

# Setting Goals and Achieving Aggressing Energy Savings

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# Report Documentation Page

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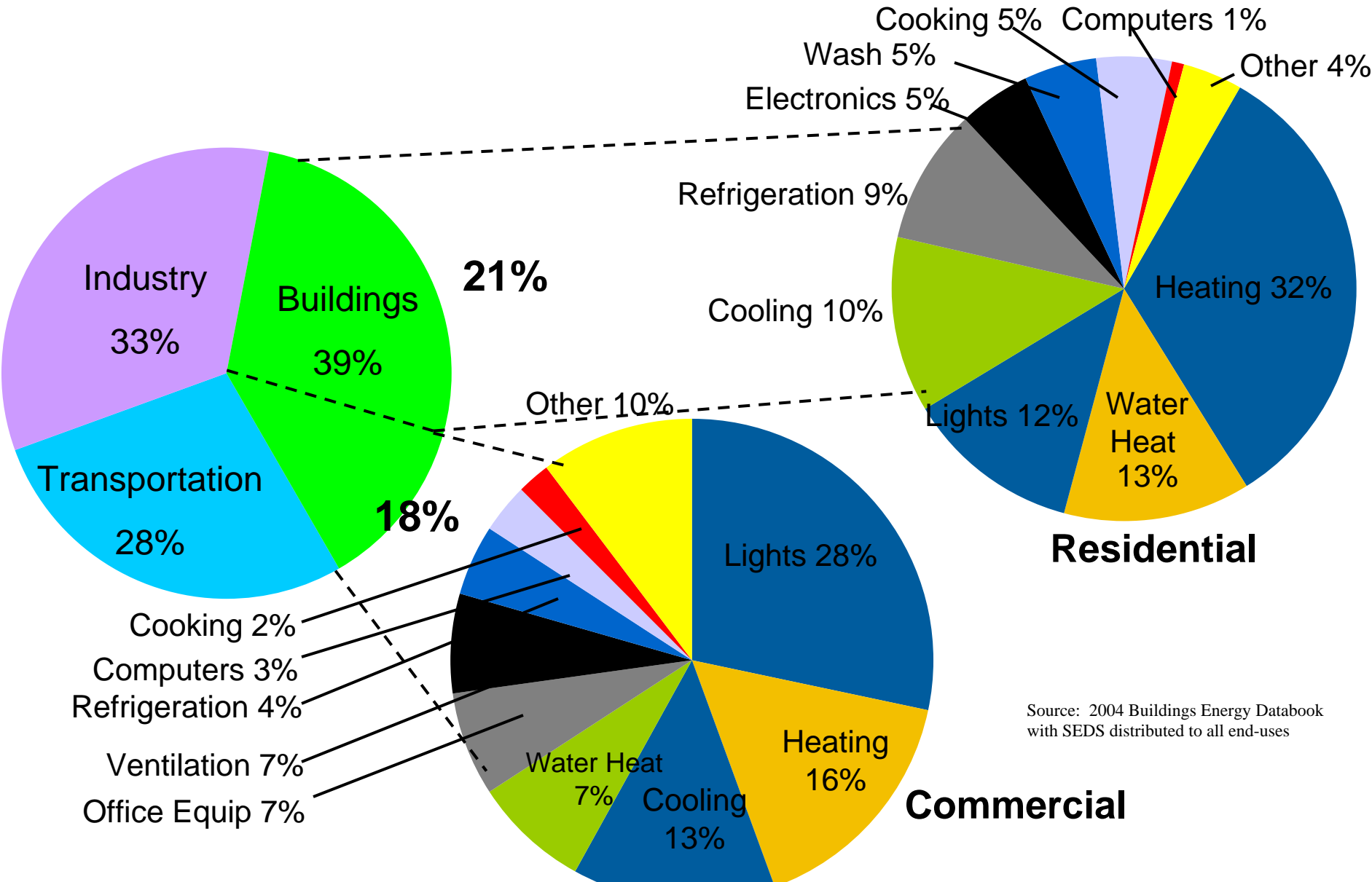
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14. ABSTRACT <b>The potential for aggressive energy savings is achievable today. This discussion will look at setting and following through with goals working within financial constraints. We will also explore how new technologies help push the envelope for energy savings including better information flows and technologies. The key is putting the pieces together and aligning the technologies and the decision makers.</b>					
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**KEYNOTE ADDRESS**  
**SETTING GOALS AND ACHIEVING AGGRESSIVE ENERGY SAVINGS**

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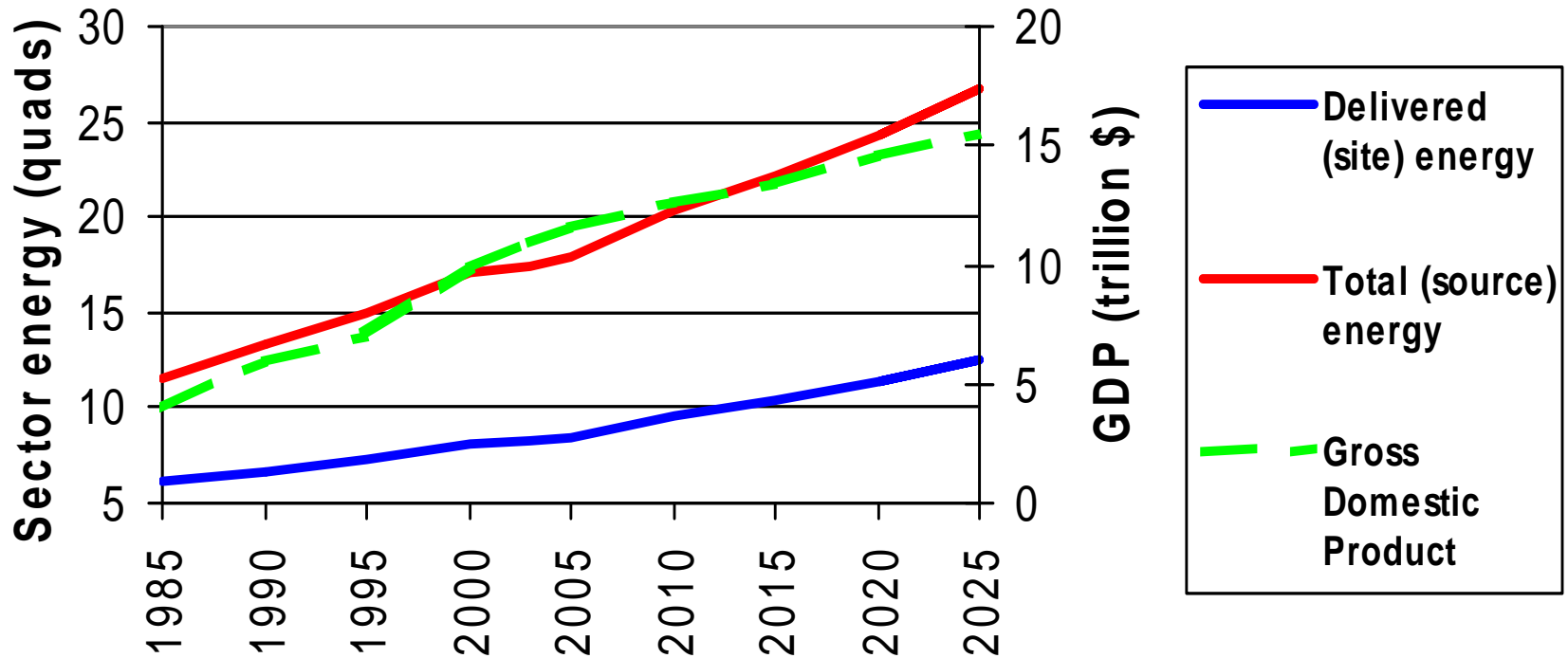
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# Building Energy Use



Source: 2004 Buildings Energy Databook with SEDS distributed to all end-uses

# Trend of Commercial Sector



Commercial Sector Energy Use is Growing at 1.6% per year

Growth is faster than energy efficiency measures

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Remember the overall vision—reduce the impact of buildings.

Today's building's designs mortgage the energy future of this country.

# Many Pieces

So many ways to  
assemble the pieces

Design is about  
making decisions –  
need motivation to  
make the right  
decisions

And having a suite of  
technologies



# Setting Goals

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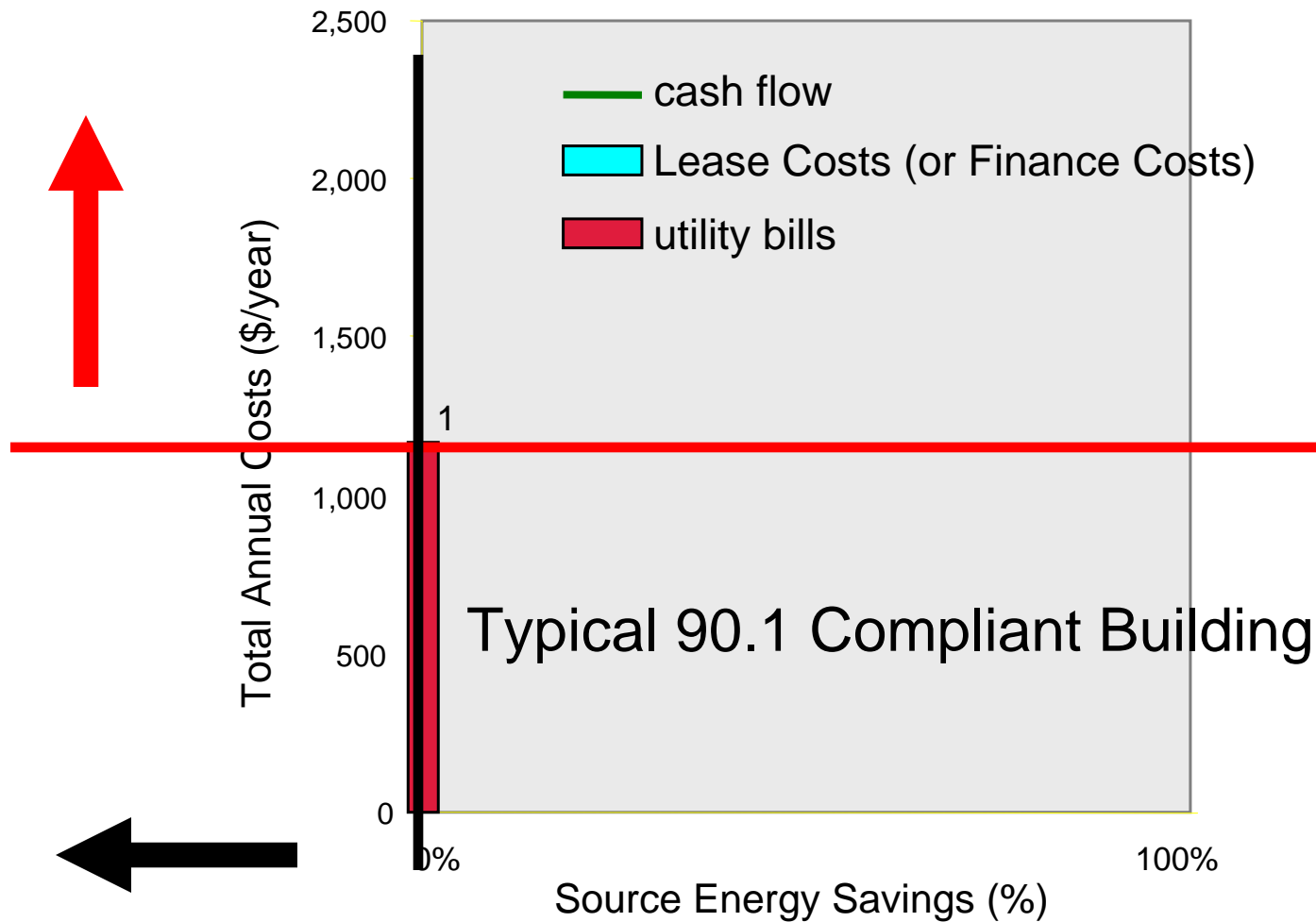
Measurable goals are better

From bad to good...

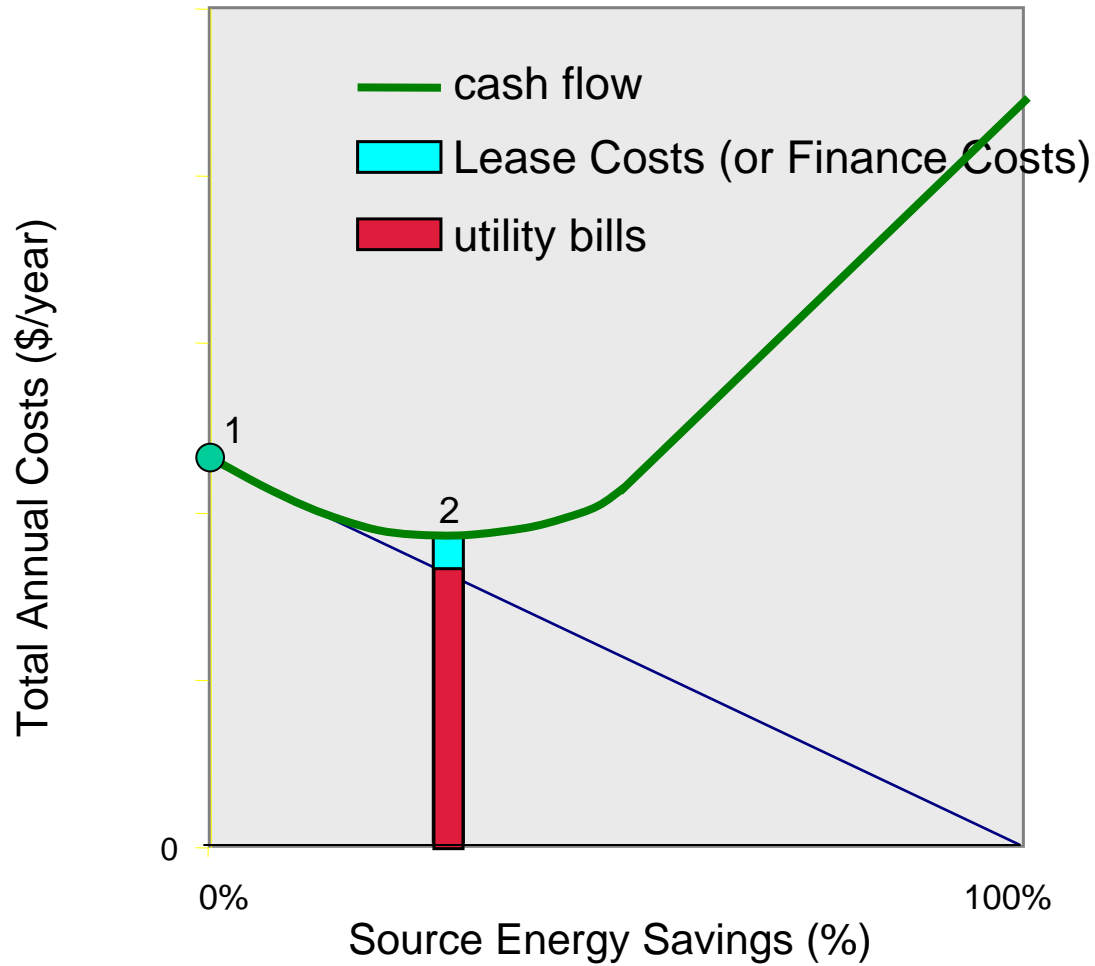
- I want a green building
- Design a LEED <rating> building
- Design a building to use 30% less energy than ASHRAE 90.1-2004
- Design a building to use less than 30,000 BTU/sqft
- Design a [NET] ZERO ENERGY BUILDING

Influencing purchasing decision—the owner

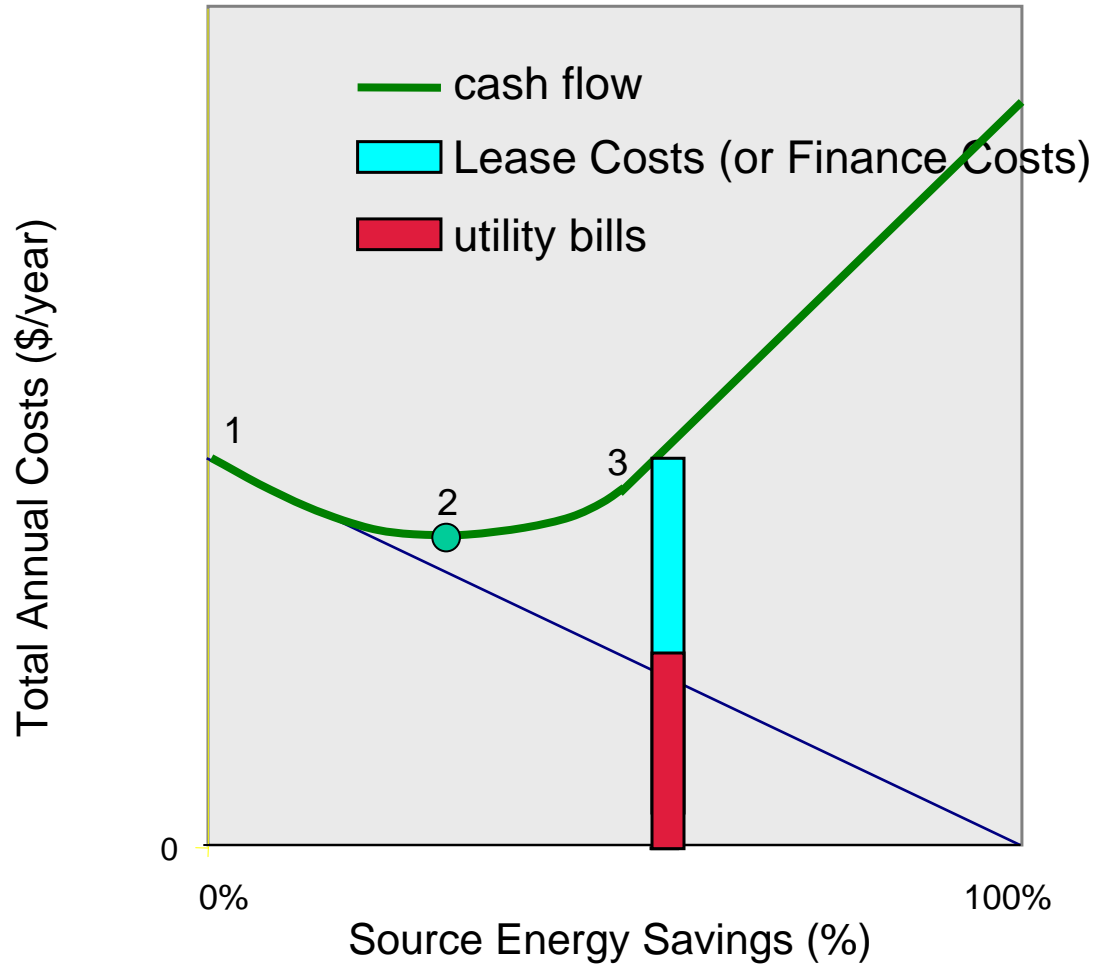
# The Path to a Low Energy Building



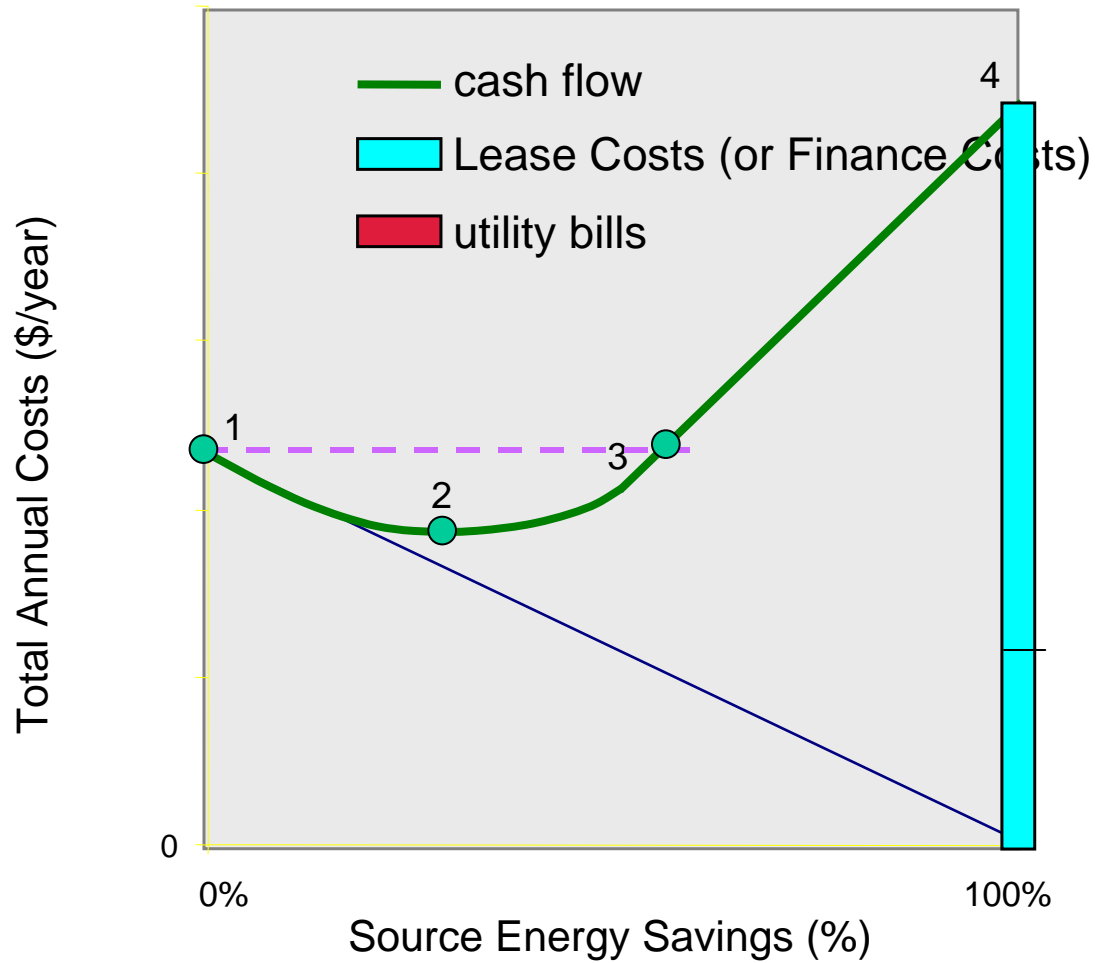
# The Path to a Low Energy Building



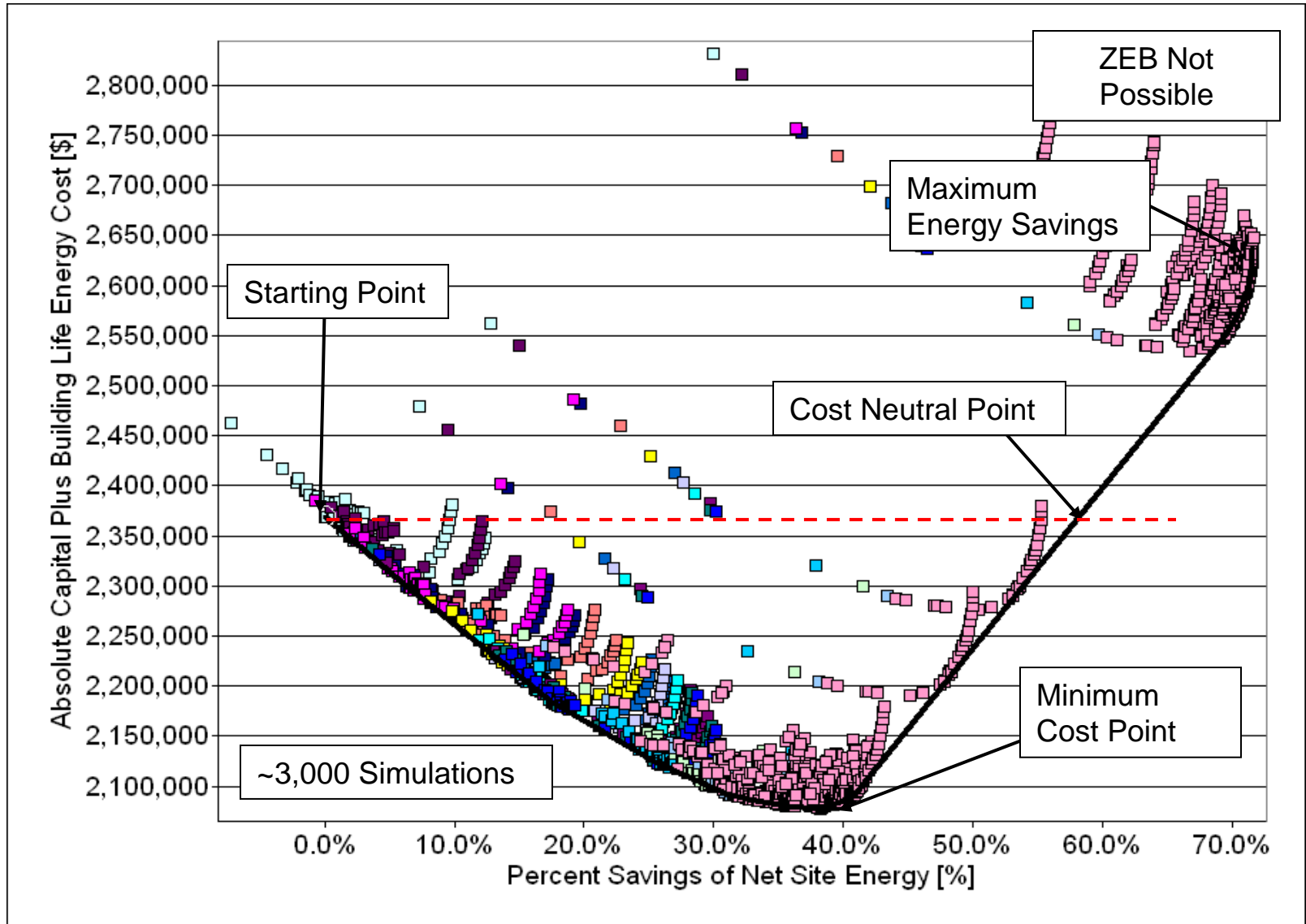
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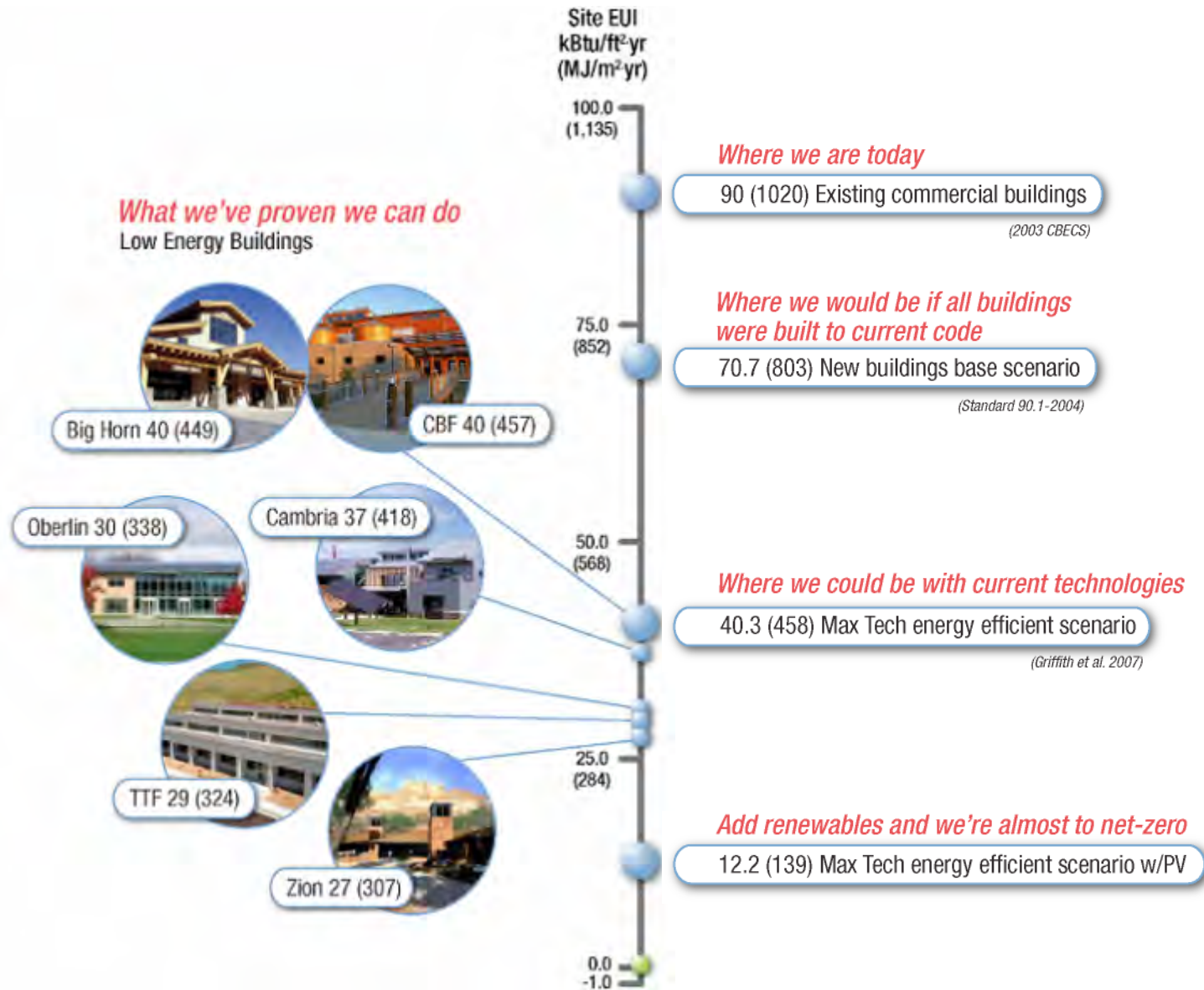
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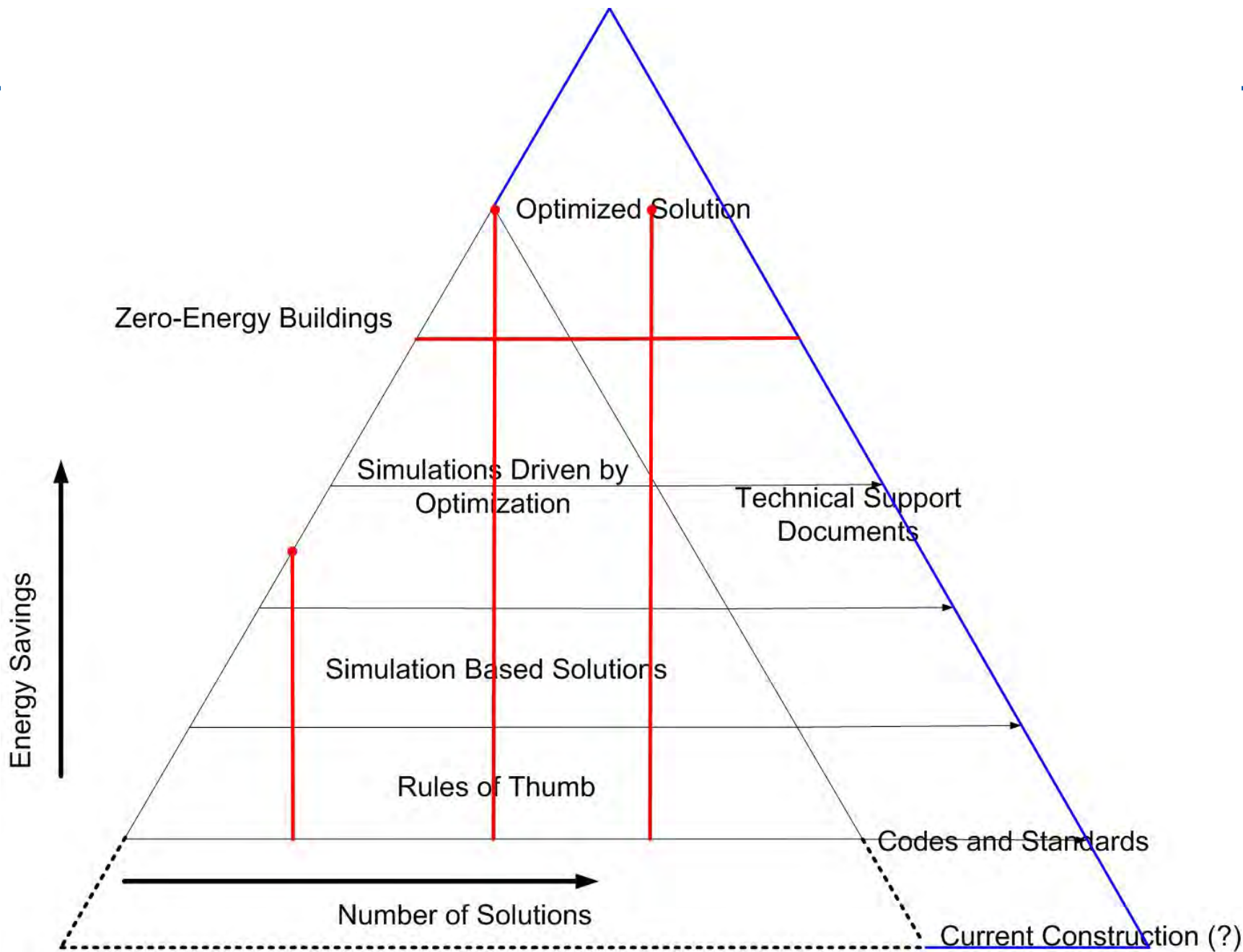


# Optimization Curve



# Great Potential in Commercial Buildings





# NREL Research Support Facility



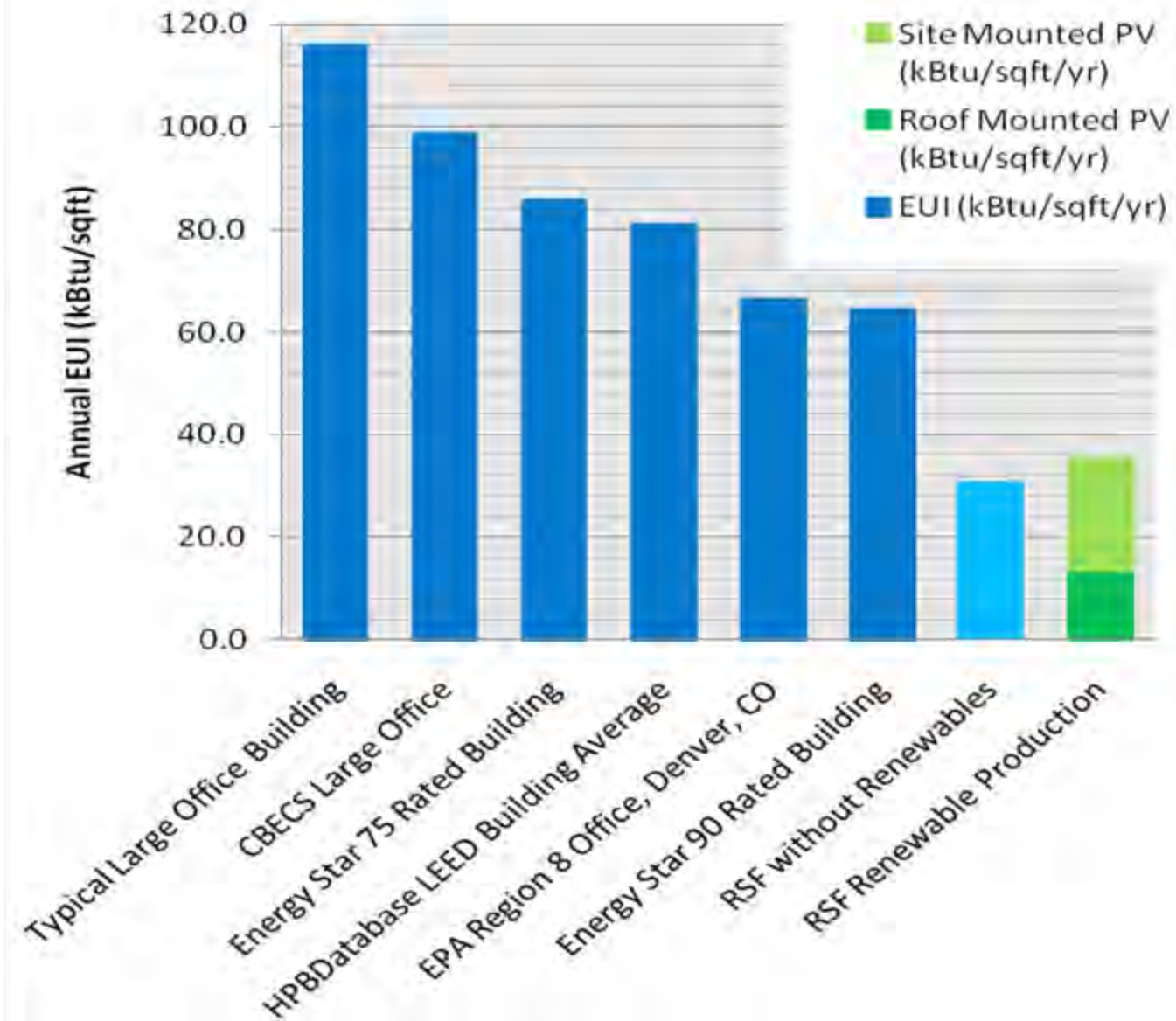
# Project Goals

- LEED™ Platinum
- 800 Staff Capacity
- 25 kBTU/sf/yr
- Zero-Energy Building

Includes:  
Data Center

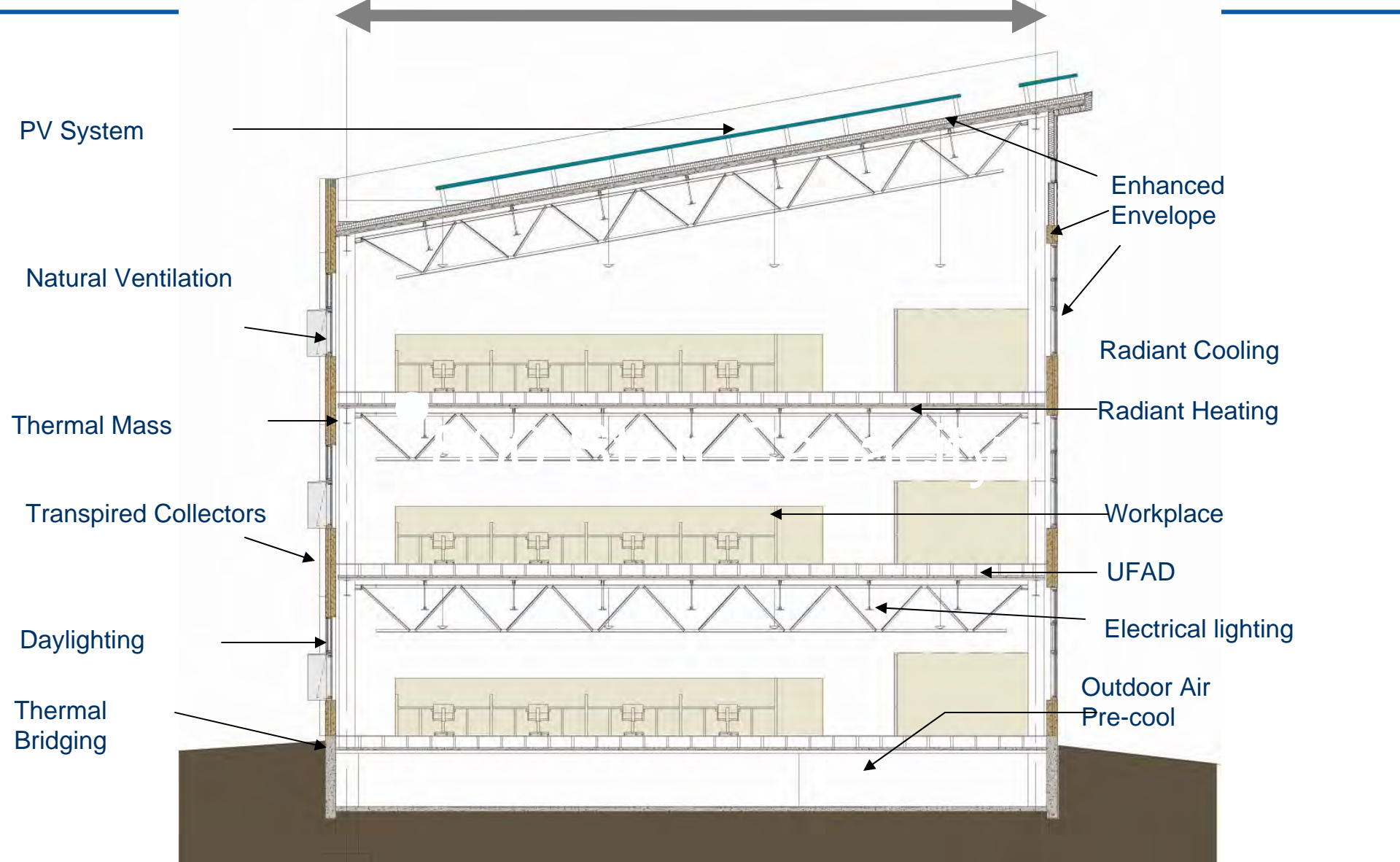


# How Good is 25 kBtu/ft<sup>2</sup> ?



# The Section

(60-ft)



PV System

Natural Ventilation

Thermal Mass

Transpired Collectors

Daylighting

Thermal Bridging

Enhanced Envelope

Radiant Cooling

Radiant Heating

Workplace

UFAD

Electrical lighting

Outdoor Air Pre-cool

# Tell Your Stories...

## DOE's Building's Database

[www.commercialbuildings.energy.gov](http://www.commercialbuildings.energy.gov)

	Picture	Name	Owner	Location	Building Type	Floor Area (ft <sup>2</sup> )	Annual Purchased Energy (kBtu/ft <sup>2</sup> )
<input type="checkbox"/>		<a href="#">Aldo Leopold Legacy Center</a>	The Aldo Leopold Foundation, Inc.	Baraboo, WI	Commercial office; Interpretive Center	11,900	-2.02
<input type="checkbox"/>		<a href="#">Audubon Center at Robs Park</a>	The National Audubon Society	Los Angeles, CA	Recreation; Interpretive Center; Park	5,020	
<input type="checkbox"/>		<a href="#">Challenger Tennis Club</a>	Whittier Foundation	Los Angeles, CA	Recreation	3,500	-0.0955
<input type="checkbox"/>		<a href="#">Environmental Tech. Center, Sonoma State</a>	Sonoma State University	Rohnert Park, CA	Higher education; Laboratory	2,200	-1.47
<input type="checkbox"/>		<a href="#">Hawaii Gateway Energy Center</a>	Natural Energy Laboratory of Hawaii Authority (NELHA)	Kaunua-Kona, HI	Commercial office; Interpretive Center; Assembly; Other	3,500	-3.46
<input type="checkbox"/>		<a href="#">Oberlin College Lewis Center</a>	Oberlin College	Oberlin, OH	Higher education; Library; Assembly; Campus	13,600	-4.23
<input type="checkbox"/>		<a href="#">Science House</a>	Science Museum of Minnesota	St. Paul, MN	Interpretive Center	1,530	0

7 project(s)



*Aldo Leopold Legacy Center*



*Oberlin College Lewis Center*

# Questions?

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[www.nrel.gov/rsf](http://www.nrel.gov/rsf)

[www.commercialbuildings.energy.gov](http://www.commercialbuildings.energy.gov)