfoliomanager.energystar.gov/pdf/reference/Emissions.pdf>

Two Approaches for Calculating Indirect Emissions (Scope 2)

- The **location-based approach** relies on grid-average regional or national emissions factors
- The **market-based approach** uses energy supplier-specific emissions factors
- Portfolio Manager's current approach is aligned with the **location-based** method
- EPA has a calculator outside of Portfolio Manager that will allow for the application of **market-based** emissions factors that will be incorporated into Portfolio Manager soon

Map of EPA eGRID Subregions – 2018



Summary of the Portfolio Manager GHG Inventory

Direct Emissions

(from the on-site use of primary energy products, such as propane, natural gas, or fuel oil, at a property)

+

Indirect Emissions

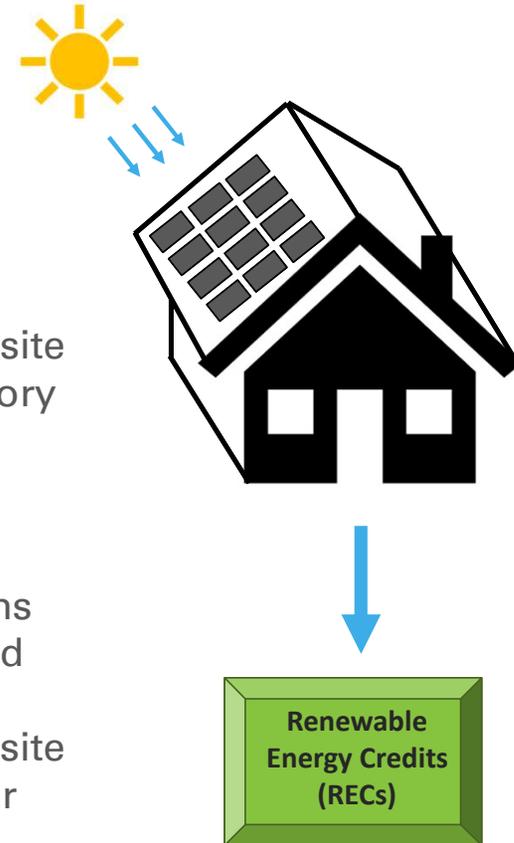
(from the purchase of a utility-supplied energy product such as electricity or other district fuels)

=

Total GHG Emissions

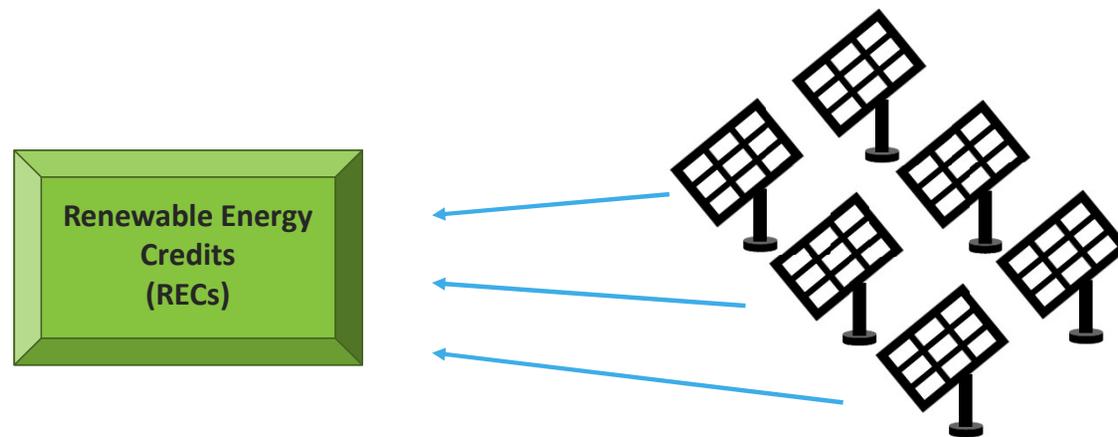
Emissions Benefits from Onsite Green Power

- Portfolio Manager can track energy that is generated at your property via solar photovoltaic panels or wind turbines
- **If RECs are retained:**
 - You own the environmental claims to this energy, and it is considered Green Power
 - The energy you generate onsite and use onsite is counted as zero emissions in your inventory
 - PM will also calculate Avoided Emissions associated with this onsite Green Power
- **If RECs are sold:**
 - You no longer own the environmental claims to this energy, and it is no longer considered Green Power
 - The energy you generate onsite and use onsite is treated the same as grid electricity in your emissions inventory
 - No Avoided Emissions calculated

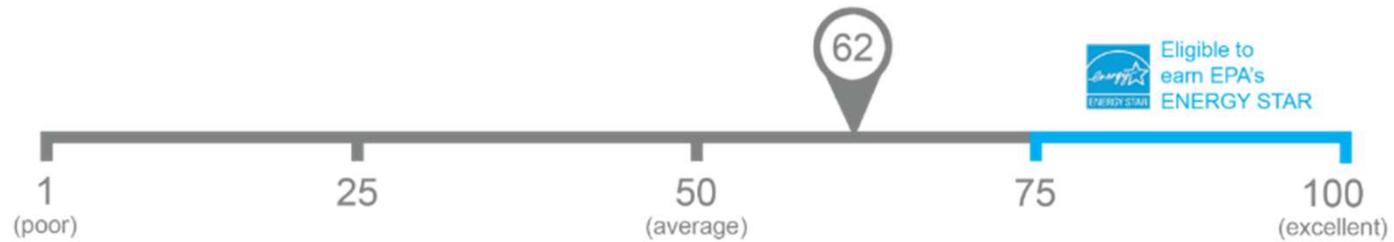


Emissions Benefits from Offsite Green Power

- Portfolio Manager allows you to track the purchase of Offsite Green Power (kWh + RECs) from your local utility or third-party supplier
- Portfolio Manager calculates the emissions benefit of Offsite Green Power as “Avoided Emissions,” based on the location where the accompanying RECs were generated



Why do some properties have the same ENERGY STAR score but different GHG emissions?



Reporting Tab

Choose from pre-set chart & graph options

The screenshot shows the 'Reporting' tab in a software interface. At the top, there are navigation tabs: 'MyPortfolio', 'Sharing', 'Reporting' (selected), 'Recognition', 'Admin', and 'Processing'. Below the tabs, the main content area is divided into two sections. The left section, titled 'Charts & Graphs', features a large orange square with a circular icon of a factory and a lightbulb, surrounded by smaller icons of buildings and charts. Below this is the text 'Total GHG Emissions Intensity' and the question 'What is the carbon footprint resulting from my properties' energy use?'. The right section, titled 'ENERGY STAR Performance Documents', contains a list of document links: 'Statement of Energy Performance (SEP)', 'Statement of Energy Design Intent (SEDI)', 'Data Verification Checklist', 'Progress & Goals Report', 'ENERGY STAR Scorecard', and 'Water Scorecard'. Below these sections, there are two tabs: 'My Custom Reports' and 'ENERGY STAR Reports'. A 'Create a New Template' button is located to the right of the 'ENERGY STAR Reports' tab. Below the tabs is a table with the following data:

Name	Status	Action
Energy Performance	Last Modified: 1/28/2020 10:52 AM	I want to...
Waste Performance	Last Modified: 1/28/2020 5:59 AM	I want to...
Partner of the Year Report	Last Modified: 1/27/2020 1:42 PM	I want to...
ENERGY STAR Certification Status	Last Modified: 1/27/2020 10:10 AM	I want to...
Emissions Performance	Last Modified: 1/26/2020 12:01 PM	I want to...
Water Performance	Last Modified: 1/24/2020 11:36 AM	I want to...

Download performance documents

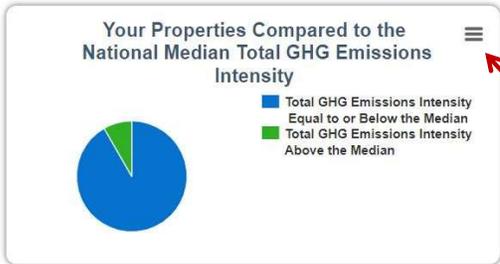
Create and generate templates & reports

Total GHG Emissions Intensity Report

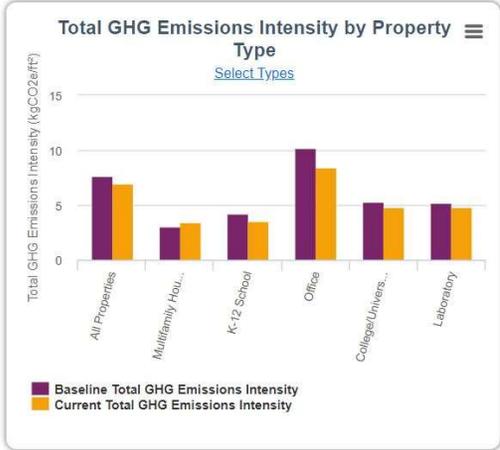
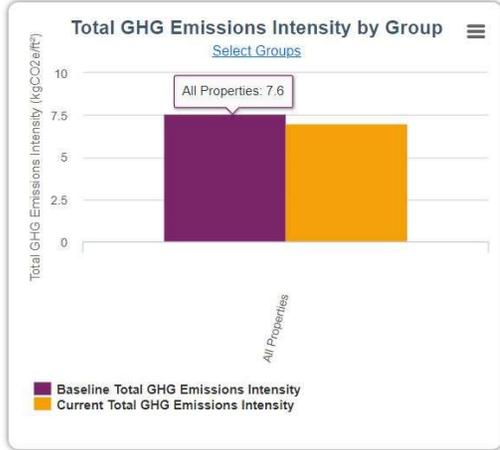


Scroll through to see available Charts & Graphs.

Total GHG Emissions Intensity Report



Print or download figures for use externally



Scroll to bottom to view and export raw data

< Previous Report

Next Report > [Cancel](#)



Emissions Performance Report

MyPortfolio | Sharing | **Reporting** | Recognition | Admin | Processing

Charts & Graphs

ENERGY STAR Performance Documents

- Statement of Energy Performance (SEP)
- Statement of Energy Design Intent (SEDI)
- Data Verification Checklist
- Progress & Goals Report
- ENERGY STAR Scorecard
- Water Scorecard

My Custom Reports | ENERGY STAR Reports

Create a New Template

Name	Status	Action
Energy Performance	Last Modified: 1/28/2020 10:52 AM	I want to...
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Water Performance	Last Modified: 1/24/2020 11:36 AM	I want to...

Create and generate templates & reports

Emissions Performance Report Metrics

- Direct GHG Emissions
- Indirect GHG Emissions
- Total GHG Emissions
- Avoided Emissions (Onsite and Offsite Green Power)
- Electric Distribution Utility
- eGRID Subregion
- eGRID Output Emissions Rate

Setting Emissions Reduction Targets in Portfolio Manager

MyPortfolio | Sharing | Reporting | Recognition | Admin | Processing

K-12 Sample School
1234 NW Main St , Bend, OR 97701 | [Map It](#)
Portfolio Manager Property ID: 8689321
Year Built: 1980
[Edit](#)

Not currently eligible for ENERGY STAR Certification

[Change Metric](#)

ENERGY STAR Score (1-100)
Current Score: 83
Baseline Score: 82

Summary | Details | Energy | Water | Waste & Materials | **Goals** | Design

Baselines & Targets

	Baselines	Target
Energy	04/30/2019	10%
Water	Not Available	Not Available
Waste/Materials	Not Available	Not Available

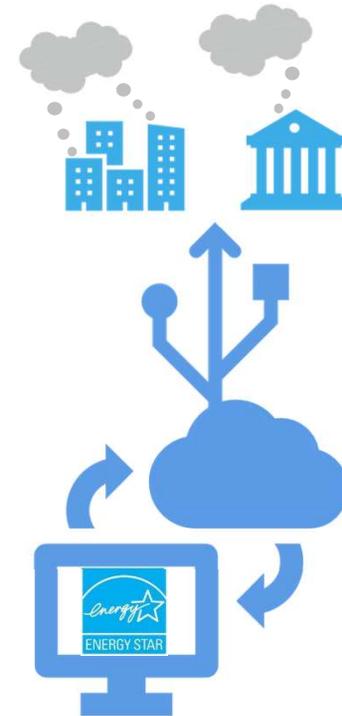
Set Baselines or Target

Click on the "Goals" tab, then select "Set Baselines or Target"

ENERGY STAR Portfolio Manager Building Emissions Calculator (BEC)



- The stand-alone calculator will estimate GHG emissions based on three parameters chosen by the user:
 - **Emissions factors** – location-based factors, market-based factors, local factors determined by a city, or any other factor the user enters
 - **Energy use** – data imported from Portfolio Manager or manually entered by the user
 - **Fuel mix** – as imported from Portfolio Manager or based on an alternative mix of electricity and other energy sources as entered by the user
- Calculator will also support development of emissions scenarios based on user-defined inputs
- **BEC functionality will be integrated into Portfolio Manager soon**



Basic Features of Calculator

- Able to import data from Portfolio Manager via web services
- Estimate past, current and projected GHG emissions based on variations in:
 - Energy use
 - Energy source mix (percent electricity, gas, steam, etc)
 - GHG emissions factors for each type of energy
- Projected GHG emissions rely on user-defined inputs
- Stand-alone web tool (until ready to integrate into Portfolio Manager)
- Downloadable results, save sessions - no data storage
- No data verification

BEC GHG Emissions Factors -- Options

- Electricity
 - eGRID current annual total output factors -- same as in Portfolio Manager
 - eGRID historical factors
 - User-defined (e.g. from energy supplier)
 - City-specified (e.g. NYC)
- Other energy sources (gas, district steam, chilled water, etc)
 - From EPA CCL Emissions Factors Hub -- same as in Portfolio Manager
 - User-defined
 - City-specified (e.g. NYC)

Portfolio Manager GHG Resources

- **Portfolio Manager Greenhouse Gas Emissions Technical Reference**
<https://portfoliomanager.energystar.gov/pdf/reference/Emissions.pdf>
- **Portfolio Manager Green Power Technical Reference**
<https://www.energystar.gov/buildings/tools-and-resources/portfolio-manager-technical-reference-green-power>
- **EPA Center for Corporate Climate Leadership**
<https://www.epa.gov/climateleadership>
- **ENERGY STAR Portfolio Manager Building Emissions Calculator**
https://www.energystar.gov/buildings/resources_topic/portfolio_manager_building_emissions_calculator



Questions?

Caterina (Katy) Hatcher
ENERGY STAR National Public Sector Manager
US Environmental Protection Agency
hatcher.caterina@epa.gov



The Evolution of Green Schools

Performance Targets, Electrification,
and Experiential Learning



GBCI®



USGBC, GBCI & Arc

An integrated family of organizations

- Standard development
- Review and certification
- Performance measurement and scoring



Four New Things

1. Beyond code
 2. More than (good) intentions
 3. After combustion
 4. Schools as tools
-

#1 Beyond Code

- Current energy codes emphasize “**cost effective**” measures under a prescribed set of conditions.
- Building Performance Standards specify performance needed to **support local and national, and global goals**.
- The new standards have **new operational metrics**.

Building Codes
& Regulations

70%
Typical Building
Practices

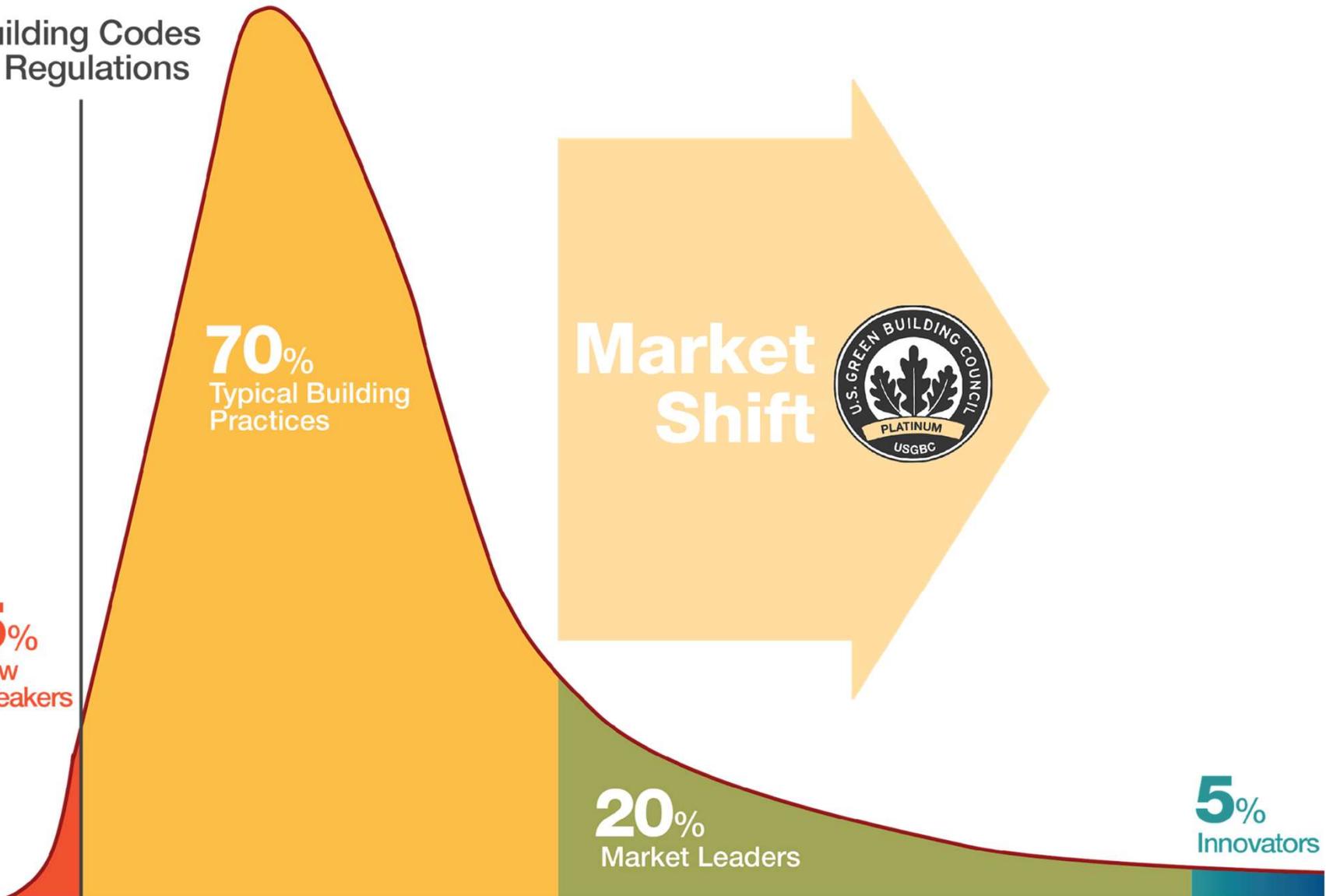
5%
Law
Breakers

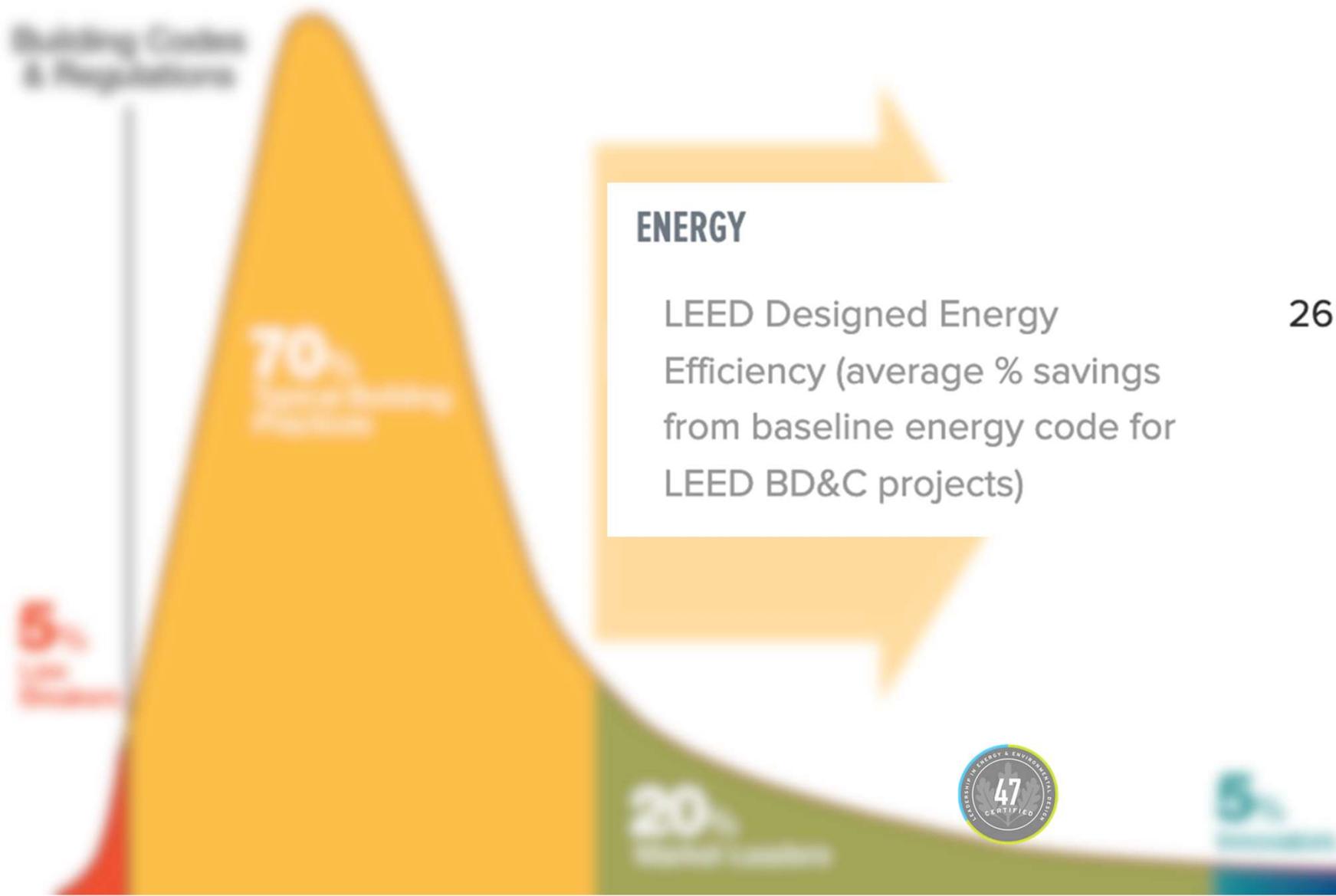
**Market
Shift**



20%
Market Leaders

5%
Innovators



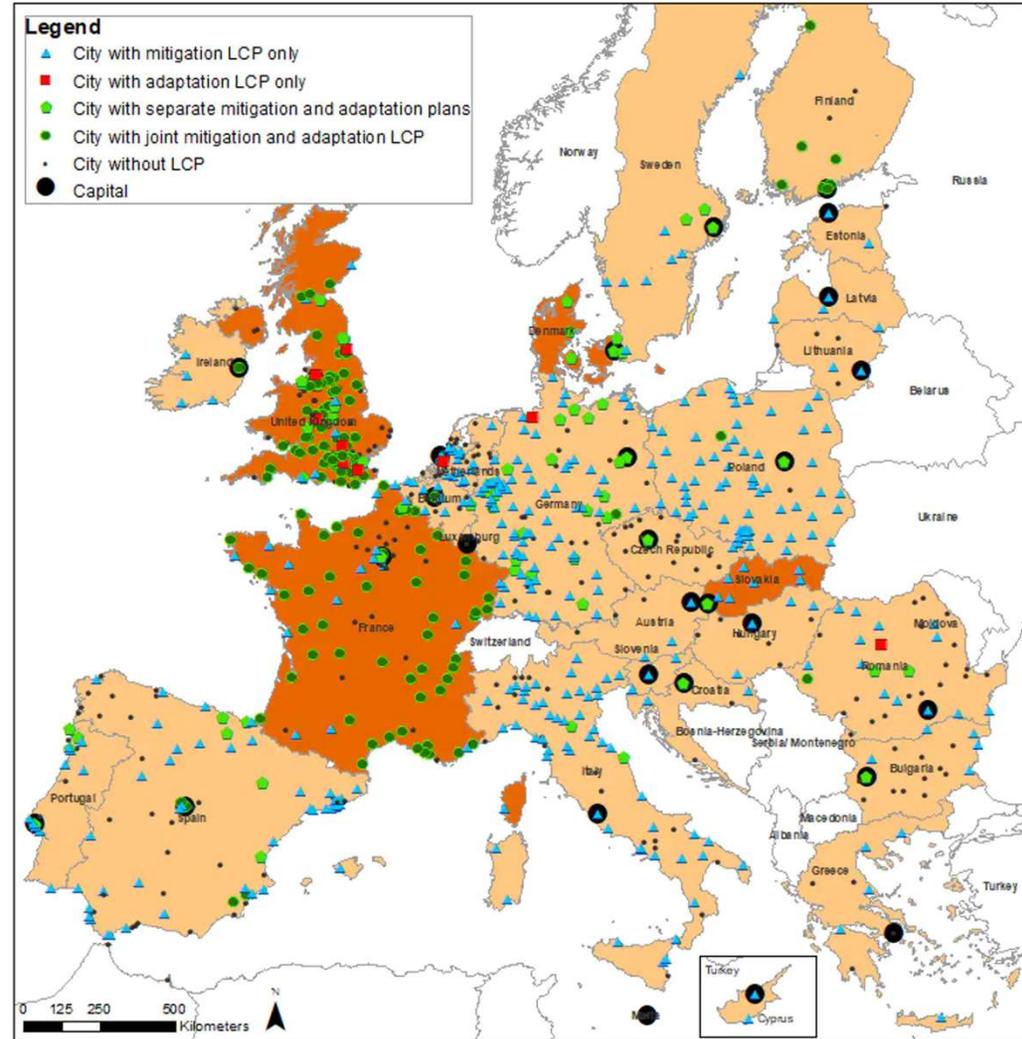


ENERGY

LEED Designed Energy Efficiency (average % savings from baseline energy code for LEED BD&C projects)

26



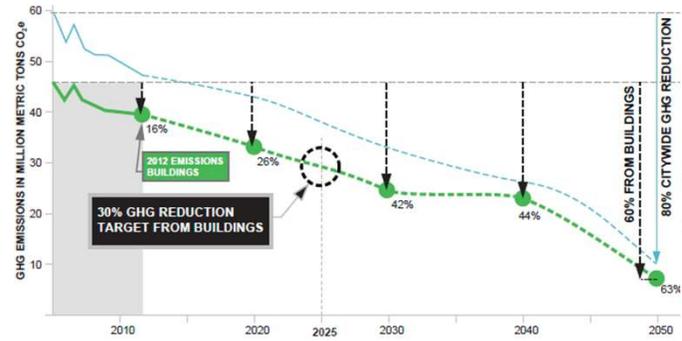


Local Climate Action

New York, NY

Vancouver, BC

London, UK



City of North Vancouver Corporate GHG Emissions: 2007 - 2016

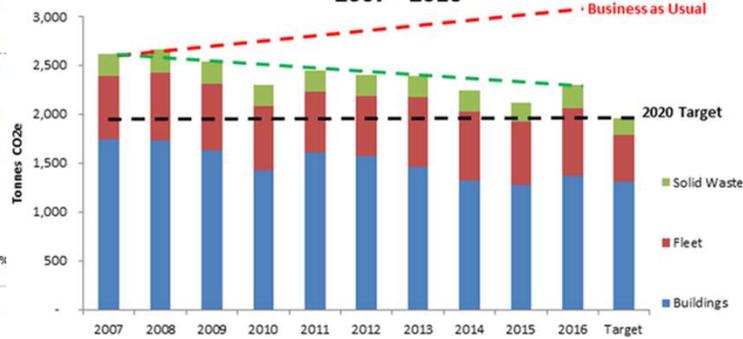
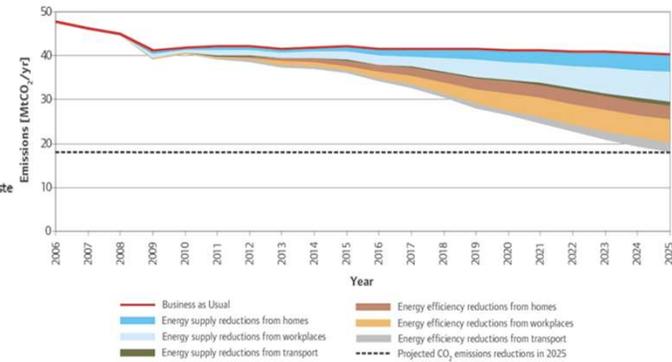


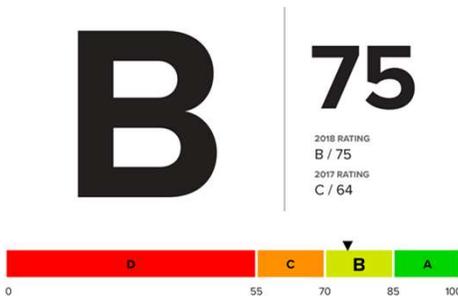
Figure 2.9 Breakdown of projected reductions in London's CO₂ emissions by energy efficiency and energy supply (2006-2025)



Operational Expectations

New York, NY

Building Energy Efficiency Rating



Building Specifications

DOB Property Address

Year of Compliance: 2019
Borough, Block and Lot: 1-12345-1234
NYC Average: 50

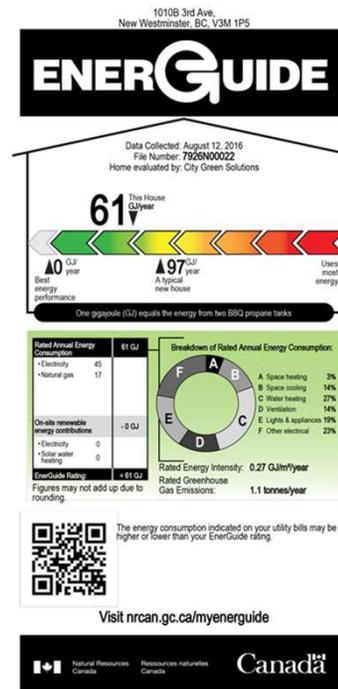
More Information

The 1-100 ENERGY STAR® score compares this building's energy consumption to similar buildings. Buildings with a score of 75 or better are high performers and eligible for ENERGY STAR certification.

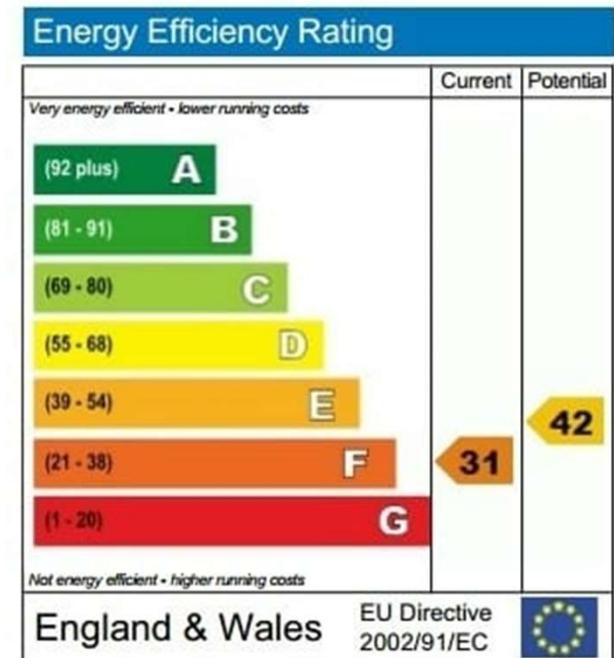
Learn more about Building Energy Ratings. Find ways to improve. Visit nyc.gov/energyrating



Vancouver, BC



London, UK





Case Study

Discovery Elementary
Arlington, VA

**DESIGN
TARGETS**

LEED Platinum
Net Zero
EUI
16.8 kBtu/sf/yr



Using custom targets in Arc Advanced Scoring

Author: Kristina Koh

Published on: Thursday, December 8, 2022



Arc Advanced Scoring: Custom Targets Walkthrough

arc Arc Skoru, Inc. 161 subscribers

Create a Custom Target

Name:

Performance Indicator: Unit:

Description:

Target Type:

Graph

Year	Target
2025	30
2030	20
2035	15
2040	10
2050	5

#2 More than Intention

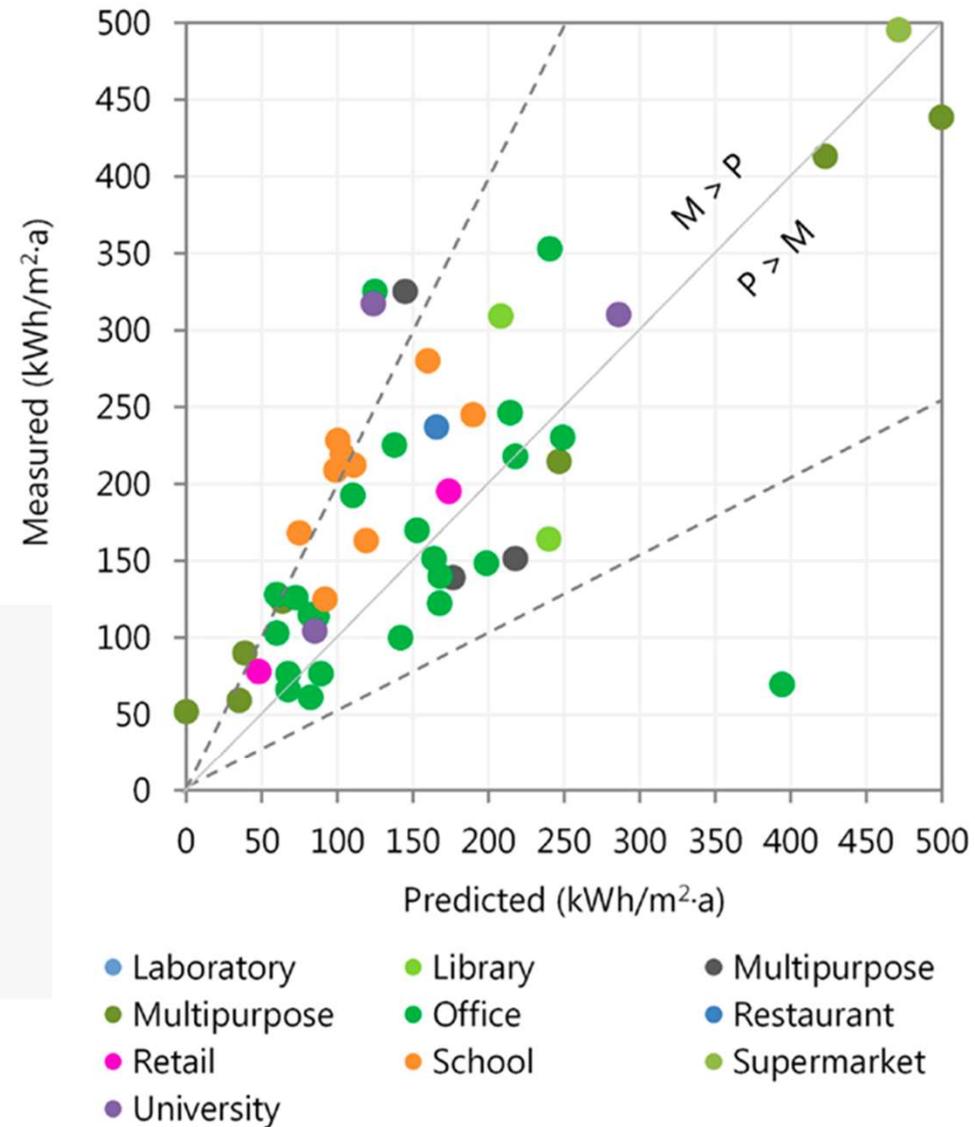
- The most common green building rating systems used in schools emphasize **new construction** - *the intentions of design and engineering*
- However, impact is realized in **operation** - measured performance and human experience.

Performance Gap

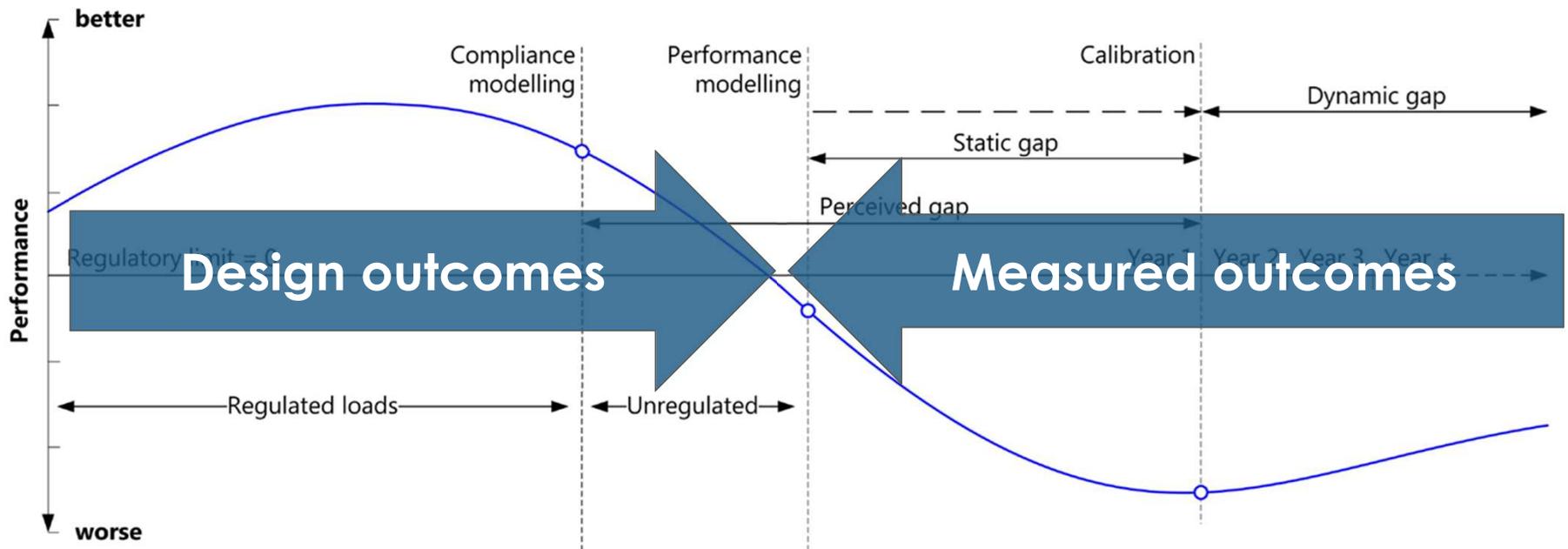
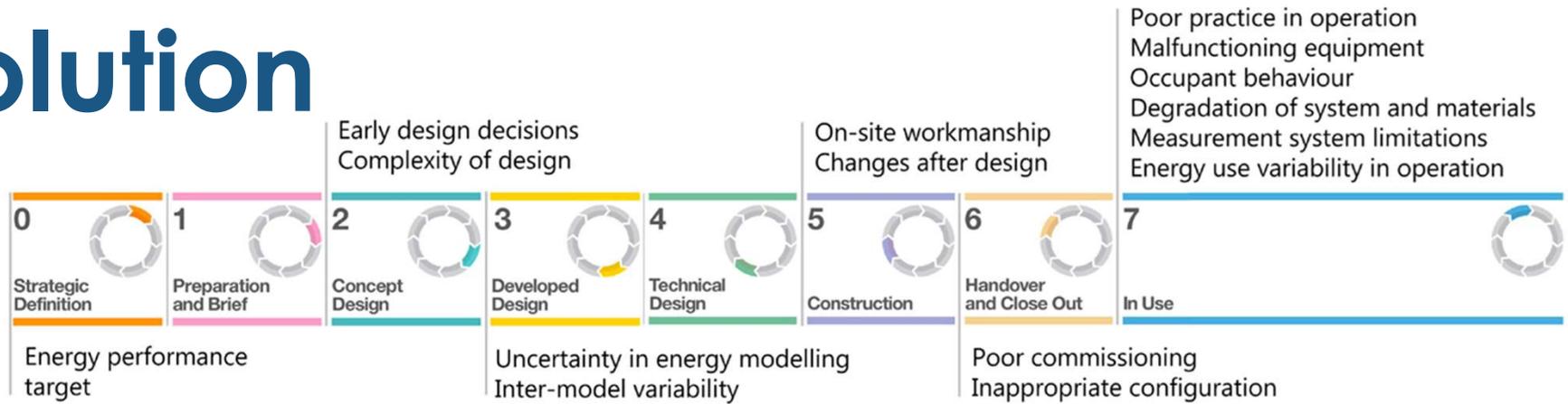
A Review of the Energy Performance Gap and Its Underlying Causes in Non-Domestic Buildings

 Chris van Dronkelaar^{1,2*},  Mark Dowson²,  E. Burman¹,  Catalina Spataru³

and  Dejan Mumovic¹



Solution



Case Study

**DESIGN
TARGETS**

Arlington, VA

LEED Platinum
Net Zero
EUI
16.8 kBTu/sf/yr

LEED Platinum
Net Zero
EUI
15.4 kBTu/sf/yr

**Measured
Outcome**



ARC Home Projects Portfolios Insight

Arc Scoring Demonstration Project, District of Columbia, United States
1000127707

Arc Essentials Play to Zero

- Overview
- Performance
- Data
- Models
- Project Tools
 - Advanced Scoring
 - Performance Certificates
 - Climate Risk
 - Play to Zero
 - Financial Models
 - Re-Entry
 - LEED Certifications**
 - Efficiency Analysis
- Reports
- Manage >

Certifications

LEED **LEED Recertification** [Submit for Review >](#)

This project may be eligible for LEED Platinum certification.

87

40 50 60 80
Certified Silver Gold Platinum

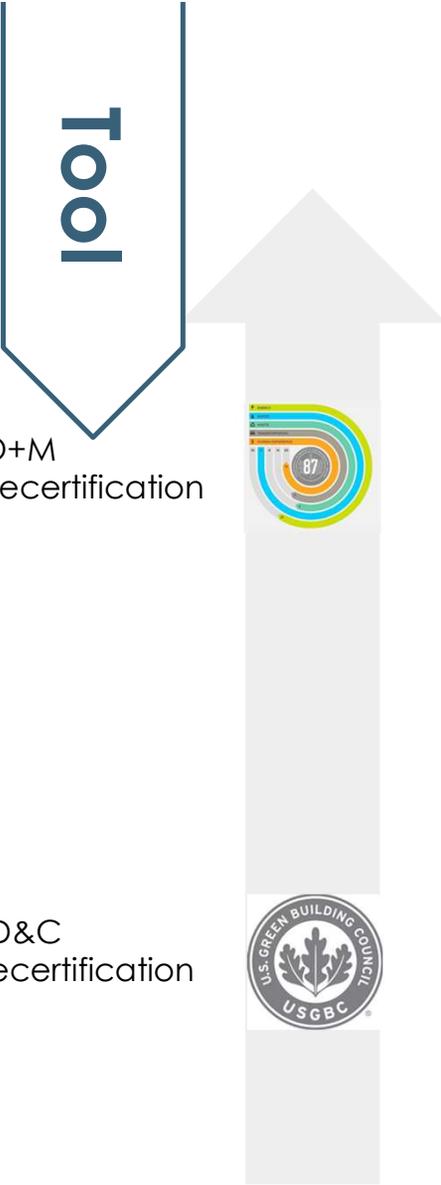
Energy	30 / 33
Water	13 / 15
Waste	6 / 8
Transportation	13 / 14
Human Experience	15 / 20

LEED **LEED v4.1 BD+C** Level: Gold Points: 76 Date: Feb 01, 2017

76

40 50 60 80
Certified Silver Gold Platinum

Energy	25 / 33
Water	14 / 15
Waste	7 / 8
Transportation	13 / 14
Human Experience	17 / 20



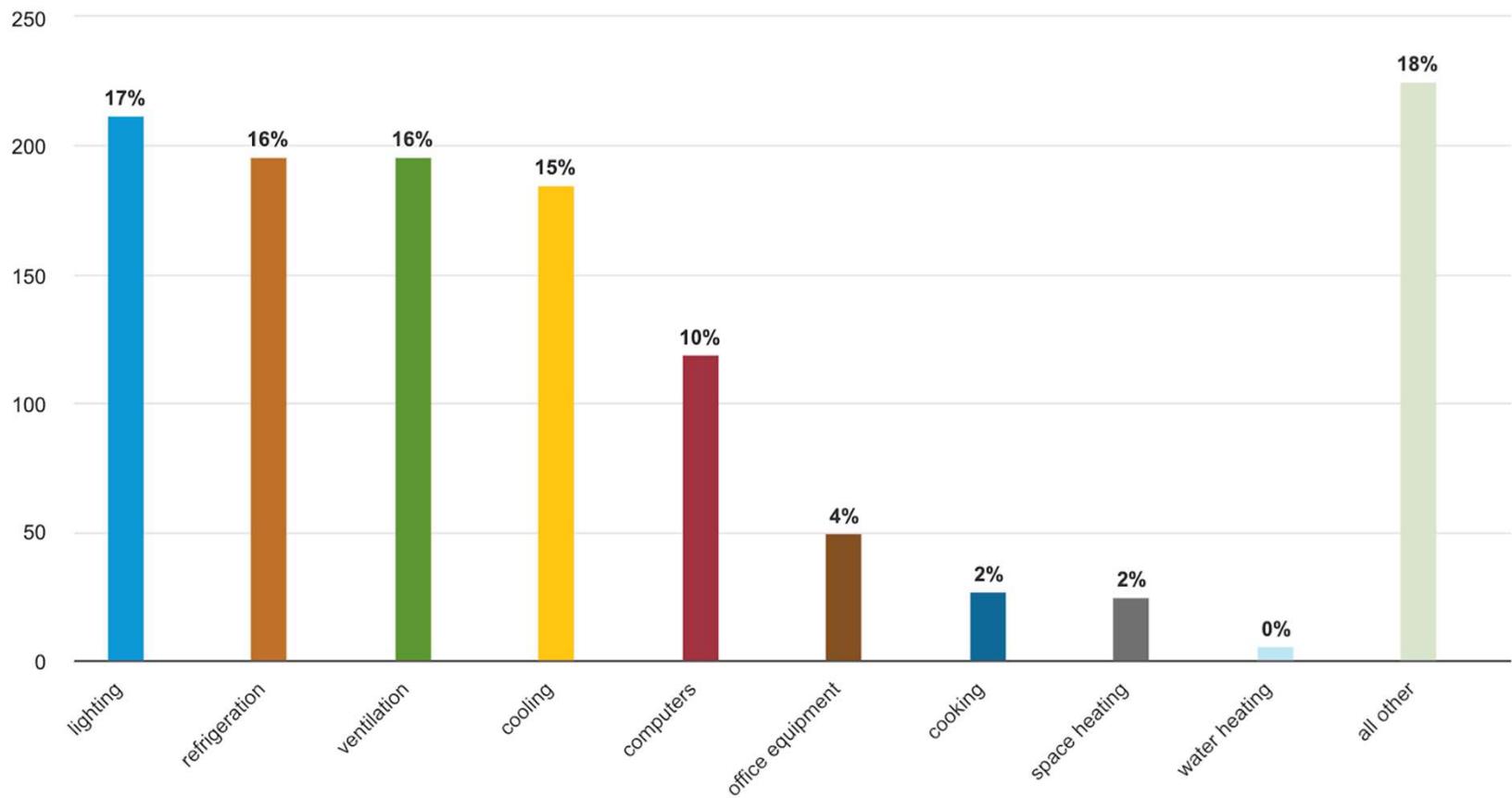
#3 After Combustion

- Traditional green building rating systems were **agnostic to energy source**
- Today, **on-site combustion** is understood to have disproportionate environmental impacts and a range of social and financial risks.

Electricity use in U.S. commercial buildings by major end uses, 2012



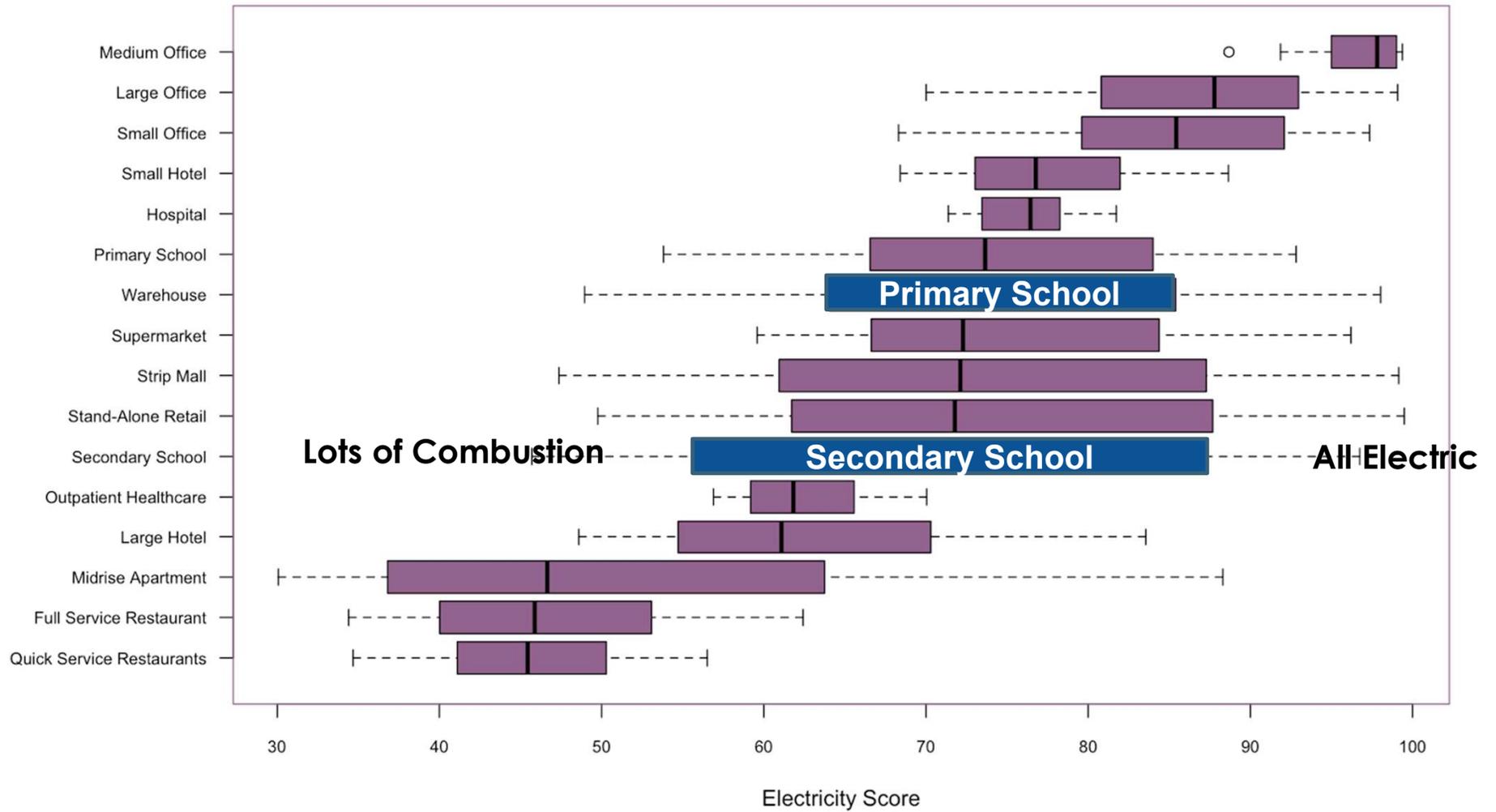
total = 1,243 billion kilowatthours (kWh)



Note: *All other* includes motors, pumps, air compressors, process equipment, backup electricity generation, and miscellaneous appliances and plug-loads.
Source: U.S. Energy Information Administration, 2012 Commercial Buildings Energy Consumption Survey, Consumption and Expenditures, Table E5, May 2016



Post-1980 Building Electricity Score



Tool

1. Enter consumption data

The screenshot shows the Arc Scoring interface for the 'Arc Scoring Demonstration Project, District of Columbia, United States'. The left sidebar contains navigation options: Overview, Performance, Data (selected), Models, Project Tools, Advanced Scoring, Performance Certificates, Climate Risk, Play to Zero, Financial Models, Re-Entry, LEED Certifications, and Efficiency Analysis. The main content area is divided into 'Energy' and 'Water' sections. Under 'Energy', 'Rebecca's Meter' is selected, showing a score of 30 / 33. Below it are options for Rooftop PV, Natural Gas, Propane, and My district heating, with an 'Add New Meter' button. The 'Water' section shows a score of 13 / 15 for 'Water meter'. On the right, there is a 'PLAY TO ZERO' banner, an 'ENERGY METER' section for 'Rebecca's Meter', and a table for 'Add data manually' with columns for Reading Start Date, Reading End Date, Reading (kWh), Cost (USD), and Documentation. A table row shows a reading of 410 kWh on Jan 31, 2023, with a cost of \$.



The 'Climate Risk Summary' section displays data for Feb 16, 2022 through Feb 15, 2023. It is divided into three columns: Transition Risk, Electrification, and Physical Risk. Transition Risk shows an Arc Carbon Score of 93/100 with a green progress bar. Electrification shows an Arc Electricity Score of 7/100 with a red progress bar. Physical Risk shows a Physical Risk Report of 'Yes' with a green checkmark icon and a 'View Report' link.

2. Understand climate risk

#4 Schools as Tools

- School buildings are a **stage for education** – the foundation for educational experiences.
- School buildings can also be a **laboratory** - supporting hands-on experiential education.



Building Learners

Teach students about sustainability through your school building operations.

[Access free lessons](#)



Discovery Elementary School | LEED Gold | Photo: Alan Karchmer

Arc at Boston Latin School

The Oldest School, the Newest Thinking



Boston Latin School. Photo: Boston Herald.

Boston Latin School: Quick Facts

- Located in Boston, MA
- Built in 1635
- Oldest public school in the country
- 2,400 students in grades 7-12

Boston Latin School (BLS) is the oldest public school in the country. Built in 1635, this college preparatory school houses 2,400 students grades 7-12. However, just because Boston Latin School is steeped in history doesn't mean its goals aren't futuristic.

In 2007, students founded the Youth Climate Action Network, or YouthCAN, in order to address climate change and to promote sustainability in education. With the help of their faculty advisor, Cate Arnold, YouthCAN has engaged thousands of students in service learning and green actions. Some of their accomplishments, profiled in a 2017 issue of USGBC+ magazine, include school energy audits, lighting retrofits, a green roof installation with solar array, vegetable gardens, an annual trash day, and an annual youth climate summit.

So when Boston Public Schools decided to explore the use of Arc to track sustainability for 15 of their 130 schools, BLS was naturally a first choice.

Case Study

Arc in Action

YouthCAN members arranged a Green Apple Day of Service training where students learned about the features of Arc, including how to collect, upload, and analyze data on the platform. While taking actions to green their school was not new to YouthCAN, the focus on benchmarking and tracking impact over time was. By quantifying the effects of their actions through data analysis, students would finally be able to determine which of their tactics had the largest impact. After the training, students quickly began strategizing how to collect baseline data and conduct whole school audits for each of the five Arc sustainability categories:



BLS students measure sustainability data for their Arc score. Photos: BLS.



Grade: [Lower Elementary](#), [Upper Elementary](#), [Middle School](#), [High School](#)

Measuring School Sustainability with Arc

Estimated time: 30 minutes

Need help? [Access Learning Lab FAQs](#)



Welcome to the Arc + Schools playground!

Arc is an easy-to-use sustainability management platform offering real-time access to building energy, water, waste, transportation and air quality data, and the ability to compare a building's performance to other buildings.

In the Arc + Schools playground you are able to view sample school projects, building data sets, teaching prompts, and classroom resources that support real world learning with your students. Discuss various STEM topics, spark classroom discussions, and imagine all the ways the data and resources here could be applied to your own school building and classroom.





Digital Playground

Scores Carbon

ts

Total Floor Area
450,656
IP units (feet) ▾

Annual Emissions
7,691.2
mtCO2e

Total Occupants
2,750

Total Certified Area
0
IP units (feet) ▾

Showing: 4 of 4 Projects

NAME

Green High School 300 School Street

Green Elementary School 1825 Lee Street

Average High School 5 Temple Street

Average Elementary School 1201 Bunn Street

Meters & Surveys

Sept 01, 2020 - Aug 31, 2021

Green Elementary School 77 / 100

Building Settings

Energy 22 / 33

Gas 1

Electric 2

Electric 1

Water 13 / 15

Water 1

Waste 8 / 8

Waste Data

Transportation 14 / 14

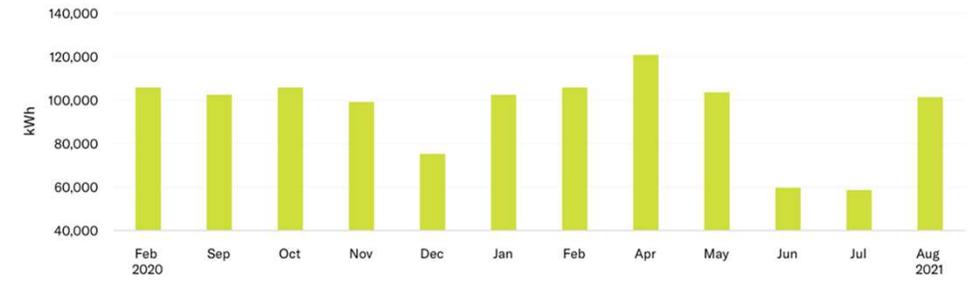
Transportation Survey

ENERGY METER
Electric 2

[All Changes Saved](#)

Data **Details** Documents

Energy for this period



Meter Name:

Electric 2

Delete Meter

Unit:

kWh

Fuel Source:

Purchased from Grid

Conclusions

Future green schools will:

- ✓ Go beyond code with new performance metrics
 - ✓ Link intentions to measured outcomes
 - ✓ Reduce on-site combustion
 - ✓ Become teaching tools
-

Learn More
www.arcskoru.com





Questions?

For those that are tracking your emissions...

- What tool are you using and why?
- How are you using the data?
- What scopes of emissions are you tracking?

What next steps are you thinking of after this session?

What kinds of activities or goals are you thinking you might incorporate into your plan?



Next Steps

Submitting for Planning Recognition

Plans will be tailored to school district needs and may evolve over the course of this series.

Goal: an actionable plan that is not extra busywork for your district.

Plans can be:

- Focused on a particular topic (energy, IAQ, IEQ, etc.)
- Focused on a particular action (ex. building assessment)
- Be part of an existing plan or a larger plan focused on whole district sustainability
- In any format! PPT, word doc, one pager, infographic, etc.



Office Hours