

Practice Management

AIA Knowledge Communities



2014 PMKC Webinar

PM Series

The Business Case for the 2030 Challenge



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PMKC Webinar

The Business Case for the 2030 Challenge

Moderator:

David Barkin, AIA

Chief Architect

State of Connecticut

DAS / Division of Construction Services

PMKC Advisory Group



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PMKC Webinar

The Business Case for the 2030 Challenge

Presenter:

Rico Quirindongo, AIA

Architect

DLR Group

NW Region



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AIA Knowledge Communities



PMKC Webinar

The Business Case for the 2030 Challenge

Presenter:

Premnath Sundharam, AIA

Architect / Principal

DLR Group

Phoenix, AZ



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PMKC Webinar

The Business Case for the 2030 Challenge

Presenter:

Nathan Kipnis, AIA

Principal

Kipnis Architecture + Planning

Evanston, IL



learning objectives

- Acquire an understanding of where the design community is with 2030 Challenge goals.
- Adopt a framework for leveraging the 2030 Commitment to build long-lasting 'trusted-advisor' relationships with clients.
- Learn about updated 2030 Commitment design metrics and tools that inform the design process.
- Develop an outline of the value added proposition that can serve as an executive summary for firm leadership, decision-makers, in-house design teams, and client stakeholders to facilitate buy-in and support for investing project budget time that supports the 2030 Commitment.

Rico Quirindongo

Presenter:

Rico Quirindongo, AIA

Architect

DLR Group

NW Region



agenda

- 2030 challenge & 2030 commitment
- AIA aggregate overview
- why your firm should participate?
 - moral prerogative
 - business case

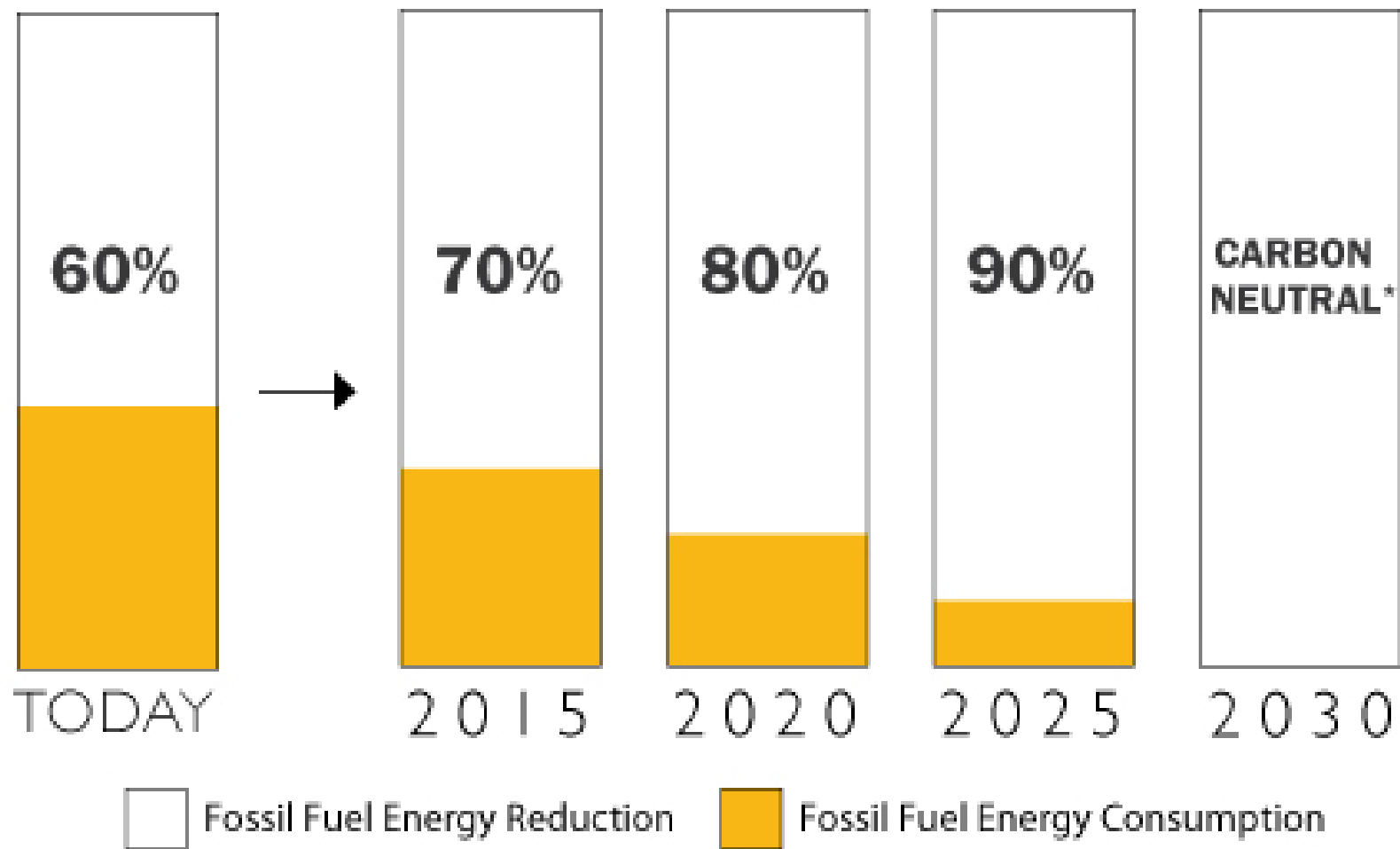
GETTING US TO 2030 THE PROGRAMS EXPLAINED



the 2030 universe

1. Sign the letter
2. Create an green office strategy
(overhead)
3. Operational strategy (projects)
4. Analysis and reporting

AIA 2030 commitment



The 2030 Challenge

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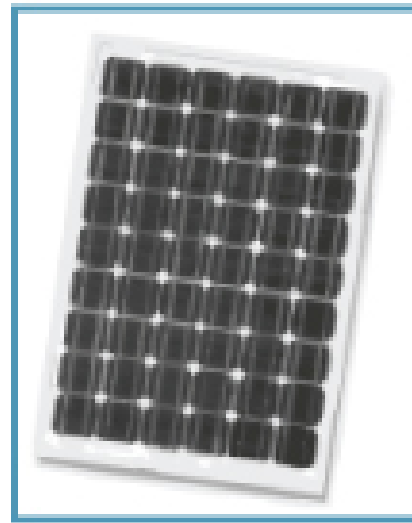
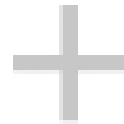
**Using no fossil fuel GHG-emitting energy to operate.*

baseline building consumption
 2003 CBECS (commercial) | 2001 RECS (residential)



DESIGN STRATEGIES

*The largest energy
reductions can be
achieved through design.*



TECHNOLOGIES AND SYSTEMS

*Including on-site renewable
energy systems.*



OFF-SITE RENEWABLE ENERGY

20% maximum.

Meeting the 2030 Challenge

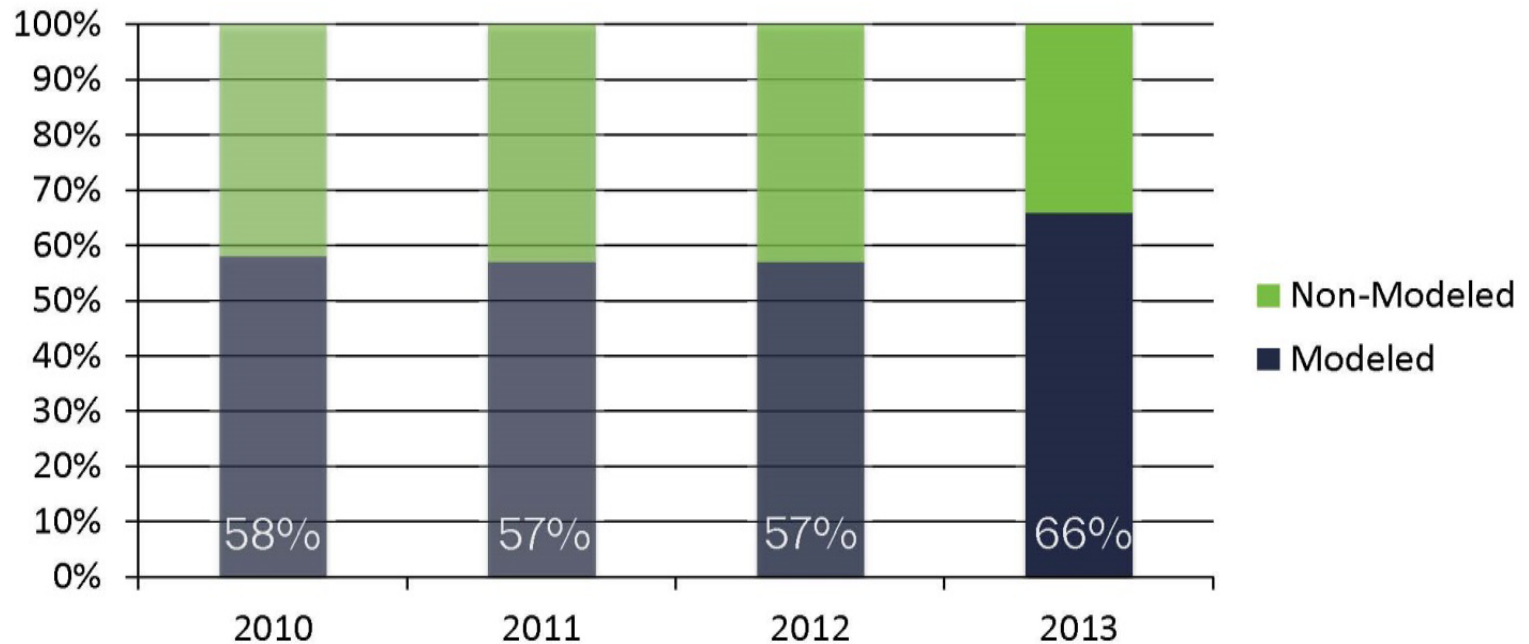
Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.

strategy : reduce before produce



2030 commitment

- 2013 reporting

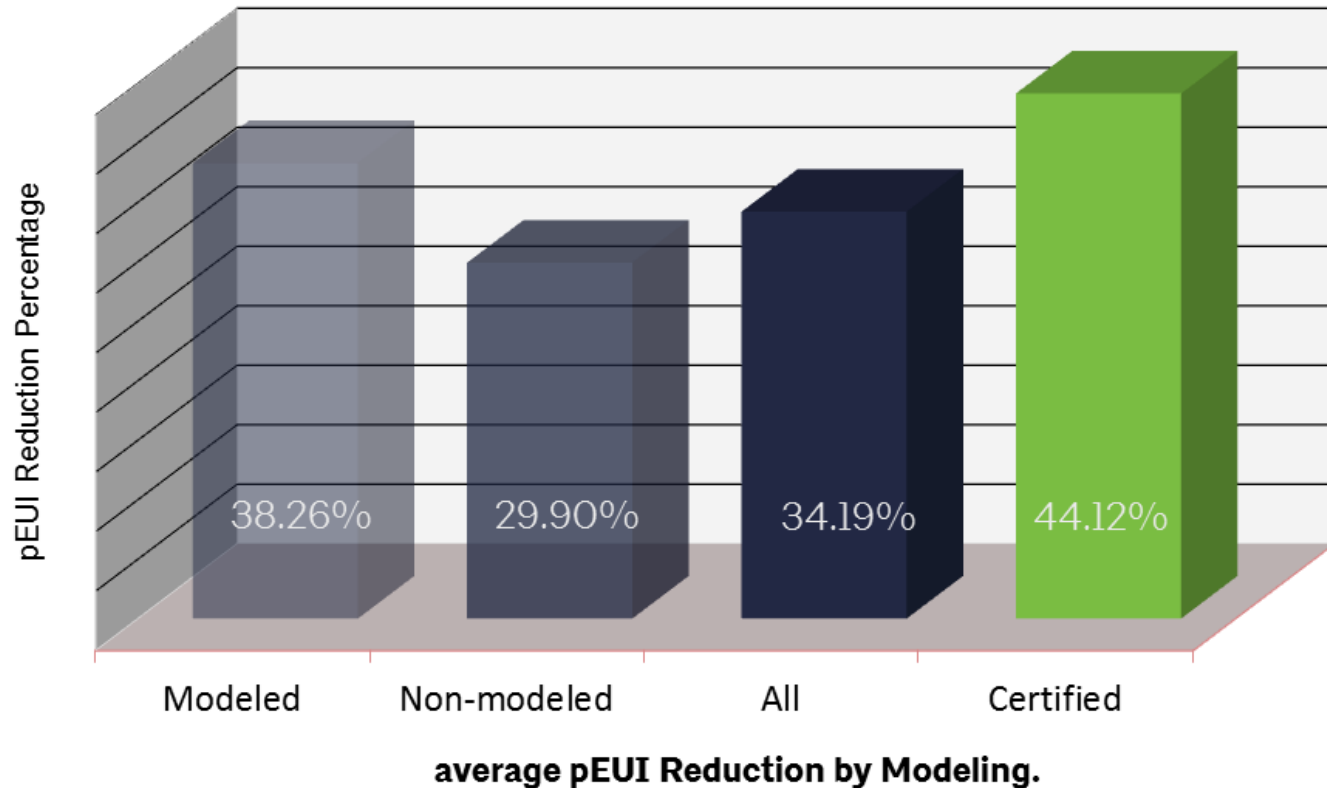


Percent Total GSF Modeled vs. Non-Modeled

goal: transforming the design process

2030 commitment

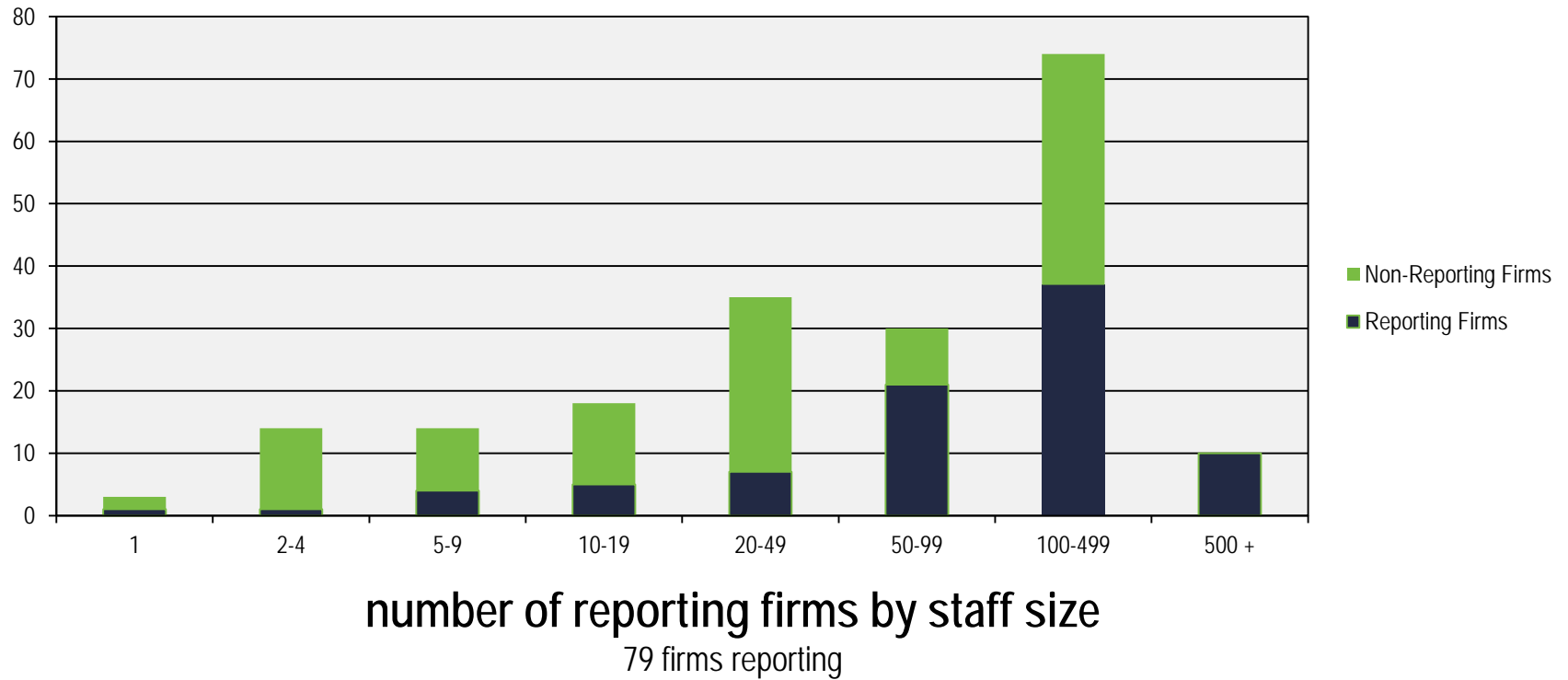
- 2013 reporting



goal: transforming the design process

2030 commitment

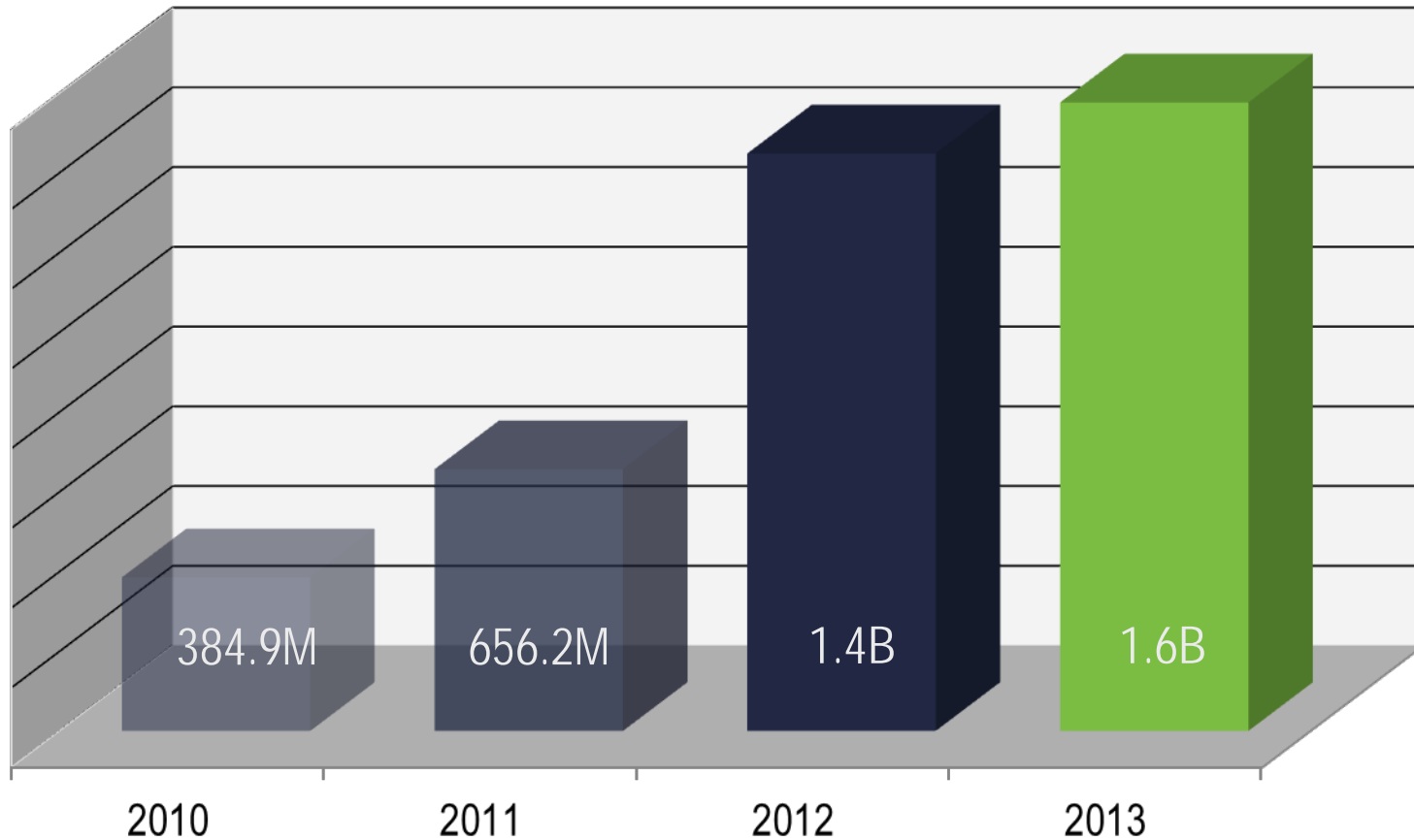
- 2013 reporting



goal: transforming the design process

2030 commitment

- AIA aggregate process

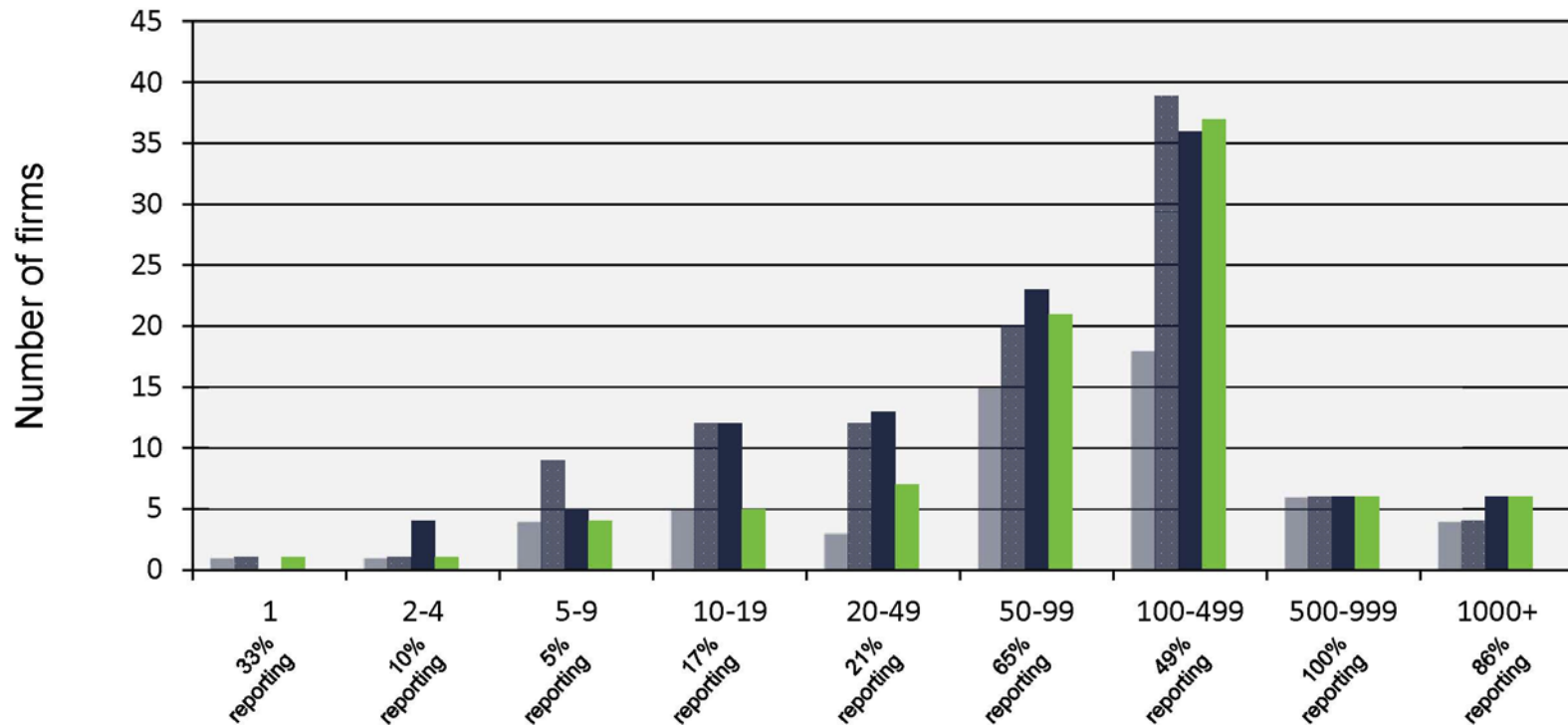


total GSF of active design projects reported



2030 commitment

- 2013 reporting

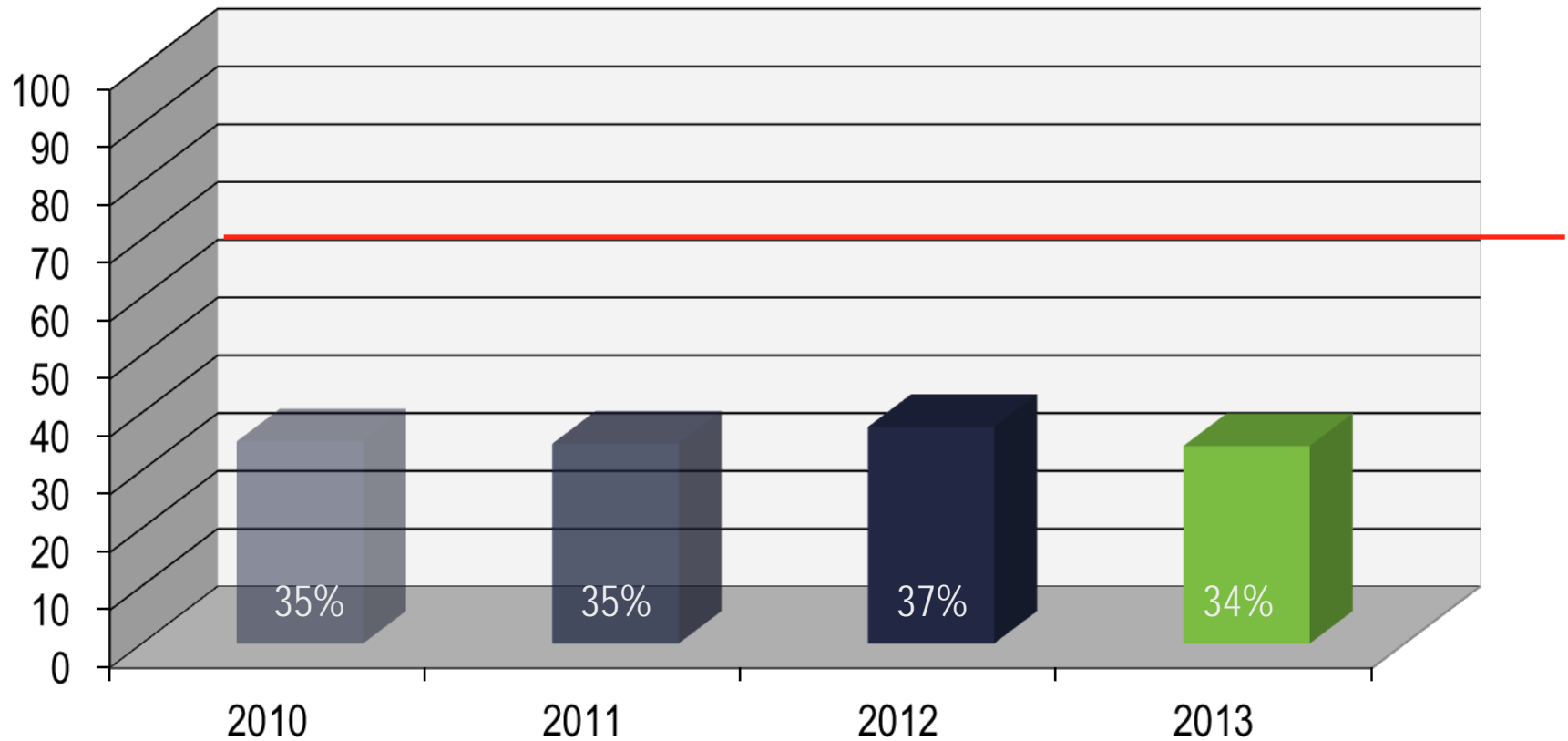


Signatory Firm Reporting Rates by Size by Year

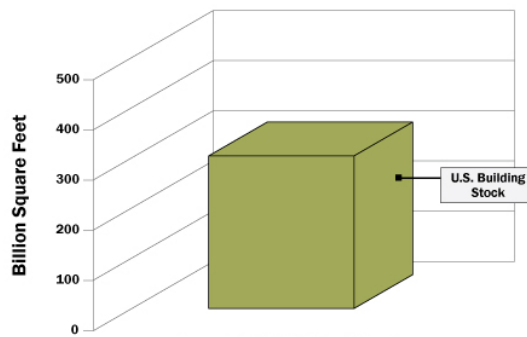
86 firms reporting

2030 commitment

- Performance of design projects reported by year

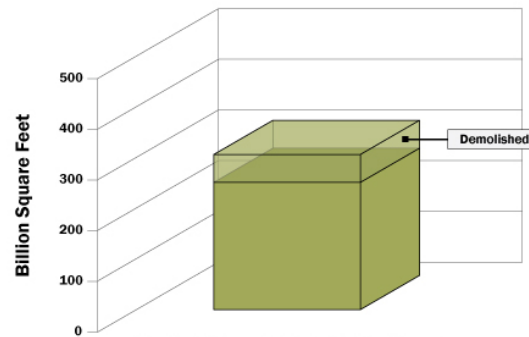


average firm pEUI reduction from baseline



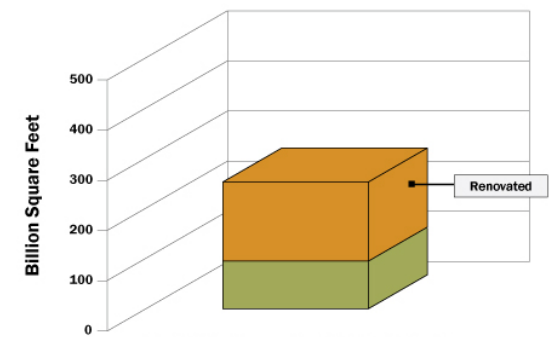
Current U.S. Building Stock

Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.
Data Source: U.S. Energy Information Administration



By 2035: Demolished Building Stock

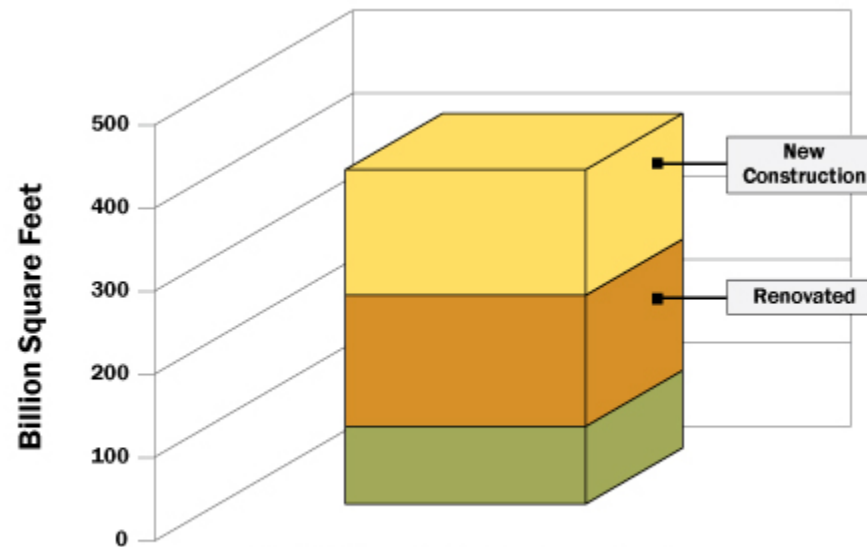
Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.
Data Source: U.S. Energy Information Administration



By 2035: Renovated Building Stock

Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.
Data Source: U.S. Energy Information Administration

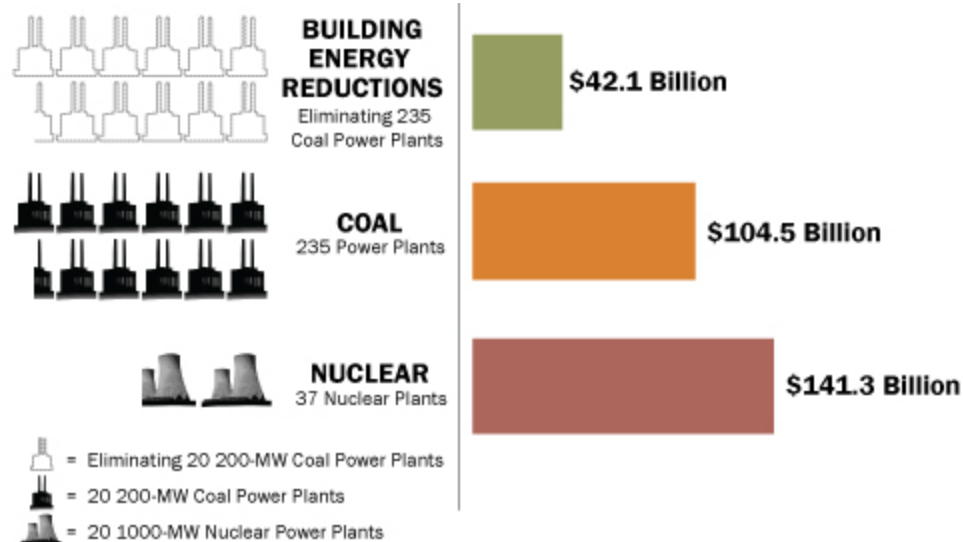
moral prerogative



By 2035: A Historic Opportunity

Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.
Data Source: U.S. Energy Information Administration

Transitioning to the business case



Cost of 1QBTu Delivered Energy

Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.
Data Source: DOE, EIA, McKinsey & Company. Updated Oct. 2010.

business case

- trusted advisor for client base
- framework for energy independence
- competitiveness
- high performance design outcome
- impact triple bottom line (PPP)

Prem Sundharam

Presenter:

Premnath Sundharam, AIA

Architect / Principal

DLR Group

Phoenix, AZ



business case: competitiveness

- 2030 Challenge – mind set change
- AIA 2030 Commitment – process change

2030 PRINCIPLE 1

PRACTICE
INTEGRATED
DESIGN + SUSTAINABILITY

2030 PRINCIPLE 2

SET
ENERGY PERFORMANCE
GOALS

2030 PRINCIPLE 3

OPTIMIZE
BUILDING DESIGN
PERFORMANCE

2030 PRINCIPLE 4

VERIFY
THROUGH MODELING
AND TESTING

2030 PRINCIPLE 5

ASSESS
RENEWABLE
ENERGY OPPORTUNITIES



GOAL:
COMMITMENT TO THE VALUES OF FUTURE SUCCESS



business case: competitiveness

2030 PRINCIPLE 6

ENCOURAGE
POST OCCUPANCY
ENERGY MEASUREMENT & VERIFICATION

2030 PRINCIPLE 7

LIVE SUSTAINABLY
IN OUR
OFFICES

2030 PRINCIPLE 8

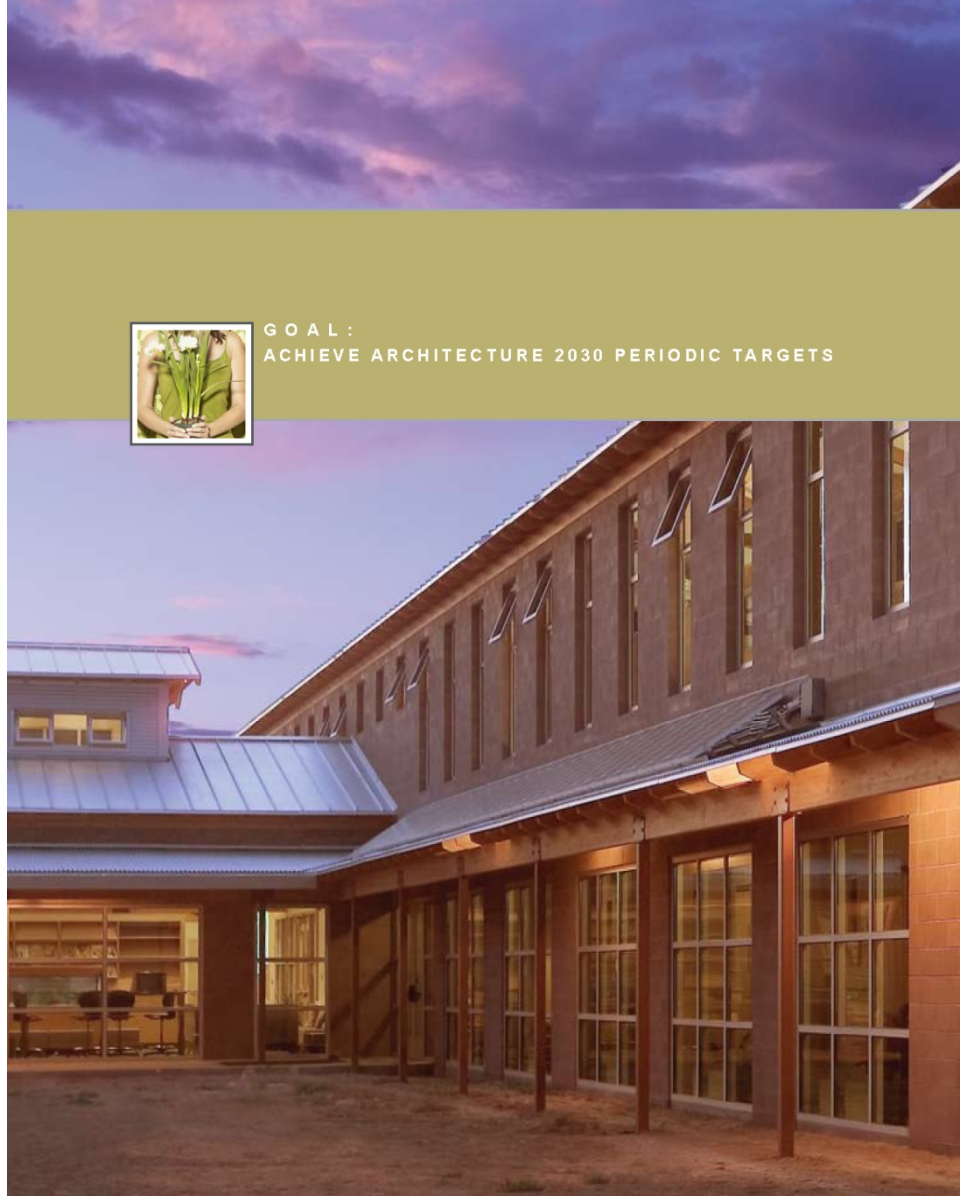
TELL
OUR
STORY

2030 PRINCIPLE 9

LEAD
THIS
CHALLENGE



GOAL:
ACHIEVE ARCHITECTURE 2030 PERIODIC TARGETS



business case: competitiveness

bucket 1

bucket 2

bucket 3



Tesla Model X



Tesla Model S



Tesla Model T

progress ←

→ start here

consumer
mindset

utility, meet
performance

zero
emissions.
zero
compromises

pure
performance

bucket 1

meet
energy
code

effort



internal
mindset

business as
usual

external
mindset

performance
irrelevant

bucket 2

exceed
energy
code
-
firm wide
standard



integrated
design

want to be
green but
don't reinvent

bucket 3

optimize
your
design
through
energy
model



integrated
design on
steroids

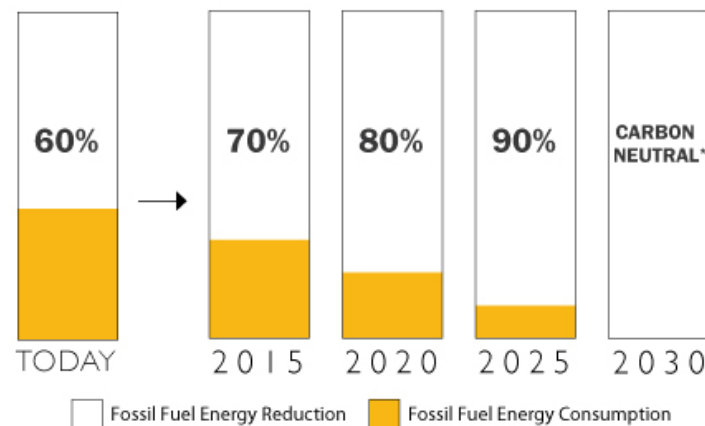
want to be
green but
need help

business case: competitiveness

- recognition for good design
 - awards – energy criteria
 - rankings – firm's performance

business case: energy framework

- tax incentives and rebates (DSIRE)
- energy master plan



The 2030 Challenge

Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.
*Using no fossil fuel GHG-emitting energy to operate.

business case: design outcome

- business intelligence with data

DESIGN

DESIGN

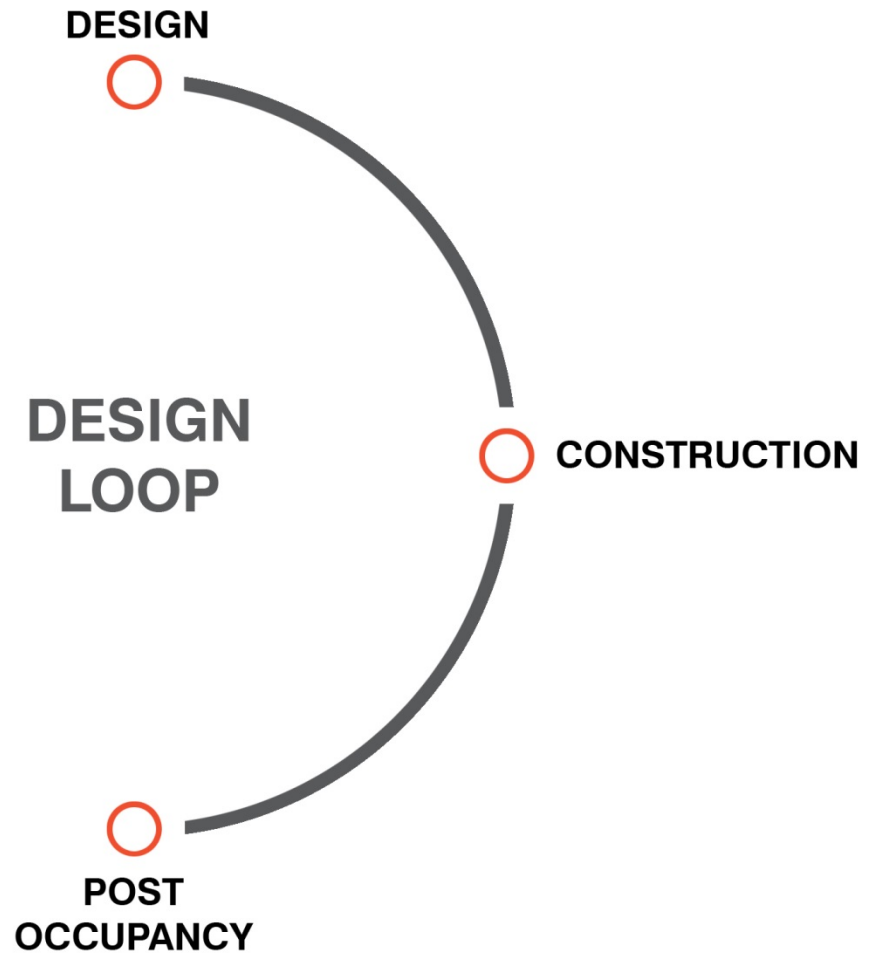


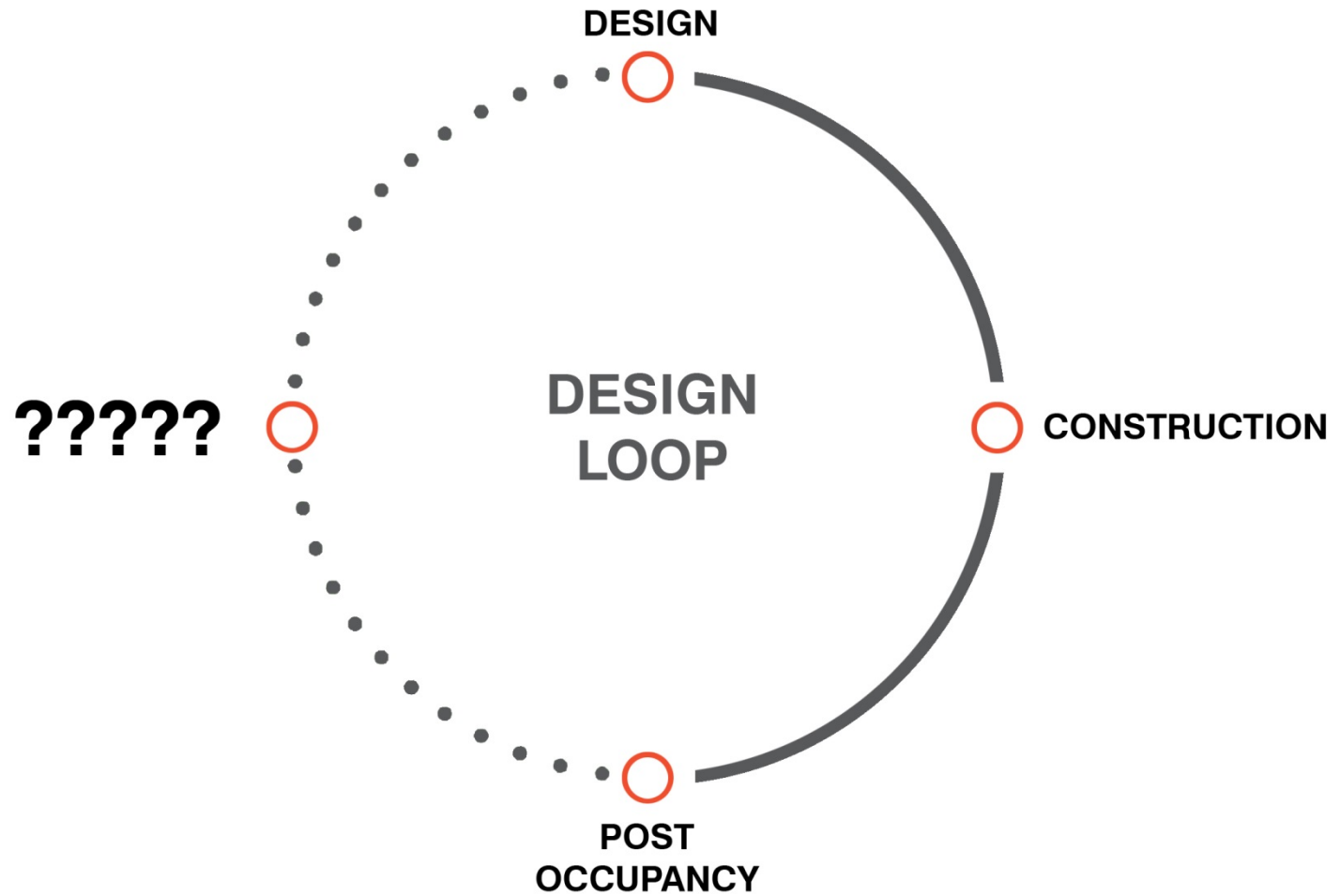
CONSTRUCTION



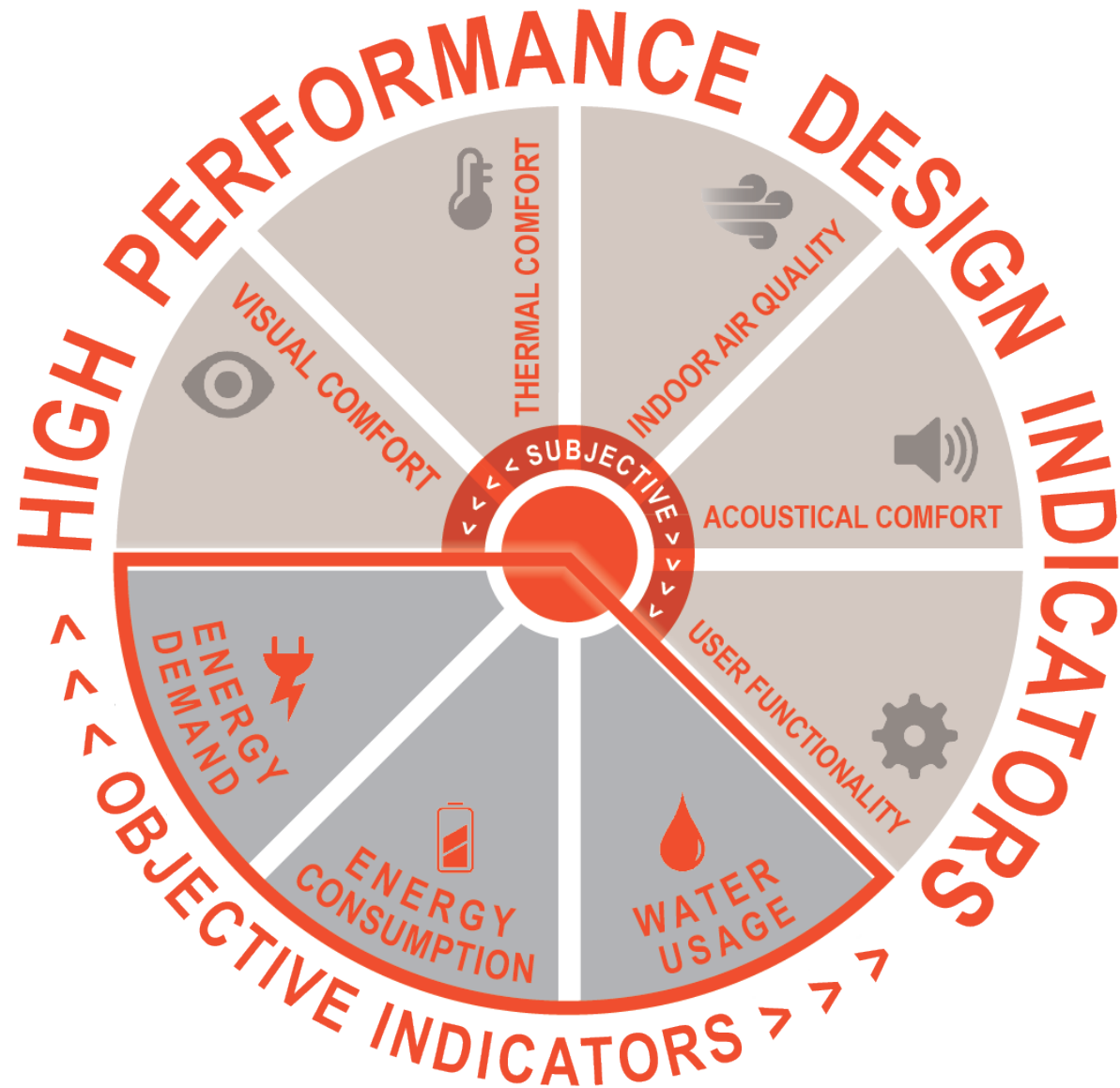
POST
OCCUPANCY



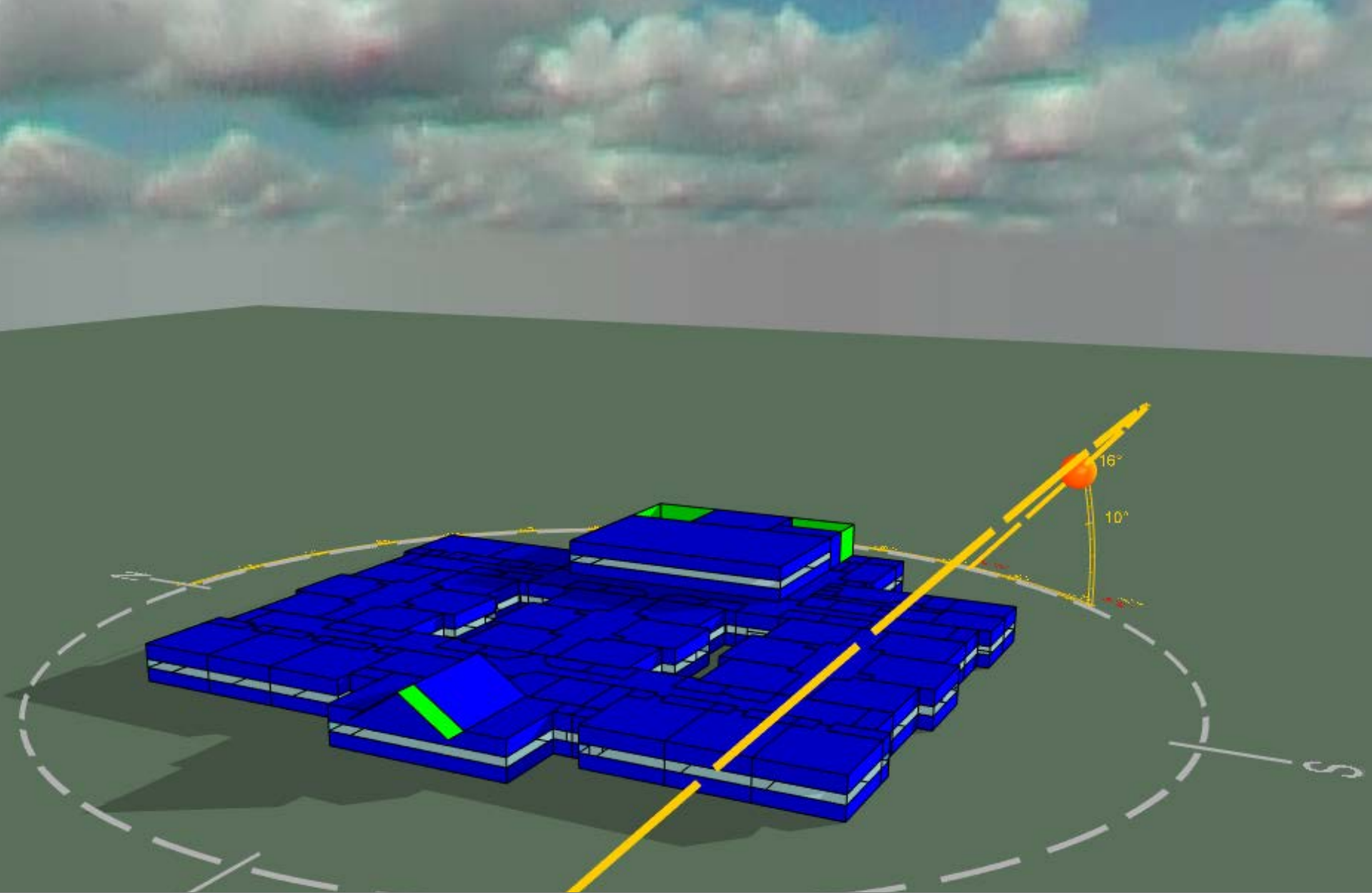








Think Different | Think Holistically

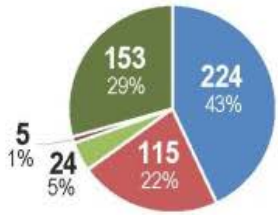


business case: design outcome

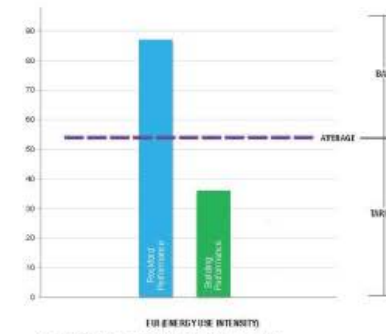
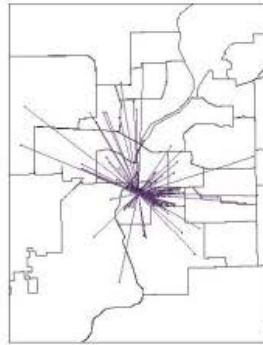
BUILDING DATA:

YEAR BUILT	1968
ENROLLMENT	368 STUDENTS
CAPACITY	521 STUDENTS
SQ. FOOTAGE	50,357 SF
# OF STRANDS	3 STRANDS
AVG. ENERGY USE	1,814 MMBtu
PRIMARY MECHANICAL SYSTEM	RTU
% COOLED	100%

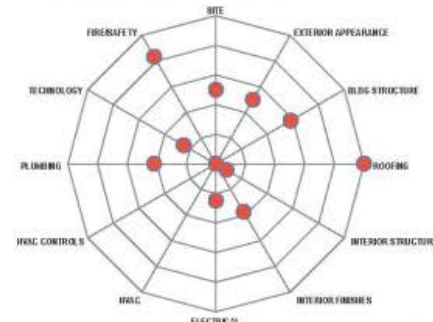
CURRENT ATTENDANCE:



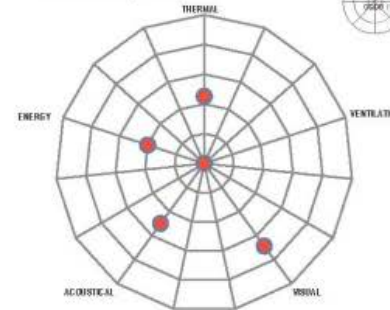
STUDENT PROXIMITY MAP



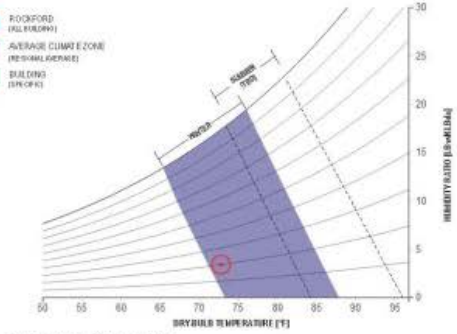
ENERGY PERFORMANCE (DETAIL)



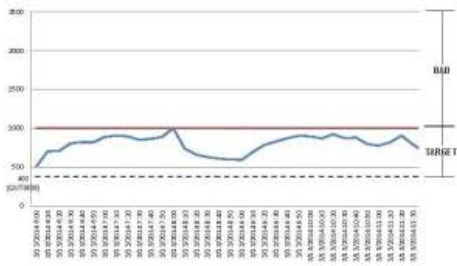
CONDITION (DETAIL)



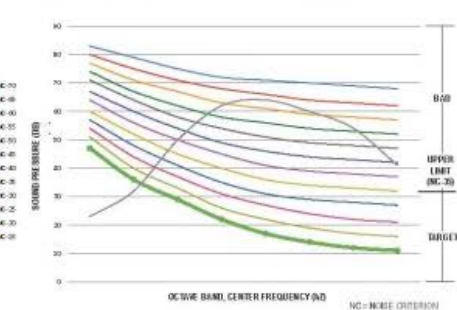
INDOOR ENVIRONMENTAL PERFORMANCE



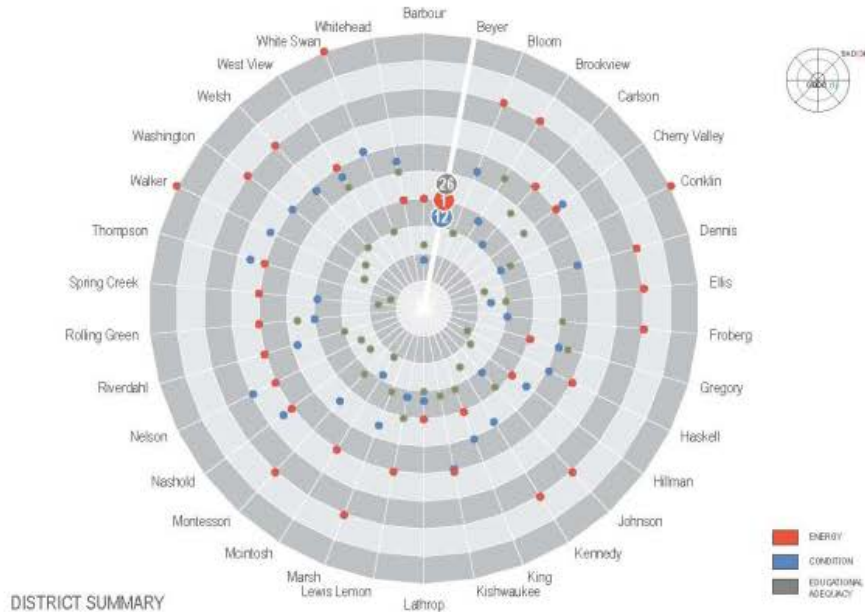
THERMAL COMFORT



CO2 PERFORMANCE



ACOUSTICAL PERFORMANCE



business case: design outcome

Nathan Kipnis

Presenter:

Nathan Kipnis, AIA

Principal

Kipnis Architecture + Planning

Evanston, IL



ARCHITECTURE FIRMS

ADRIAN SMITH + GORDON GILL
ARCHITECTURE



kipnis 
ARCHITECTURE+PLANNING

CANNONDESIGN

 DLR Group

FORUM
THE ART & SCIENCE OF BUILDING

Gensler



HARLEY ELLIS DEVEREAUX

PERKINS + WILL

ross barney architects



Farr Associates

Skidmore, Owings &
Merrill LLP

Studio Gang Architects

business case: competitiveness



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[Stewardship](#) > [Sustainable Operations at REI](#)



SUSTAINABLE OPERATIONS

A targeted approach to reducing our environmental impact

business case: triple bottom line

Greenhouse Gas Emissions Reduction



Aspiration: **Become climate-neutral in our operations by 2020.**

Energy Use



Aspiration: **Grow our business while managing our total energy use.**

Waste and Recycling



Aspiration: **Become a zero waste-to-landfill organization by 2020.**

Paper Usage & Sustainable Forestry



Aspiration: **Align our use of paper with our values through strategic sourcing.**

Green Building



Aspiration: **Create buildings that reflect REI's values and minimize environmental impact.**

Product Impact

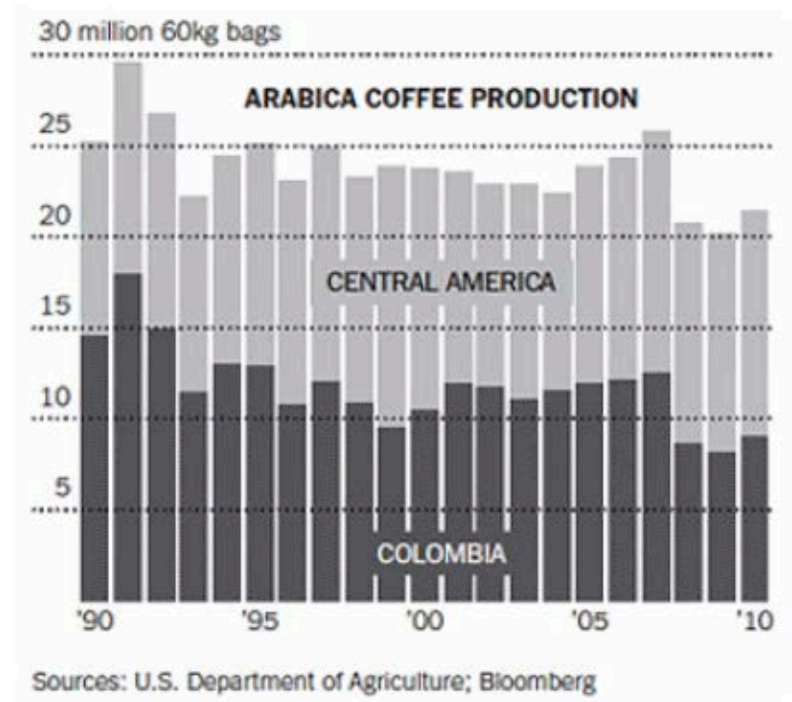


Aspiration: **Know, disclose and address product impacts through their life cycles.**

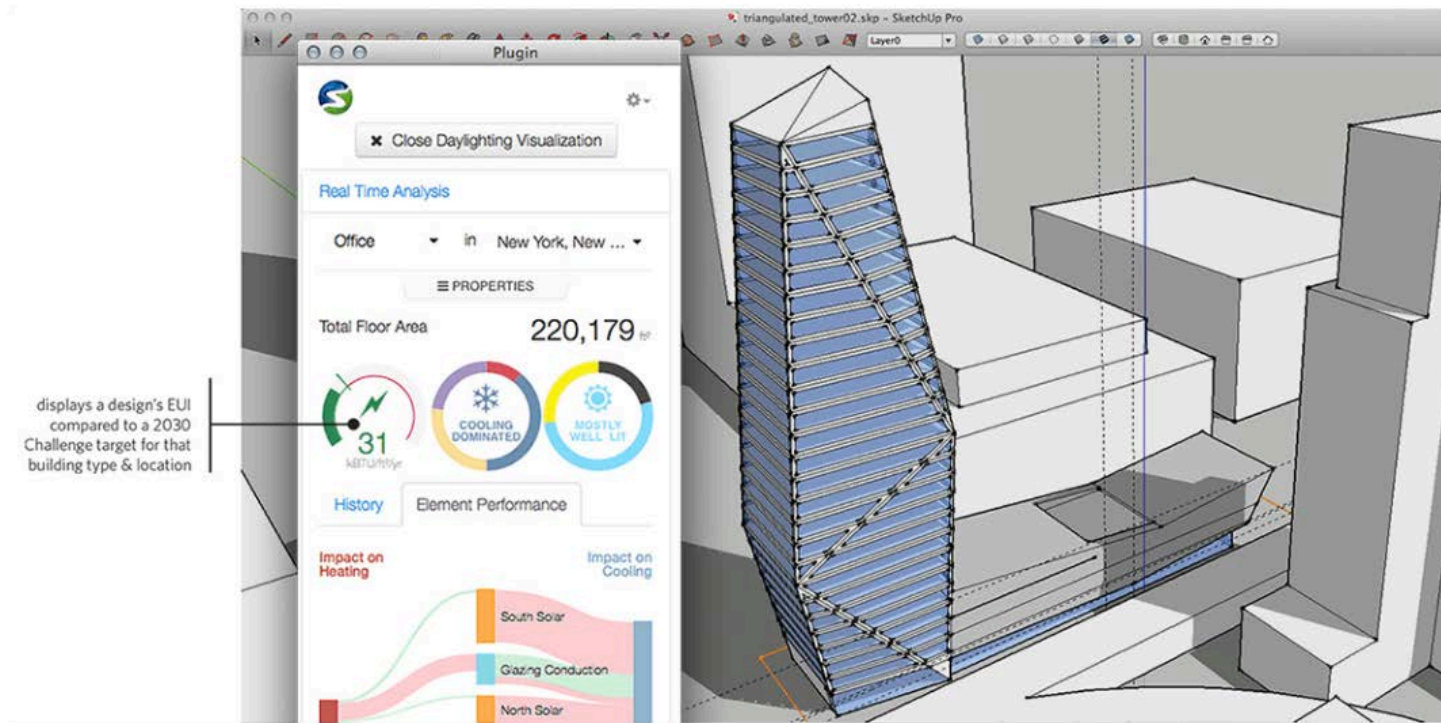
How are Coffee Farms and Climate Change Linked?



The Starbucks and Conservation International relationship supports coffee farmers in mitigating the impacts of climate change. [Watch a video](#)



business case: triple bottom line



Annual energy use per unit area. Measured in kBTU/ft²/yr or kWh/m²/yr. Unless otherwise noted, EUI refers to "site energy," meaning the energy consumed on site. (Source EUI refers to the energy consumed at the power plant to produce the required site energy.)

Why it's important

EUI is a key indicator of building performance. It is useful for comparing performance of buildings. The 2030 Challenge has specific EUI goals for different building types.

Typical Values

Typical US office:

67 kBTU/ft²/yr

211 kWh/m²/yr

Typical US single-family residence, Northeast:

46 kBTU/ft²/yr

145 kWh/m²/yr

Current 2030 Challenge target for US office:

27 kBTU/ft²/yr

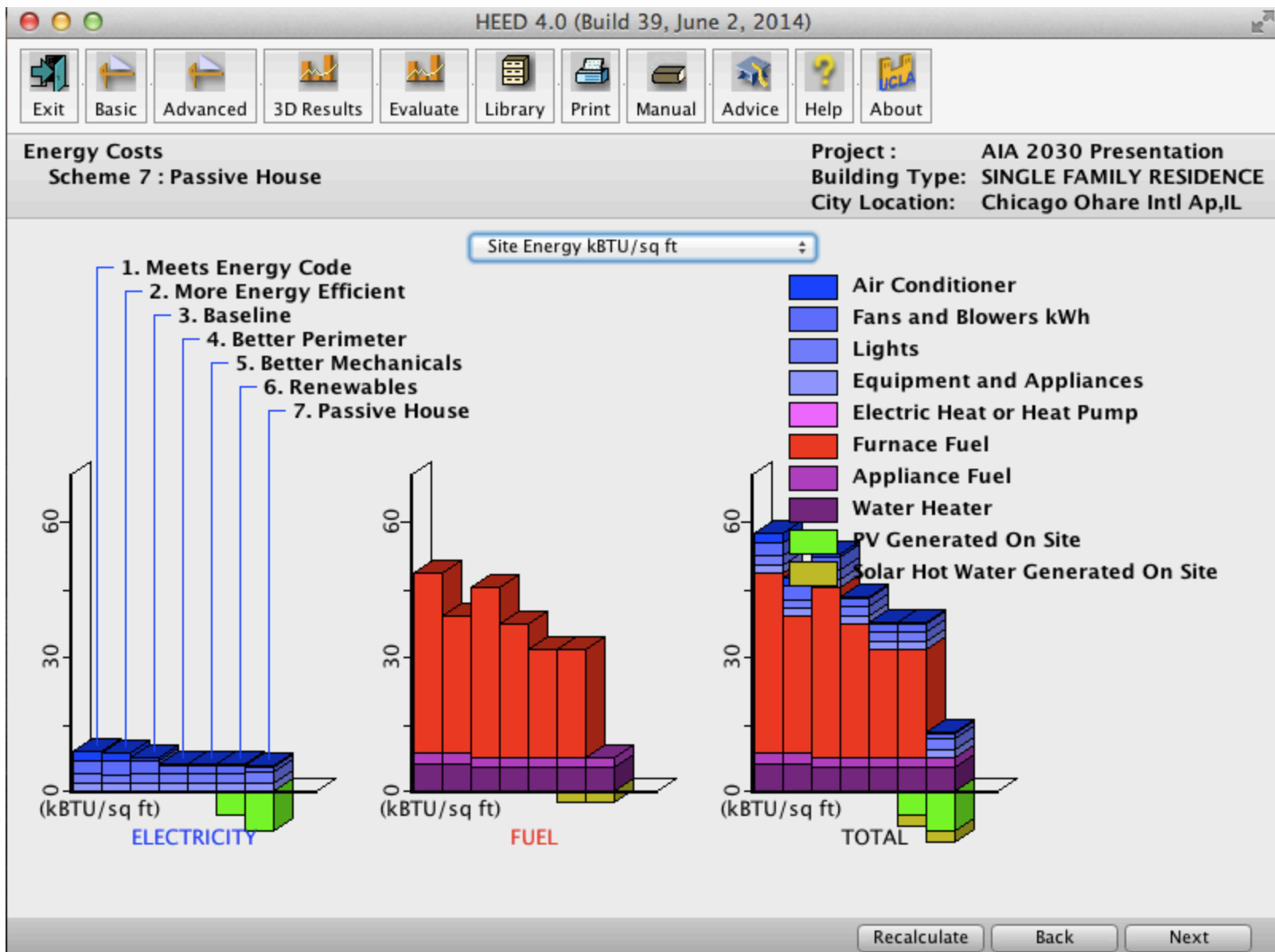
85 kWh/m²/yr

Current 2030 Challenge target for US single-family residence, Northeast:

18 kBTU/ft²/yr

57 kWh/m²/yr

business case: instant feedback



business case: instant feedback

HEED 4.0 (Build 39, June 2, 2014)

Exit Basic Advanced 3D Results Evaluate Library Print Manual Advice Help About

ECONOMIC ANALYSIS

Project: AIA 2030 Presentation
A 3,188 Square Foot SINGLE FAMILY RESIDENCE in Chicago Ohare Intl Ap,IL

		Annual Energy Costs	Savings Compared to Scheme 3		Estimated Costs of Improvements		Years to Pay Back Annual Energy Savings	
					DIY	Contracted	DIY	Contracted
<input type="radio"/> 1.	Meets Energy Code	\$2,993.81	(\$282.03)	-10%	\$0	\$0	Never	Never
<input type="radio"/> 2.	More Energy Efficient	\$2,533.68	\$178.09	7%	\$0	\$0	0.0	0.0
<input checked="" type="radio"/> 3.	Baseline	\$2,711.78	-	0%	\$0	\$0	-	-
<input type="radio"/> 4.	Better Perimeter	\$2,074.70	\$637.08	23%	\$0	\$9,000	0.0	14.1
<input type="radio"/> 5.	Better Mechanicals	\$1,829.43	\$882.35	33%	\$0	\$4,000	0.0	4.5
<input type="radio"/> 6.	Renewables	\$1,809.51	\$902.27	33%	\$0	\$14,000	0.0	15.5
<input type="radio"/> 7.	Passive House	\$772.77	\$1,939.01	72%	\$0	\$20,000	0.0	10.3
<input type="radio"/> 8.								
<input type="radio"/> 9.								

Type In your Estimated Cost of Improvements for either DIY (Do It Yourself) or for Contracted work. You can get estimates from your local Home Improvement store or by calling Contractors from the Yellow Pages or from the State Contractors' Boards. If the estimate is not available, type in "n.a."

Click on the scheme you want to use as the reference. Ideally it should represent your current design

Pay Back: This is the number of years it would take this Estimated Cost to be paid back by the savings Compared to the Annual Energy Costs of your current design. To put this number in context, if you invested this same amount of money in a bank CD at 6% per year, it will pay back fully in 12 years (in both cases you will still have your principal, either as cash or as an investment in your home's value).

Estimates Only: The California Public Utilities Commission, none of the California Utilities, the Regents of the University of California, nor the developers of this software make no warranty, expressed or implied, including but not limited to any warranty of merchant ability or fitness for any particular use or application.

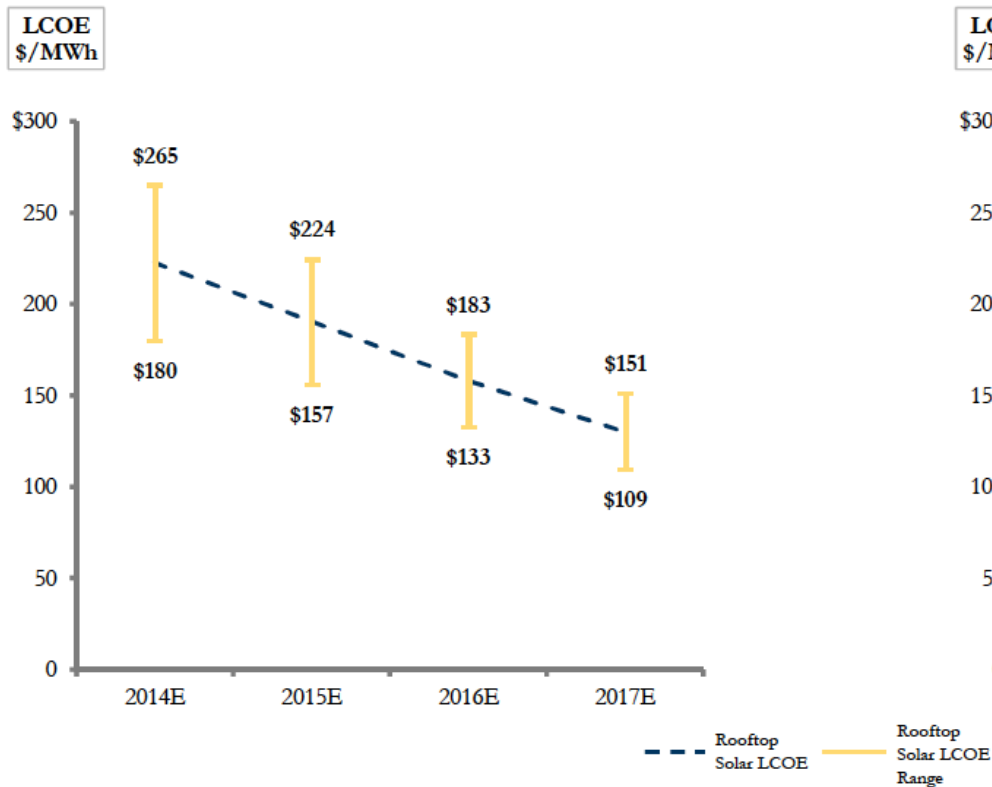
Recalculate Back Next

business case: economic feedback

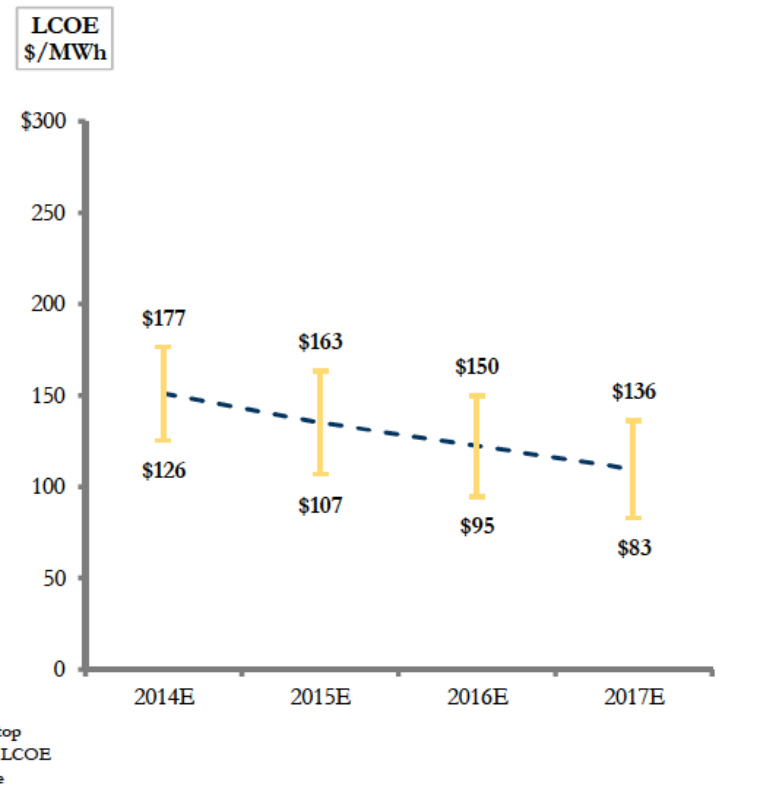
Levelized Cost of Energy—Rooftop Solar (Forecasted)

Rooftop solar has benefited from the rapid decline in price of both panels and key balance-of-system components (e.g., inverters, racking, etc.); while the small-scale nature and added complexity of rooftop installation limit cost reduction levels (vs. levels observed in utility-scale applications), more efficient installation techniques, lower costs of capital and improved supply chains will contribute to a lower rooftop solar LCOE over time

ROOFTOP RESIDENTIAL LCOE^(a)



ROOFTOP C&I LCOE^(b)



business case: forecasting trends



business case: triple bottom line

business case

- trusted advisor for client base
- framework for energy independence
- competitiveness
- high performance design outcome
- impact triple bottom line (PPP)