

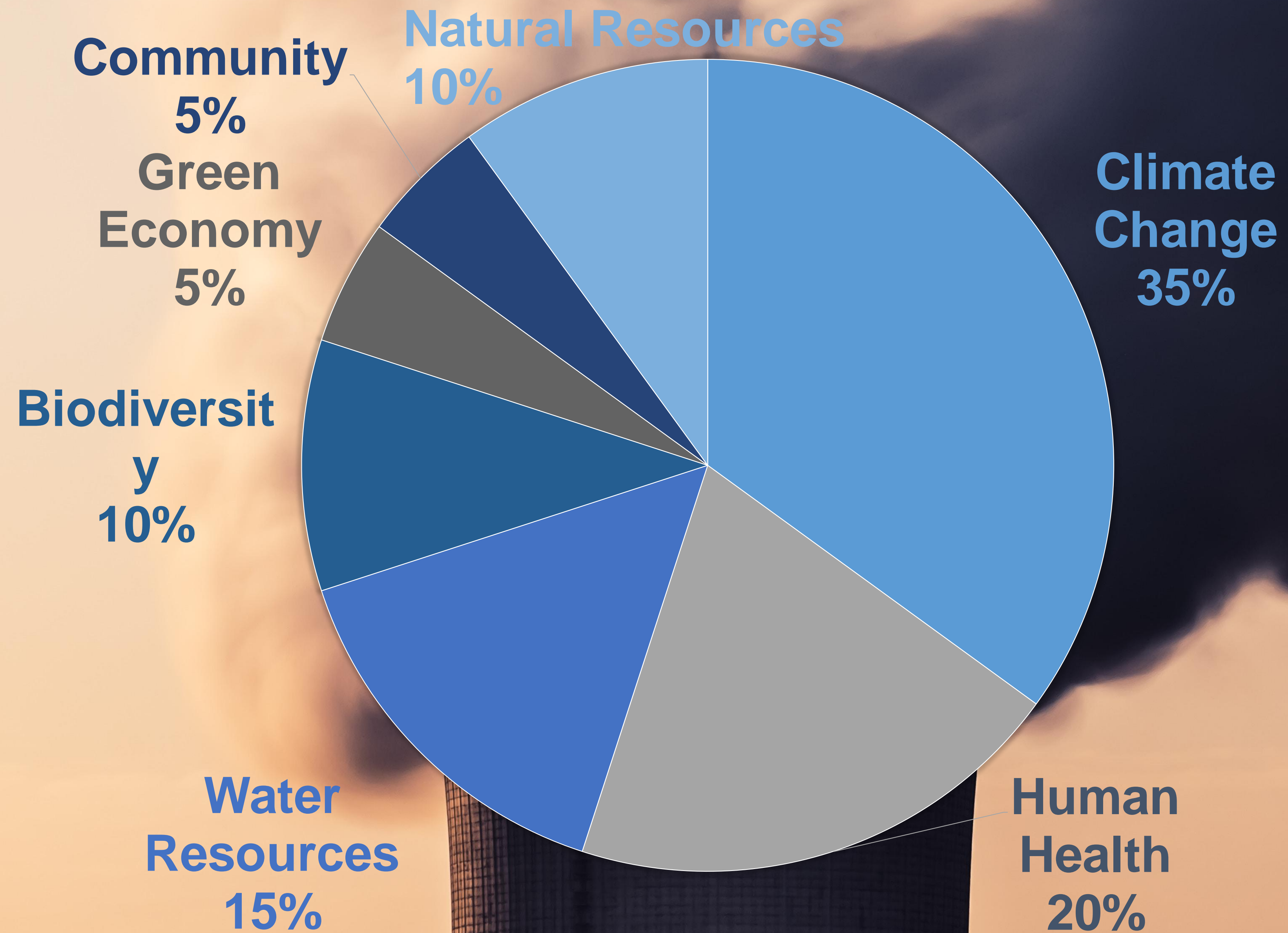
LEED[®] Zero



Emma Hughes
Project Manager,
LEED

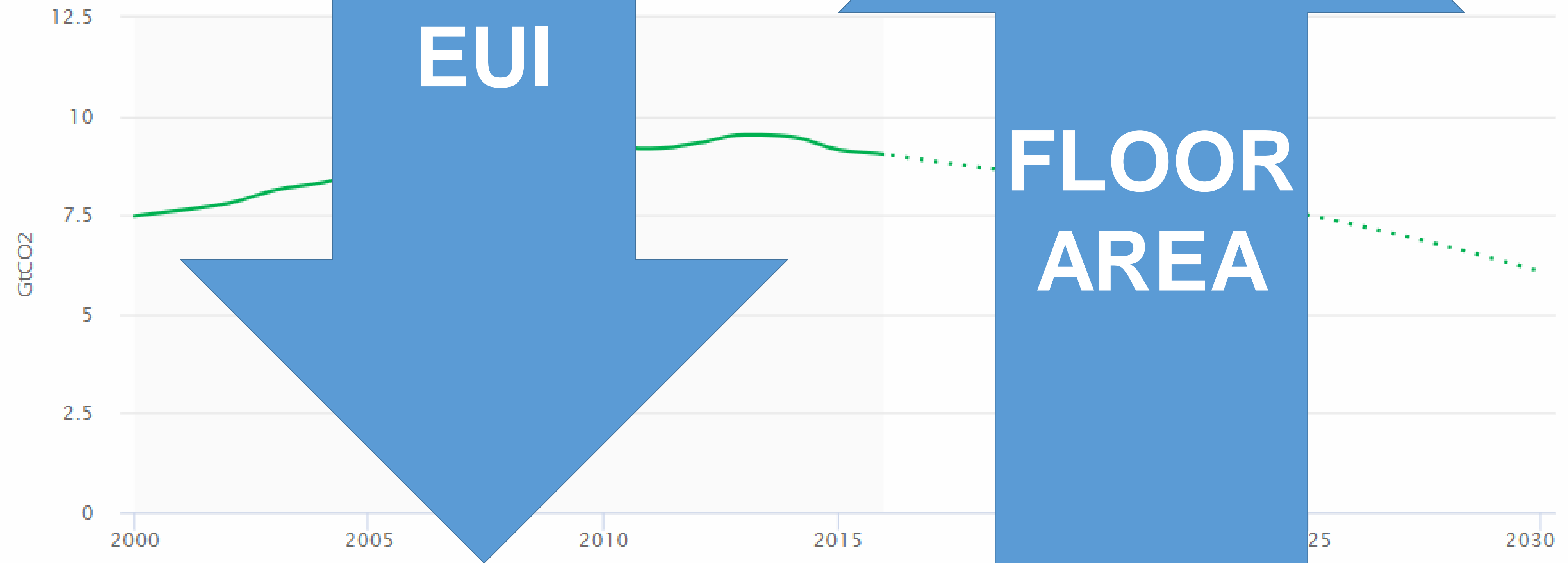
Why LEED Zero?





Buildings sector emissions

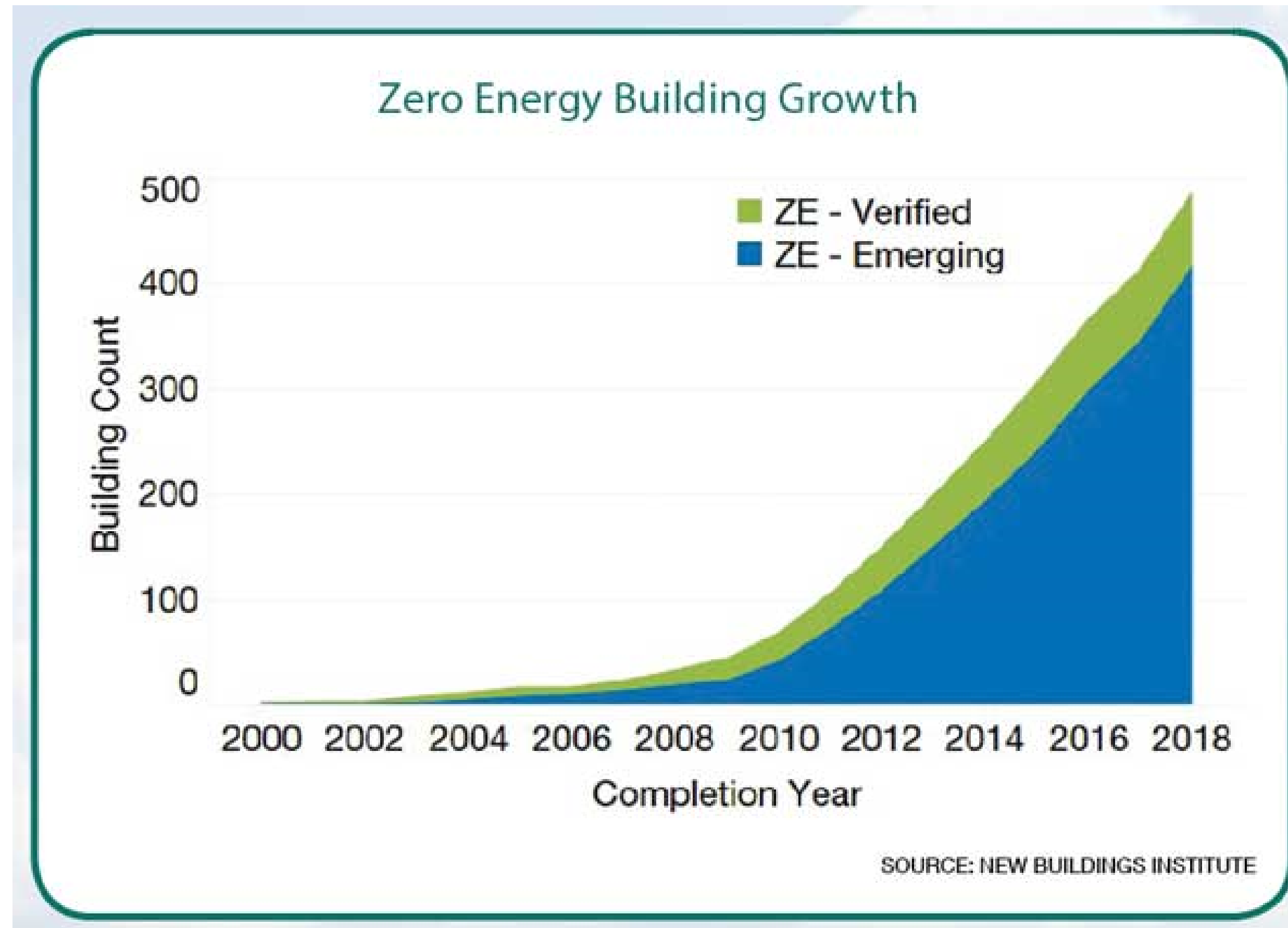
Buildings emissions have peaked in 2013 and must fall faster to meet SDS goals.



© OECD/IEA

Source: International Energy Agency

LEED + Net Zero Nexus



NBI Getting to Zero Buildings Database

Use the filters on the left to filter projects in the map, and/or select a bubble on the map to filter the table below.
Click on the **Analysis** tab above to see the big picture and create customized charts.

Res

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ZE Status

- ☒ Emerging
- ☒ Verified

Count

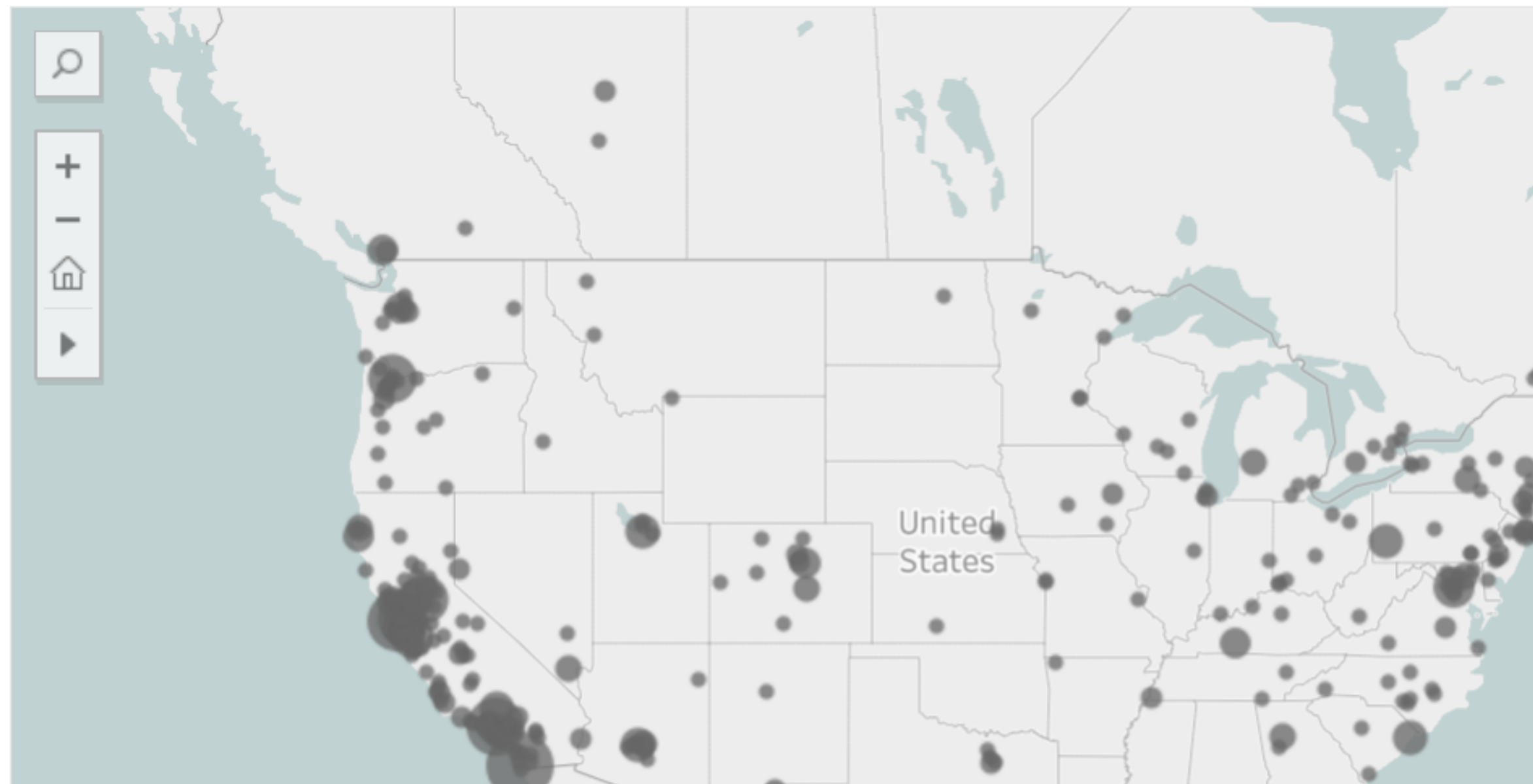
499
85

State or Province

- ☒ (All)
- ☒ Alabama
- ☒ Alberta
- ☒ Arizona
- ☒ Arkansas
- ☒ British Columbia
- ☒ California
- ☒ Colorado
- ☒ Connecticut
- ☒ Delaware

Building Type

- ☒ (All)
- ☒ Education



<https://newbuildings.org/resource/getting-to-zero-database/>

Net Zero Carbon Buildings Commitment: Cities, States, & Businesses

C40
CITIES



The Net Zero Carbon Buildings Declaration



The Net Zero Carbon Buildings Commitment

[Commitment Signatories](#)

[Who can join?](#)

[FAQs](#)

ADVANCING NET
ZERO



arc

Projects

Innovation Unlimited

Credits/Actions

All Actions

Prerequisites

Base Score

Data Input

My actions

Score

Analytics

Total

Energy

Water

Waste

Transportation

Human Experience

CARBON

	PROJECT	PER SQ FT	PER OCC
TOTAL ANNUAL CARBON EMISSIONS (mtCO2e):	214817.3900	2.8642	1074.0870
TOTAL DAILY CARBON EMISSIONS (mtCO2e):	0.1061	0.0000	0.0005
ENERGY ANNUAL CARBON EMISSIONS (mtCO2e):	35.1678	0.0005	0.1758
ENERGY DAILY CARBON EMISSIONS (kBTU):	0.0964	0.0000	0.0005
TRANSPORTATION ANNUAL CARBON EMISSIONS (mtCO2e):	214782.2222	-	1073.9111
TRANSPORTATION DAILY CARBON EMISSIONS (mtCO2e):	588.4444	-	2.9422

CERTIFICATIONS

LEED v4 Building Operations and Maintenance

CURRENT LEVEL

n/a

DATE AWARDED

Not Certified

OTHER CERTIFICATION DATES

n/a

Carbon Analytics for All Buildings



LEED Zero Carbon

LEED Zero Energy

LEED Zero Water

LEED Zero Waste

LEED Zero Carbon

Carbon accounting approach over 12 months:

Carbon caused:

- ☐ Energy
- ☐ Transportation
- ☐ *In future: water, waste, embodied carbon in materials*



Carbon avoided:

- ☐ Renewable energy production
 - Calculated based on hourly emission factors
 - Hierarchy: on-site -> community -> off-site

Zero Carbon Balance

CARBON CAUSED	
Energy consumption	Renewable energy generated and used on site
	Electricity drawn from grid
	Natural gas
	Propane
	Fuel Oil
	Diesel Oil
	etc....
Transportation	Walk, bike, telecommute
	Motorcycle
	Heavy rail
	2-3 Carpool
	Light rail
	Alternative fuel vehicles
	Bus
	Car (solo)
	(a) Total Carbon Caused

Zero Carbon Balance

CARBON AVOIDED		
Onsite generated electricity exported to grid	Electricity	Equation 4
	Off-site renewable energy	Equation 5
Offsite renewable energy added to an electric grid	EACs	Equation 6
	Carbon Offsets	Sum CO2E for carbon offsets purchase
	Total Carbon Avoided from off-site renewables	Sum = onsite + offsite
	(b) Total Carbon Avoided	
CARBON BALANCE		
If balance is ≤ 0 , project can submit for certification.		Difference = (a) – (b)

Hierarchy of Renewable Energy

- first, on-site generation;
- second, local generation, e.g. community solar or wind;
- third, other offsite generation projects, such as through PPAs;
- fourth, unbundled RECs or energy attribute certificates (EACs);
- last, carbon offsets.

LEED Zero Energy

Annual energy accounting approach:

$$\begin{array}{l} \text{Source} \\ \text{Energy} \\ \text{Balance} \end{array} = \begin{array}{l} \text{Total Energy} \\ \text{Consumed} \end{array} - \begin{array}{l} \text{Total Renewable} \\ \text{Energy Generated} \\ \text{On-Site or} \\ \text{Procured Off-site} \end{array}$$

Zero Energy Balance

ENERGY CONSUMED	
Energy consumption	Renewable energy generated and used on site
	Electricity drawn from grid
	Natural gas
	Propane
	Fuel Oil (No. 1)
	Fuel Oil (No. 2)
	Fuel Oil (No. 4)
	Fuel Oil (No. 5,6)
	Diesel Oil
	Kerosene
	Coal (anthracite)
	Coal (bituminous)
	Coke
	District steam
	District hot water
	District chilled water - electric driven chiller
	District chilled water - absorption chiller using natural gas
	District chilled water - engineer-driven chiller natural gas
	Wood
	(a)Total Source Energy Consumed

Zero Energy Balance

ENERGY GENERATED		
Renewable energy generated and used on site	Electricity	Multiply energy generated by appropriate source conversion factor
Onsite generated electricity exported to grid	Electricity	
Offsite renewable energy added to an electric grid	Off-site renewable energy	
	(b) Total Source Energy Generated	Sum = onsite + offsite
SOURCE ENERGY BALANCE		
If balance is ≤ 0 , project can submit for certification.		Difference = (a) – (b)



LEED Zero Energy: Petinelli Headquarters, Curitiba Brasil



LEED v4.1 Energy and Atmosphere





ENSURE LEADERSHIP

Minimum/optimize energy performance

Prerequisite and Credit

- Updated referenced standard to ASHRAE 90.1-2016
- Performance demonstrated against cost **and** greenhouse gas emissions
- On-site renewables count
- Off-site renewables count for GHG emissions metric



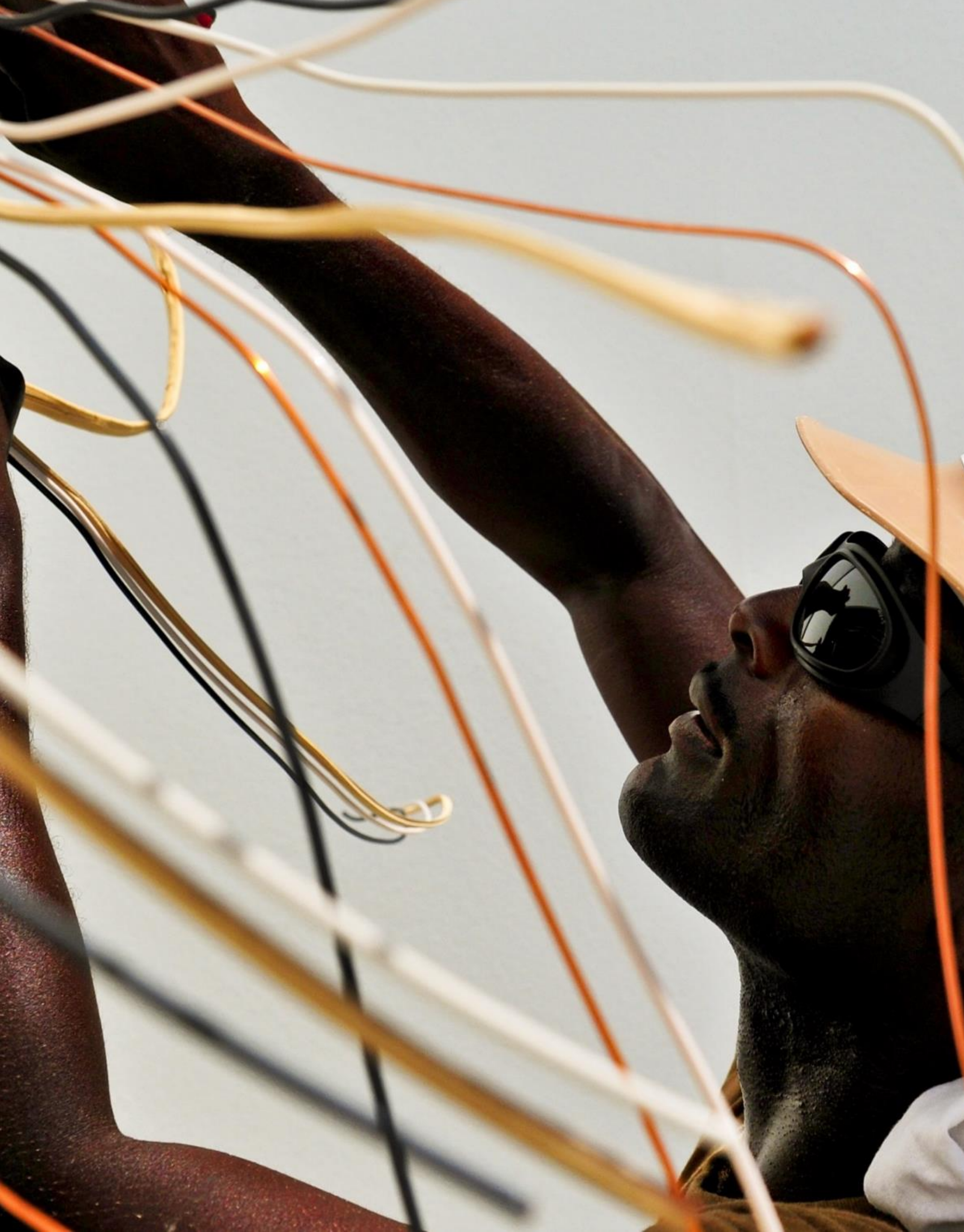
EXPAND THE MARKET

Renewable energy

Credit

Combines Renewable energy production credit and Green power and carbon offsets credit

Recognizes more types of renewables and procurement strategies: on-site, off-site, new, existing, and verified



EXPAND THE MARKET

Grid Harmonization

Credit

Improved implementation for Demand Response Options 1 and 2.

Added a third option to address building load flexibility and management

LEED Zero Water

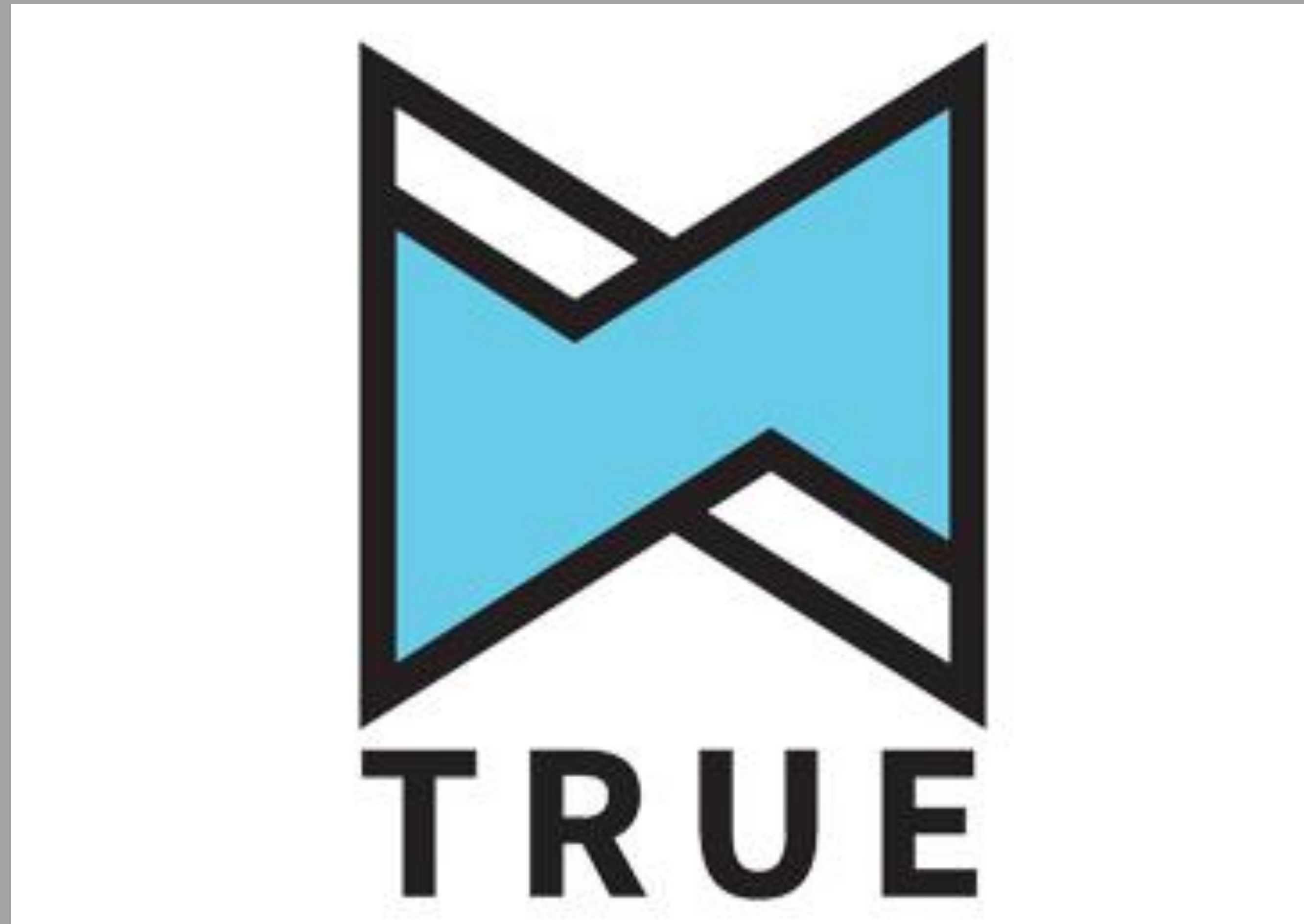
Annual water accounting approach:

$$\begin{array}{ccccc} \text{Water} & & \text{Total Potable} & & \text{(Total Alternative} \\ \text{Balance} & = & \text{Water} & - & \text{Water Used +} \\ & & \text{Consumed} & & \text{Water Returned to} \\ & & & & \text{Original Source)} \end{array}$$

Zero Water Balance

POTABLE WATER CONSUMED	
Water consumption	Potable water consumed by the project
(a)Total Potable Water Consumed	
ALTERNATIVE WATER SOURCES and WATER RETURNED	
Off-Site Water Sources	Reclaimed water delivered from municipality
	Purple pipe water delivered from municipality
	Other off-site source – specify
On-Site Water Sources	Captured rainwater (roof)
	Captured stormwater runoff (site)
	Captured stormwater overflow
	AHU Condensate
	Steam recovery
	Greywater reuse
	Other on-site water source – specify
Water Returned	Water collected from building systems (e.g. green infrastructure, on-site treated wastewater) and returned to original water source
(b) Total Alternative Water Sources + Water Returned	Sum = onsite + offsite + returned
WATER BALANCE	
If balance is ≤ 0 , project can submit for certification.	Difference = (a) – (b)

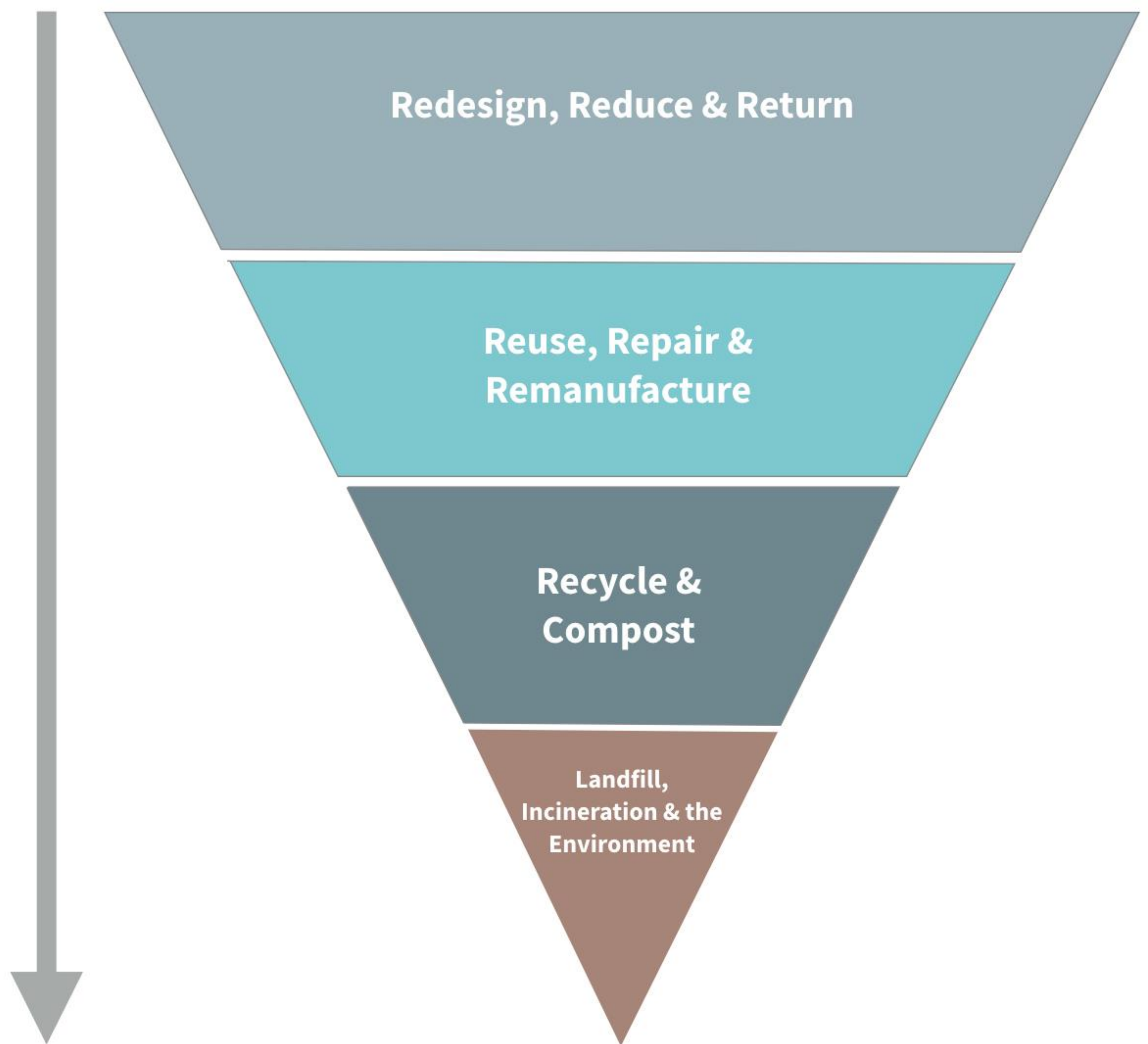
LEED Zero Waste





TRUE: Total Resource Use Efficiency

ZERO WASTE HIERARCHY OF HIGHEST & BEST USES





TRUE certified facilities are cutting costs & improve their bottom lines

- American Licorice Company
- Bronco Wine Company
- CalSTRS
- Cintas Corporation
- Cottonwood Creek Winery
- Cox Media Group
- CTDI
- Dalsin Industries
- Delaware North at Yellowstone
- Disneyland Resort*
- Earth Friendly Products
- Etsy
- Fetzner Vineyards
- Follett Higher Education Group
- Follow Your Heart
- Hill's Pet Nutrition
- Kellogg
- Lundberg Family Farms
- Maple Grove Farms of Vermont
- Microsoft Corporation
- Mountain Rose Herbs
- Nature's Path Foods
- New Belgium Brewing
- Northrop Grumman
- Nutiva
- Perishable Distributors of Iowa
- Piazza Produce, Inc.
- Raytheon Company
- Santa Barbara Adventure Co.
- Sierra Nevada Brewing Co.
- Smucker Natural Foods, Inc.
- Stirling Ultracold
- Tesla Inc.
- Titan Florida LLC
- Walt Disney World*
- Whole Foods Market

* Project is a facility inside a larger campus



LEED Credentials Membership

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LEED Zero

new.usgbc.org/leed-zero



Projects

v4.1 O+M Test Batya 5

v4.1 O+M Test Batya 5

1000156084 - LEED v4.1 O+M: EB



LEED

LEED Zero

Precertification Application

- Details
- Credits
- Uploads
- Precert
- Team
- Timeline
- Interpretations
- Clarifications
- Payments ¹

Project details



NAME	v4.1 O+M Test Batya 5
REGISTRATION DATE	12 Nov 2018
PROJECT TYPE	Individual Project
RATING SYSTEM	LEED v4.1 O+M: EB

If the Owner's Representative, Owner type or owner email fields need to be edited, please [Contact Us](#).

Terms and Conditions

[Certification Agreement](#)



Projects

v4.1 O+M Test

1000156084 - LEED v4.1 O+M Test

LEED

LEED

Details

Credits

Upload

Project details

NAME

REGISTRATION DATE

PROJECT TYPE

RATING SYSTEM

UNIT TYPE

GROSS FLOOR AREA

100000 sq ft

ANTICIPATED TYPE

Core Learning Space: College/University

LEED Zero

I would like to opt-in to the LEED Zero Certification program.

- ☐ **LEED Zero Carbon** recognizes buildings operating with net zero carbon emissions over the course of the past year. The certification provides transparent accounting of the balance of carbon caused from energy consumption and occupant transportation to carbon emissions avoided or offset, and will expand in the future to incorporate carbon caused from water consumption, waste generation, and the embodied carbon of materials used into the carbon balance.
- ☐ **LEED Zero Energy** recognizes buildings that achieve a source energy use balance of zero for the past year.
- ☐ **LEED Zero Water Certification** recognizes buildings that achieve a potable water use balance of zero for the past year.
- ☐ **LEED Zero Waste Certification** recognizes buildings that achieve GBCI's TRUE Zero Waste certification at the Platinum level.

ACCEPT

CLOSE



Precertification Application

Representative, Owner type or
Agent type to be edited, please

Submit

Agent

Accept the Certification Agreement? If

not, please submit the Confirmation of Agent's
Authority form to confirm the agent's authority to
accept the Certification Agreement for the Owner



Projects

v4.1 O+M Test

1000156084 - LEED v4.1 O+M Test

LEED

LEED

Details

Credits

Upload

Project details

NAME	
REGISTRATION DATE	
PROJECT TYPE	
RATING SYSTEM	
UNIT TYPE	
GROSS FLOOR AREA	100000 sq ft
ANTICIPATED TYPE	Core Learning Space: College/University

LEED Zero

I would like to opt-in to the LEED Zero Certification program.

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CLOSE



Precertification Application

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Agent type to be edited, please

Agent

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not, please submit the Confirmation of Agent's
Authority form to confirm the agent's authority to
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v4.1 O+M Test Batya 6

1000157877 - LEED Zero

LEED

LEED Zero

Details

Payments ¹

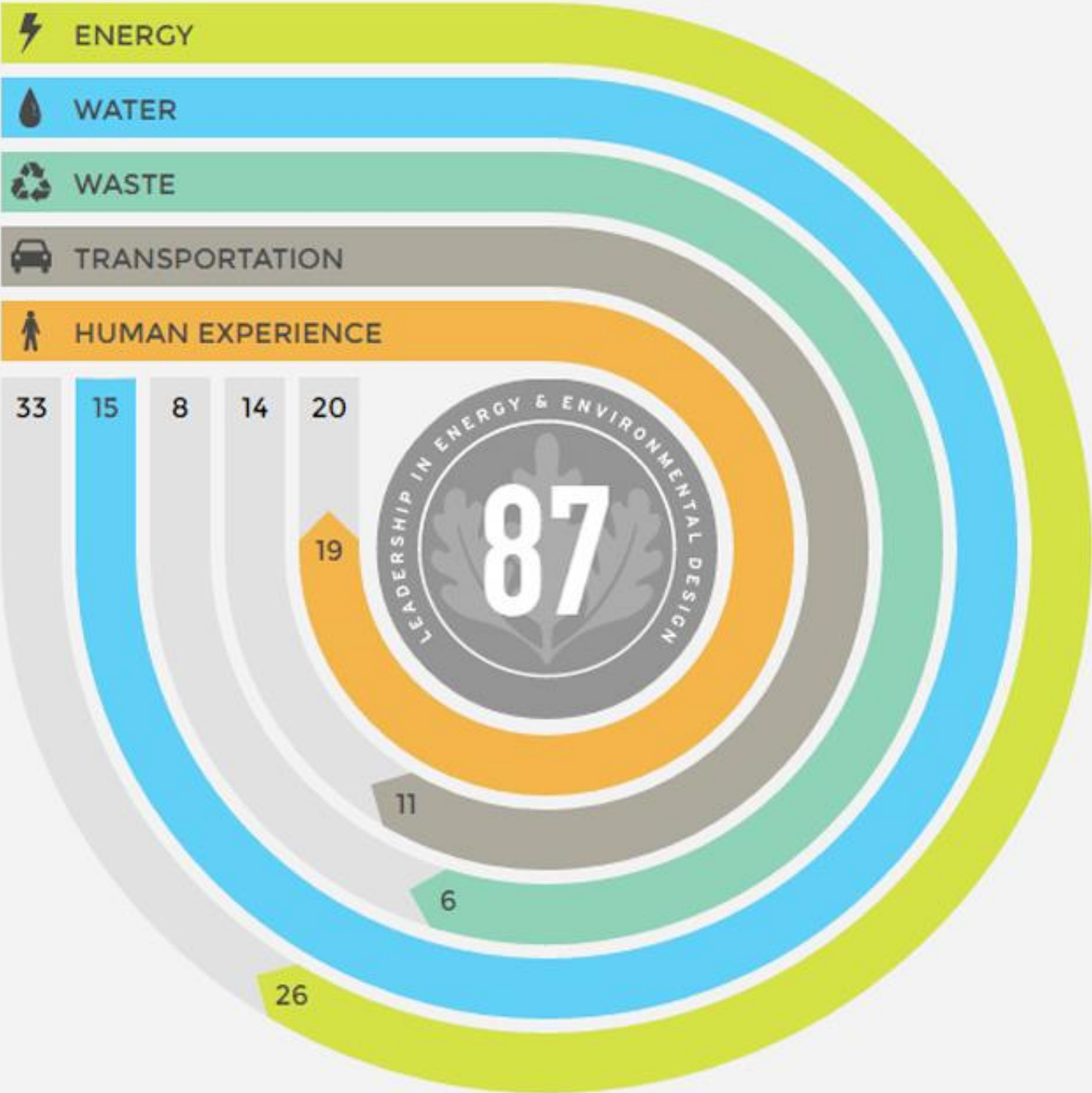
LEED Zero documentation requirements are currently in development, check back soon for an update.

Project details

NAME	v4.1 O+M Test Batya 6
REGISTRATION DATE	09 Jan 2019
PROJECT TYPE	Individual Project
RATING SYSTEM	LEED Zero
SELECTED	<ul style="list-style-type: none">• LEED Zero Carbon• LEED Zero Energy
UNIT TYPE	IP units
GROSS FLOOR AREA	100000 sq ft
ANTICIPATED TYPE	Circulation Space

Terms and Conditions

[Certification Agreement](#)



LEED[®] Zero

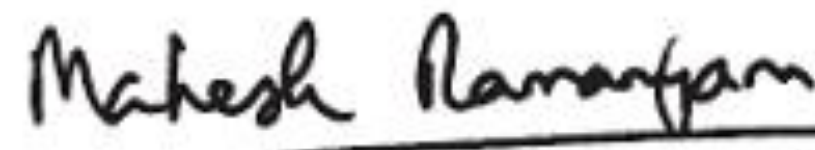
Petinelli - Curitiba

CURITIBA, BRAZIL

has fulfilled the requirements of LEED Zero Energy certification,
as verified by Green Business Certification Inc.

LEED Zero Energy

DECEMBER 2018



Mahesh Ramanujam
President & CEO, U.S. Green Building Council
President & CEO, Green Business Certification Inc.

LEED Zero Fees

	Silver, Gold and Platinum Level Members	Organizational or Non- members
<i>Registration</i>	\$0	\$0
<i>Certification Review (valid for 3 years)</i>		
0 – 499,999 sq ft	\$1,500	\$2,000
500,000 sq ft or greater	\$2,500	\$3,000

new.usgbc.org/cert-guide/fees

An aerial photograph of New York City, featuring the Empire State Building prominently on the right. The image is overlaid with a warm, orange-tinted filter. The text is centered in the middle of the image.

netzero@usgbc.org

ehughes@usgbc.org

An aerial photograph of a city skyline during sunset or sunrise, with a warm orange glow. The Empire State Building is prominent on the right. A multi-lane highway with a red median runs diagonally across the lower left. The word "Questions?" is centered in white text.

Questions?

