

# 2030 BY THE NUMBERS

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The 2017 summary of  
the AIA 2030 Commitment

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## INTRODUCTION



### **Our carbon footprint: The stakes are growing**

Devastating wildfires in the Western United States. Pounding hurricanes from the Eastern states to the Caribbean. Record-breaking high-tide flooding<sup>1</sup> along the coasts. The drumbeat of news about effects related to a changing climate—and the resulting loss of life and property—refuses to stop. Meanwhile, the World Health Organization echoes the concerns of much of the public health community as it warns “the overall health effects of a changing climate are likely to be overwhelmingly negative.”<sup>2</sup>

In the midst of this, the federal government is withdrawing from the Paris Agreement, striking references<sup>3</sup> to climate change from public documents, and generally taking a back seat in driving solutions. Now, more than ever, architects play a key role in combating climate change. With nearly 40 percent of US energy consumed by buildings,<sup>4</sup> architects must play a key role in combating climate change, now more than ever.

### **Architects are meeting the challenge**

The 2030 Commitment is a powerful platform used by AIA members to affirm climate leadership. Launched nearly a decade ago, the 2030 Commitment provides a consistent national framework and multifaceted data analysis tool to guide and measure the impact of design decisions on energy use. It also offers resources, support, and training for architects to build expertise in developing low- to zero-carbon projects.

Especially encouraging is the fact that the program continues its steady expansion. In 2017, 212 firms—including sole practitioners and multinational companies with more than 1,000 employees—submitted portfolios, a 21 percent increase over 2016. In total, as of July 2018, 525 firms have signed the 2030 Commitment to a carbon-neutral built environment.

### **The 2030 Commitment is making a meaningful impact**

Most important, the collective efforts of 2030 participants amount to meaningful impact. This year alone saw 17.8 million metric tons of carbon savings over the 2030 baseline equivalent buildings and savings of \$3.2 billion in annual operating costs.

The overall average predicted energy use intensity (pEUI) percent savings rose again this year to 44 percent, with a two percent increase over 2016. The increase is driven by a combination of expanded energy modeling and more stringent energy codes in many states. Five hundred sixty projects met the 2017 target of 70 percent savings or above, with 99 projects reaching net zero.

In sum, 2017 represented another year of incremental progress, with each improvement an important step in the right direction. We also recognize that we’ll need to enhance our performance more rapidly if we want to reach the goal of designing 100-percent carbon-neutral buildings by 2030.

### **Knowledge is power**

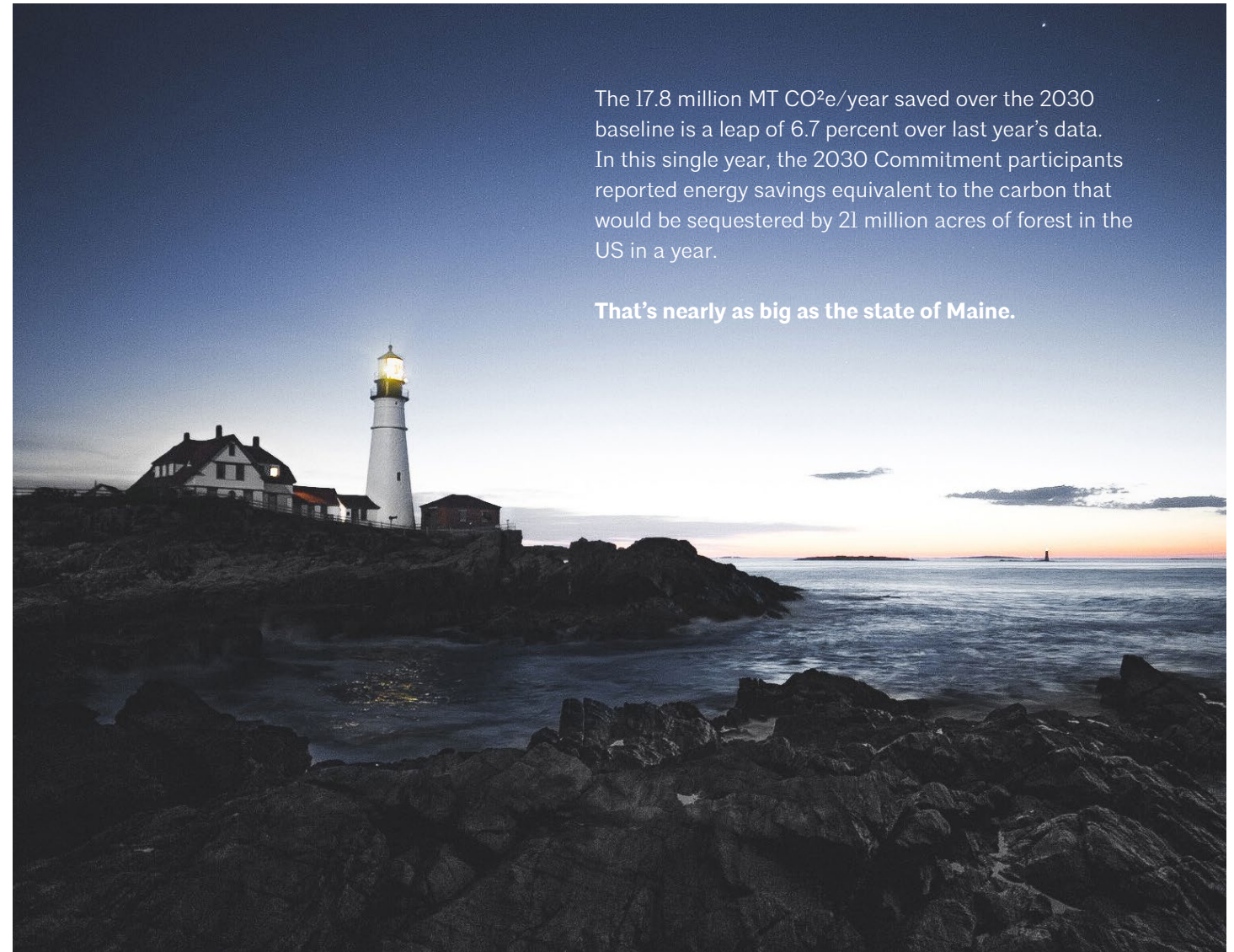
A key component of the 2030 Commitment is the Design Data Exchange (DDx), a sophisticated software suite that empowers users to collect, report, and analyze their data in ways that continually expand our knowledge about how and where progress is happening. That knowledge is power: Power to further cut greenhouse gas emissions and to design a built environment that reflects ingenuity and mindful progress, starting with our ongoing work to meet our 2030 goals.

Looking at the next decade—a critical period in fighting climate change in the built environment—the 2030 Commitment provides a model of success for voluntary efforts to move deliberately and effectively toward a sustainable, healthy, carbon-neutral future.

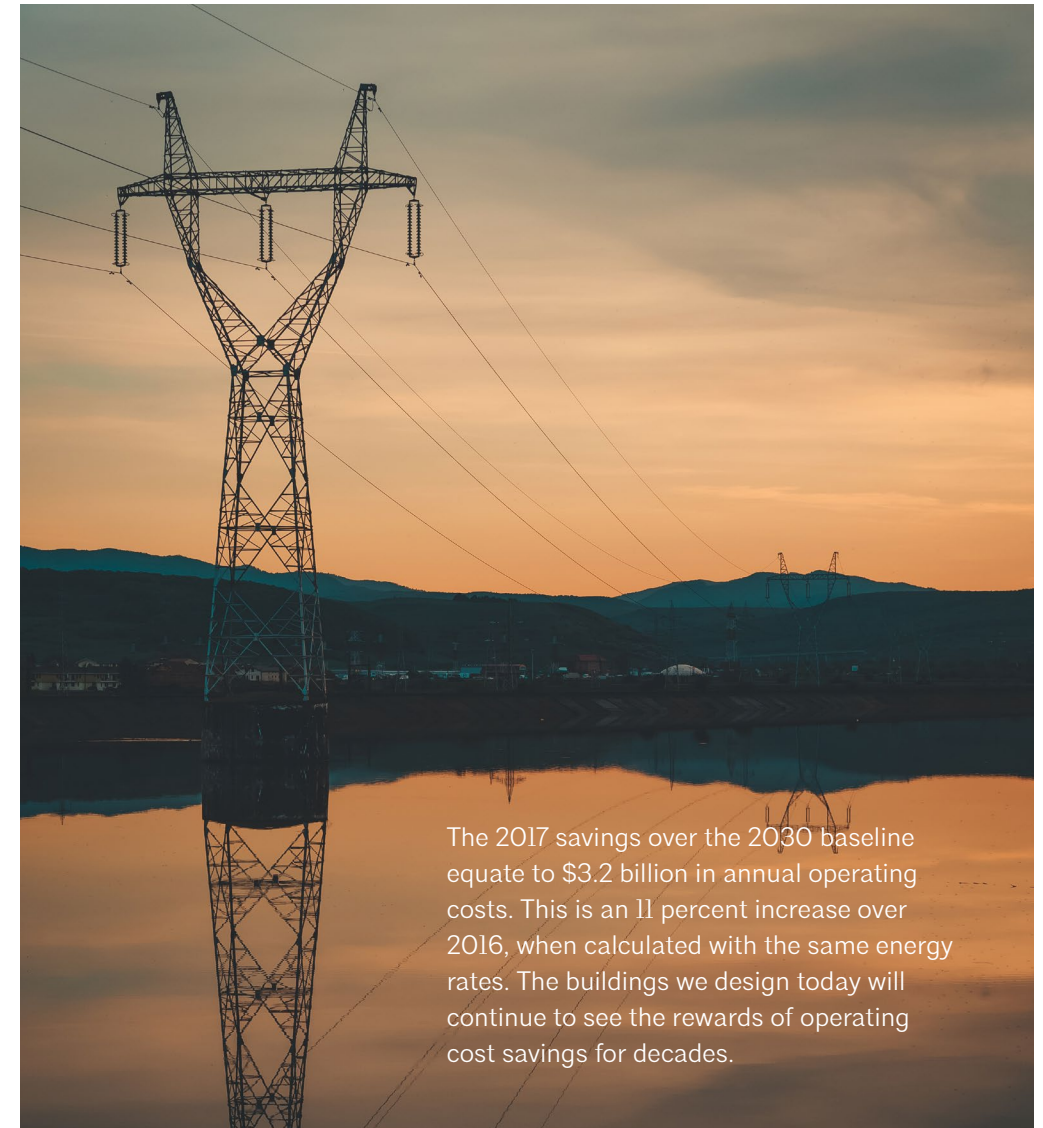
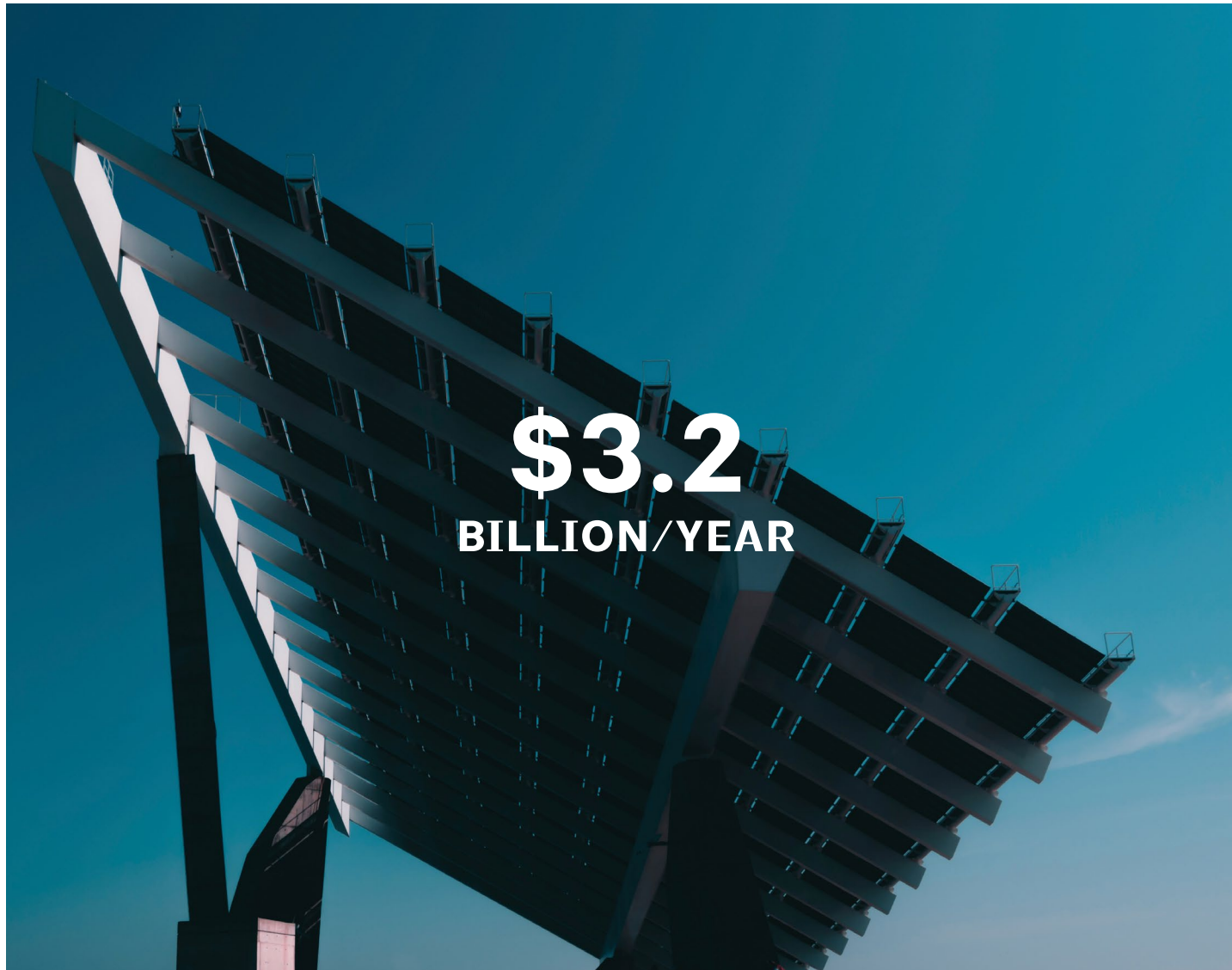
SECTION 1.

ARCHITECTS  
ARE CLIMATE  
LEADERS





See appendix for the projected CO<sub>2</sub> equivalent (CO<sup>2</sup>e) emissions reduction calculation methodology.



*See appendix for the design energy projected cost savings calculation methodology.*



BY ANY MEASURE,  
THE SAVINGS  
ADD UP.

#### COMMERCIAL SAVINGS

A typical 100,000 square foot commercial office building in New York City designed to perform 70 percent better than the 2030 baseline would yield the following annual savings:

**~2,150 mWh**

less energy

**~\$194,000**

in projected energy cost savings

**~537**

metric tons of CO<sup>2</sup>e reductions, which equals the amount of electricity about 80 homes use in a year

#### RESIDENTIAL SAVINGS

Meanwhile, a typical 2,500 square foot single-family home in Mobile, Alabama, designed to perform at 70 percent better than the 2030 baseline would equate to the following annual savings:

**~23 mWh**

less energy

**~\$2,000**

in projected energy cost savings

**~9**

metric tons of CO<sup>2</sup>e reductions or about the same as the carbon that is sequestered by preserving 10.6 acres of trees

*See appendix for the projected CO<sup>2</sup>e equivalent emissions reduction calculation and design energy projected cost savings calculation methodologies.*

“The AIA 2030 Commitment has been an essential platform for expanding Leddy Maytum Stacy Architects’ continued commitment towards a zero carbon future. Every firm should join the movement. This resource is a valuable guide towards helping designers track progress and ultimately make an impact as leaders in designing regenerative, healthy, and resilient communities.”

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**Marsha Maytum, FAIA, LEED AP**

Principal at Leddy Maytum Stacy Architects, recipient of AIA’s 2017 Architecture Firm Award

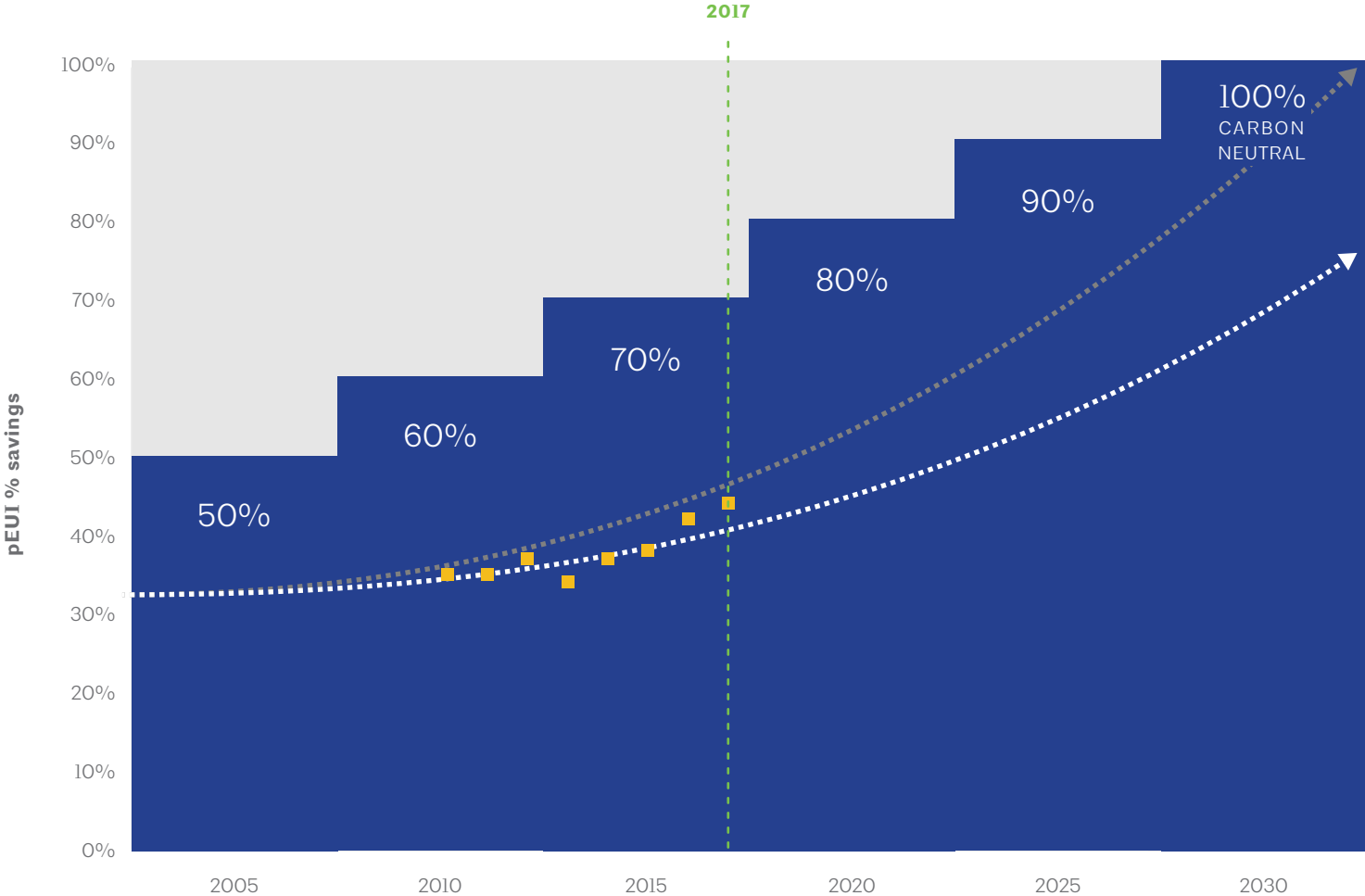


SECTION 2.

THE 2030  
COMMITMENT  
RETURNS  
RESULTS



**RESULTS** / Progress to 2030 goals



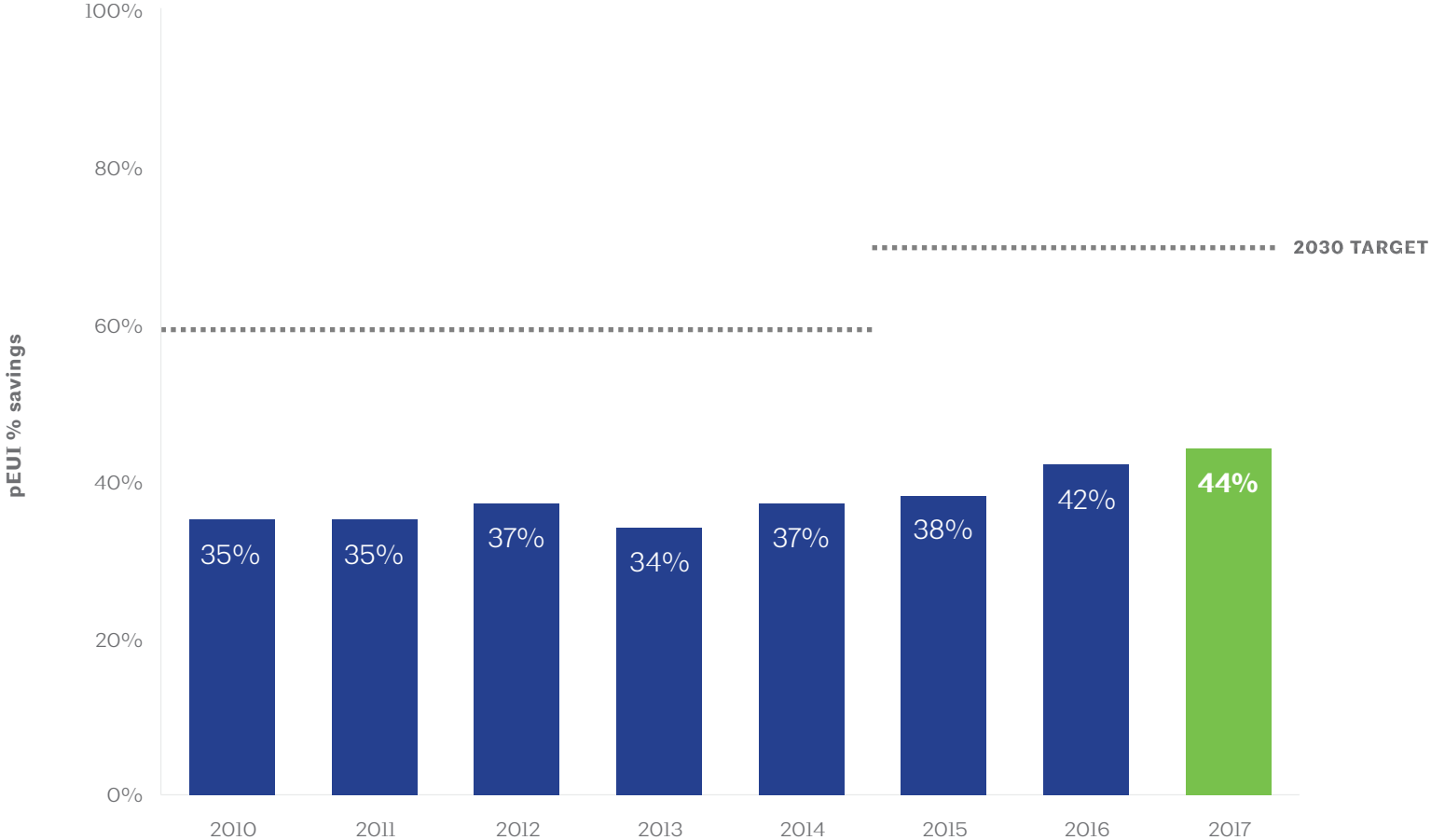
**PICK UP THE PACE TO MEET OUR 2030 GOALS**

Each year we make progress toward achieving the 2030 goals, but the current trajectory suggests we'll need more time to achieve 100 percent carbon-neutral design. Improvements could happen faster with stricter codes, more energy modeling, and other market motivators.

- Key**
- 2030 Commitment pEUI % savings goals
  - Average annual pEUI tracked by the 2030 Commitment
- 2 dotted projection paths:**
- Meeting 2030 goals
  - Current pace

Annual predicted energy use intensity (pEUI) savings is a weighted average of whole building project gross square feet (GSF). pEUI savings is relative to the 2030 Baseline–2003 Commercial Building Consumption Survey (CBECS)<sup>5</sup> and 2001 Residential Consumption Survey (RECS).<sup>6</sup>

**RESULTS** / pEUI savings

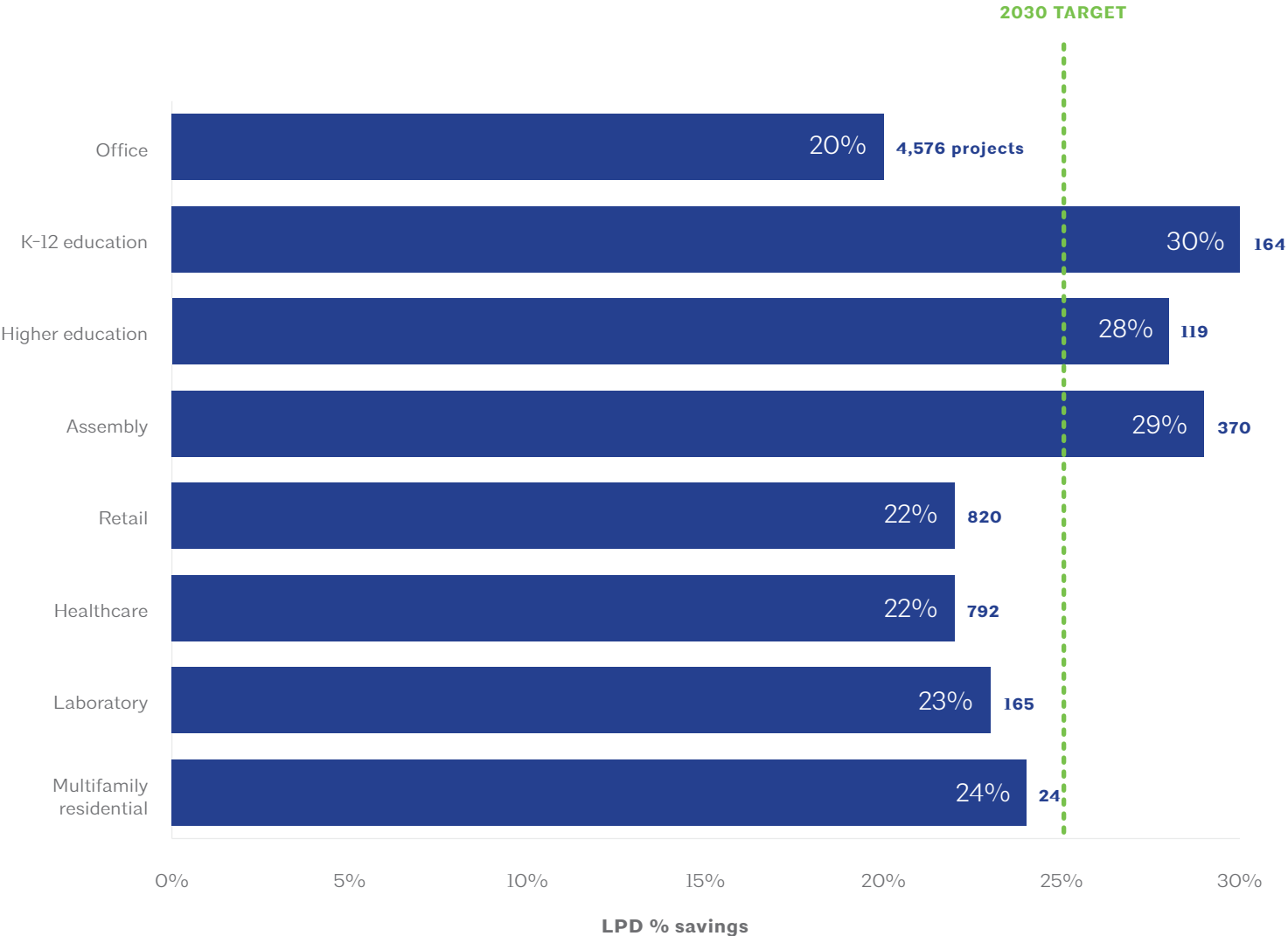


**44% pEUI savings,  
the best year on  
record**

2030 targets are achievable, and the results show the culture is changing. Year after year and kilowatt hour by kilowatt hour, architects are measurably moving the needle and reducing energy consumption.

*Annual predicted energy use intensity (pEUI) savings is a weighted average of the whole building project gross square feet (GSF). pEUI savings is relative to the 2030 Baseline—2003 Commercial Building Consumption Survey (CBECS) and 2001 Residential Consumption Survey (RECS).*

**RESULTS** / LPD savings



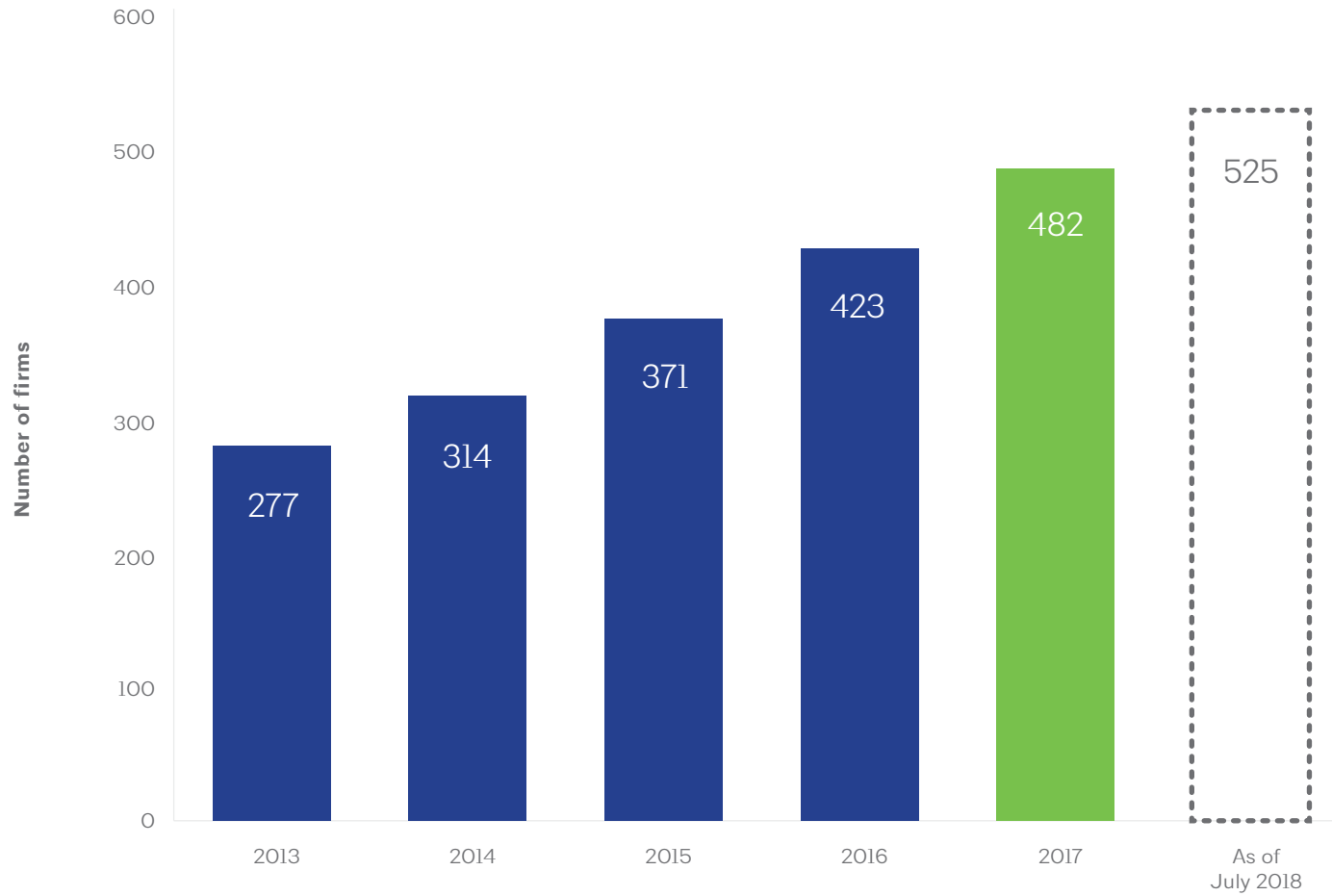
**23% LPD savings**

The 2030 Commitment sets a 25 percent savings goal for the GSF weighted average lighting power density (LPD) of interiors projects. Of the 212 firms reporting their projects for the 2030 Commitment, 134 firms tracked 7,100 interiors projects.

This year’s data showed an average of 23 percent savings, which not only comes closer to meeting the goal but also had fewer outliers and data anomalies. For example, last year the overall percent reduction jumped almost five points by adjusting just the office-use projects to meet the LPD code threshold minimum within eight of the most frequently used energy codes. This year we calculated the data the same way and our overall savings changed by just one percent. We believe this indicates that architects better understand what LPD values are reasonable for their projects and how to calculate the LPD or frame the request to their consultants, and that firms can more accurately benchmark and target their LPD goals when looking at LPD by use type.

*Lighting power density (LPD) savings is a weighted average of GSF of interiors projects. LPD savings is relative to the 2030 baseline for interiors projects—ASHRAE 90.1 2007.*

## RESULTS / More firms, more savings

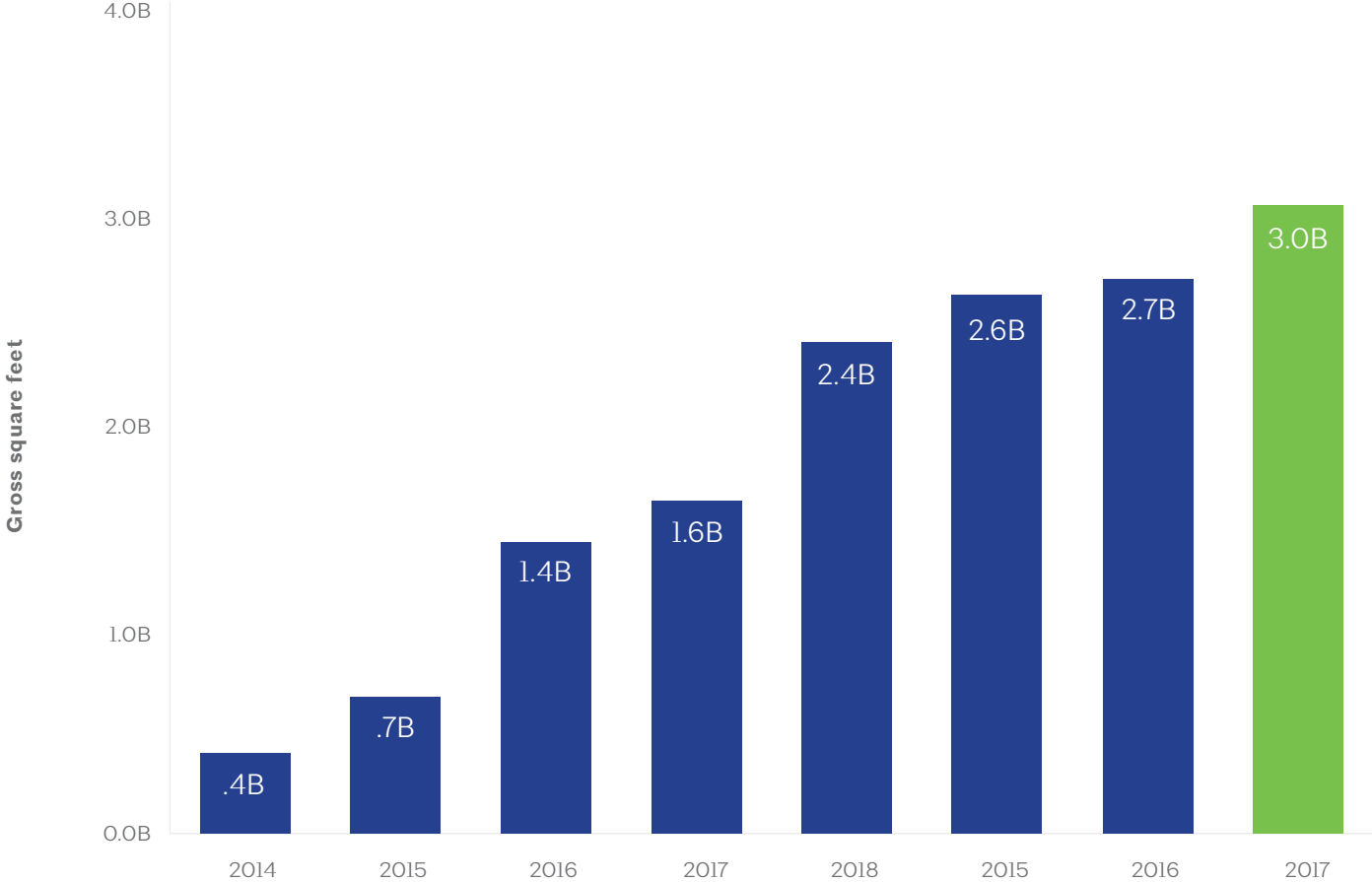


### 21% Increase

212 firms submitted portfolios in 2017 compared to 175 in 2016, a 21 percent increase.

As of July 2018, 525 firms have made the 2030 commitment. We hope to see continued growth through the remainder of 2018 and an even bigger reporting year next year.

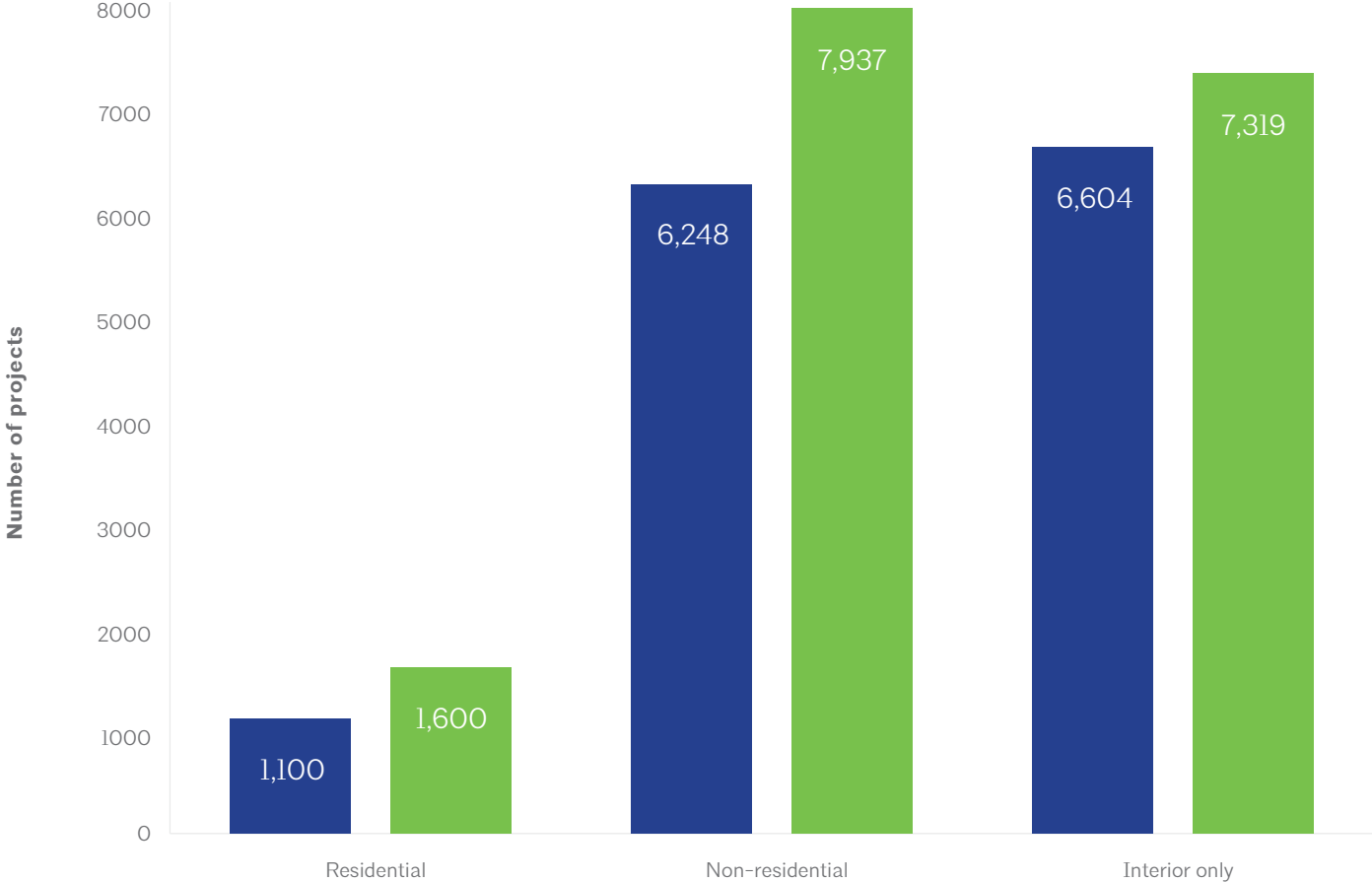
**RESULTS** / GSF grows



**More than 3 billion GSF**

Total gross square feet (GSF) grew by 13 percent over last year to more than 3 billion GSF. This is a more than sevenfold increase since the 2030 Commitment launched in 2010.

**RESULTS** / Number of projects grows



**16,856 Total projects**

The number of projects reported in 2017 grew by 21 percent. There was growth across all project types, but total residential and whole building projects saw greater proportional upticks than interiors.

**Key**  
■ 2016  
■ 2017



*\*ConstructConnect<sup>7</sup> data tracks "new" and "addition" construction starts in the US by square footage. The ConstructConnect square footage calculations are for 'new' and 'addition' nonresidential construction. For 'alteration' work, there is no square footage calculation. The 2030 GSF represented is a subset of the data that excluded international, interiors projects, residential, renovations, and phases other than "design closeout final."*



SECTION 3.

KNOWLEDGE  
IS POWER



**10 Firms**

met the 70 percent target across their entire portfolio.

**560 Projects**

in the US and 16 other countries met the target.

**135 Firms**

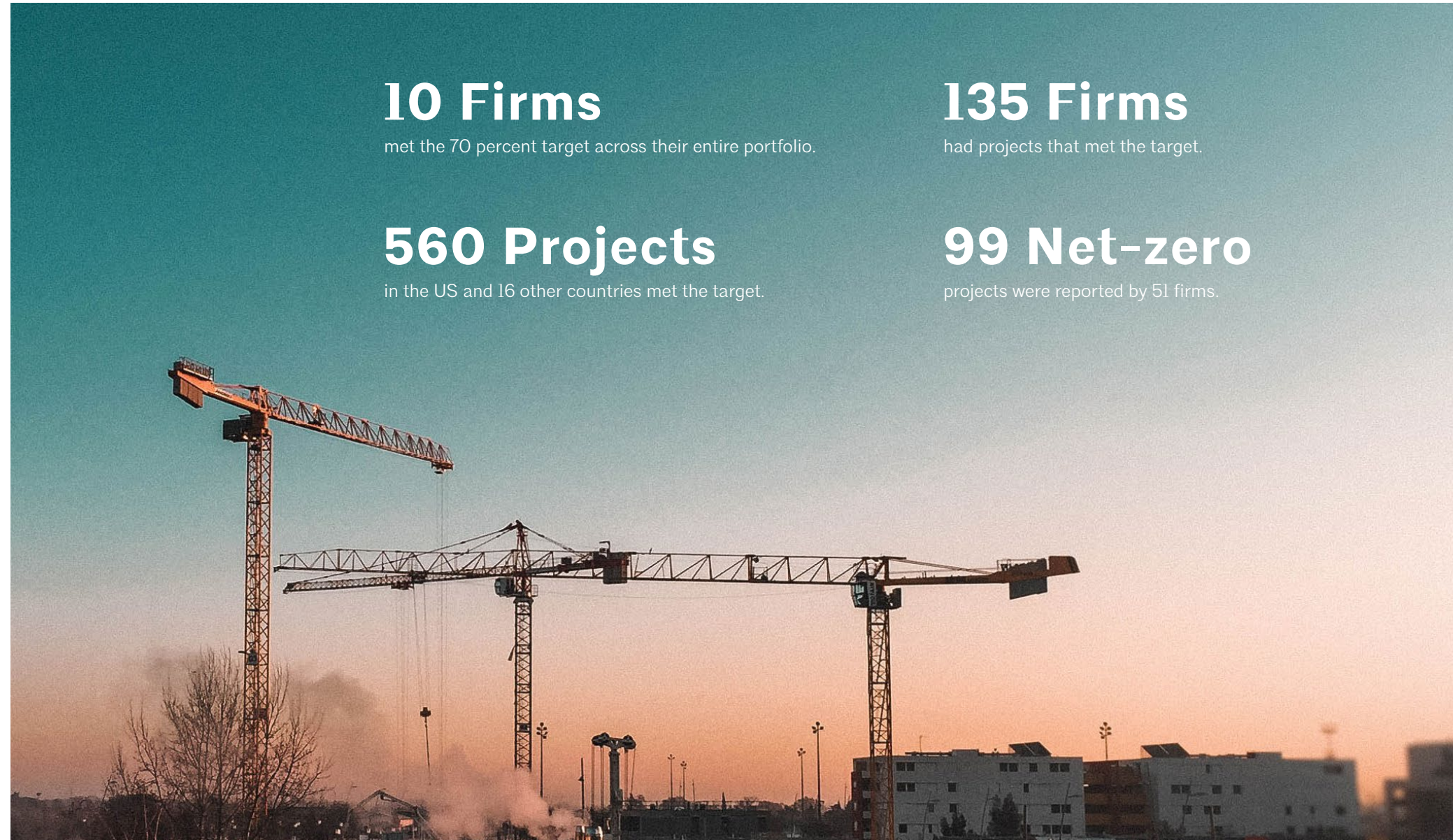
had projects that met the target.

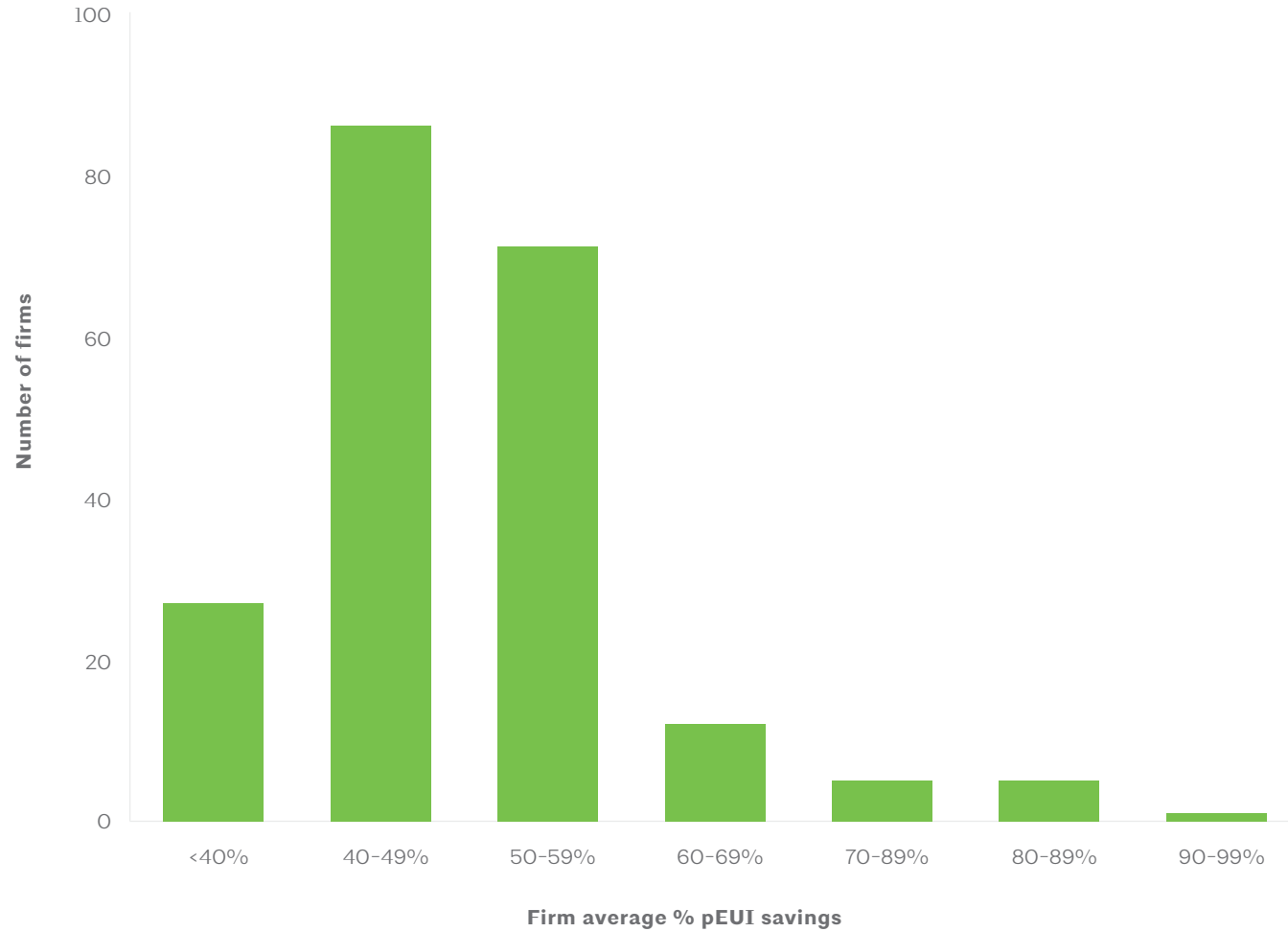
**99 Net-zero**

projects were reported by 51 firms.

**MEETING GOALS**

The goals set forth in the 2030 Commitment are not easy targets, and reaching net zero is no small feat. For those who do not meet the goals, each step along the way still represents progress and another opportunity to further embed the principles of the 2030 Commitment into firm culture.





## 48% Median firm pEUI savings

The majority of reporting firms are in the 40 percent to 60 percent savings range, a reminder that tracking energy metrics is the most important step in making—and learning from—steady progress.

## KNOWLEDGE / Participating firms

*These 10 firms achieved a 70% pEUI savings across their entire portfolio!*

**Coldham & Hartman Architects**

**COULSON**

**ehdd**

**Green Hammer**

**Lehrer Architects LA, Inc.**

**Maclay Architects**

**McGranahan Architects**

**mode associates**

**Yost Grube Hall**

**ZeroEnergy Design**

Adrian Smith + Gordon Gill Architecture  
Albert Kahn Associates, Inc.  
Alliance  
Ankrom Moisan Architects, Inc.  
Ann Beha Architects  
ARC/Architectural Resources Cambridge, Inc.  
archimania  
Arrowstreet  
Ashley McGraw Architects  
Atelier Ten  
Ayers Saint Gross  
Ballinger  
BAR Architects  
Bard, Rao + Athanas Consulting Engineers, LLC  
Bassetti Architects  
Bergmeyer Associates  
Beyer Blinder Belle Architects & Planners, LLP  
Blair + Mui Dowd Architects, PC  
BLT Architects  
BNIM Architects  
Bohlin Cywinski Jackson  
Bora Architects  
Boulder Associates, Inc.  
Braun and Steidl Architects  
Brooks + Scarpa Architects, Inc.  
Browning Day Mullins Dierdorf  
Bruner/Cott & Associates  
BuroHappold Engineering  
BVH Architecture  
BWBR

CallisonRTKL  
Cannon Design  
CBT Architecture  
Clark Nexsen  
CO Architects  
Coldham & Hartman Architects  
Cooper Carry  
COULSON  
CTA Architects Engineers  
Cunningham Group Architecture, Inc.  
Cunningham | Quill Architects  
Dake Wells Architecture  
Dattner Architects  
David Baker Architects  
Davis Partnership Architects  
Dekker/Perich/Sabatini  
Dewberry  
DIALOG  
DIGSAU  
DiMella Shaffer  
DLR Group  
DRAW Architecture + Urban Design  
DSGN  
Duda Paine Architects  
DWL Architects + Planners, Inc.  
ehdd  
Ehrlich Yanai Rhee Chaney Architects  
Elkus Manfredi Architects  
Ellenzweig  
Elness Swenson Graham Architects, Inc.

Engberg Anderson Architects  
English + Associates Architects, Inc.  
Ennead Architects  
Eskew+Dumez+Ripple  
EwingCole  
EYP  
Farr Associates  
Feldman Architecture  
Finegold Alexander Architects  
Flad Architects  
Frederick + Frederick Architects  
FXFOWLE  
GBD Architects Incorporated  
Gensler  
GFF  
GGLO  
Goettsch Partners  
Goody Clancy  
Gould Evans  
Green Hammer  
Gresham, Smith and Partners  
Grimm and Parker  
GSBS Architects  
Guidon Design  
GWWO, Inc. Architects  
Hacker  
Hahnfeld Hoffer Stanford  
Handel Architects, LLP  
Harley Ellis Devereaux  
HarrisonKornberg Architects

*continued on next page*

## KNOWLEDGE / Participating firms

Hartshorne Plunkard Architecture  
Hastings Architecture Associates, LLC  
HDR  
Helix Architecture + Design  
Hennebery Eddy Architects, Inc  
HGA Architects and Engineers  
High Plains Architects  
HKS  
HMC Architects  
HMFH Architects, Inc.  
HOK Inc.  
Holst Architecture  
Hord Coplan Macht  
ICON Architecture, Inc.  
IKM Incorporated  
INVISION  
Jacobs Global Buildings Design  
JAHN  
Jer Greene, AIA + CPHC  
Jones Studio, Inc.  
Kaplan Thompson Architects  
Kipnis Architecture + Planning  
KMD Architects  
Krueck + Sexton Architects  
L M HOLDER III FAIA  
Lake|Flato Architects  
Landon Bone Baker Architects  
Leddy Maytum Stacy Architects  
Leers Weinzapfel Associates  
Legat Architects  
Lehrer Architects LA, Inc.

Lionakis  
Little Diversified Architectural Consulting  
LMN Architects  
Lord Aeck Sargent  
LPA, Inc.  
LS3P  
Maclay Architects  
Mahlum Architects  
Marlene Imirzian & Associates Architects  
Mazzetti  
McGranahan Architects  
Miller Dyer Spears, Inc.  
Mithun  
mode associates  
Moody Nolan  
Moseley Architects  
MSR  
NAC Architecture  
NBBJ  
Neumann Monson Architects  
Office for Local Architecture, LLC  
Olson Kundig  
OPN Architects  
Opsis Architecture  
Orcutt | Winslow  
Overland Partners Architects  
Page  
Paul Poirier + Associates Architects  
Payette  
Pei Cobb Freed & Partners Architects, LLC  
Pelli Clarke Pelli Architects

Perkins+Will  
Perkins Eastman  
Pickard Chilton  
Quattrocchi Kwok Architects  
Quinn Evans Architects  
Ratcliff  
RATIO Architects, Inc.  
RB+B Architects, Inc.  
Richärd + Bauer  
RMW architecture & interiors  
Robert A.M. Stern Architects  
Ross Barney Architects  
RVK Architects, Inc.  
Schadler Selnau Associates, PC  
SERA Architects  
Serena Sturm Architects  
Sheldon Pennoyer Architects  
Shepley Bulfinch  
SHP Leading Design  
siegel & strain architects  
Smith Seckman Reid, Inc.  
SmithGroupJJR  
SMMA  
Snow Kreilich Architects  
Solomon Cordwell Buenz  
SOM  
Steffian Bradley Architects  
Steinberg Architects  
STUDIOS architecture  
Substance Architecture  
TBDA

The Beck Group  
The Green Engineer, Inc.  
The Miller Hull Partnership  
The Sheward Partnership  
The SLAM Collaborative  
Thornton Tomasetti  
Tilton, Kelly + Bell, LLC  
TLC Engineering for Architecture  
Touloukian Touloukian, Inc.  
Trapolin-Peer Architects  
TreanorHL  
Trivers Associates  
TRO  
Valerio Dewalt Train Associates  
Vanderweil Engineers  
VMDO Architects  
WBRC Architects/Engineers  
WDG Architecture  
Weber Thompson  
Wight & Company  
William Rawn Associates  
Wilson Architects  
WLC Architects, Inc.  
WRNS Studio  
WRT  
Yost Grube Hall  
ZeroEnergy Design  
ZGF Architects, LLP  
Ziger/Snead

## KNOWLEDGE / New firms in 2017

5G Studio Collaborative  
aecom  
Aidlin Darling Design  
Allison Blanks, Architect, PLLC  
Ashley McGraw Architects  
Bassetti Architects  
COOKFOX Architects  
CSNA Architects  
Curtis + Ginsberg Architects, LLP  
david cunningham architecture planning pllc  
Design Collective, Inc.  
designLAB architects  
DIALOG  
Elness Swenson Graham Architects, Inc  
ESG Architecture & Design  
Fentress Architects  
FFA Architecture and Interiors, Inc.  
GFF  
GREC  
Green Hammer  
Hamilton Anderson Associates  
Hanbury Evans Wright Vlattas + Company  
Hickok Cole Architects  
Holst Architecture  
HPZS  
In Balance Green Consulting  
JP Copoulos, Architect  
KieranTimberlake

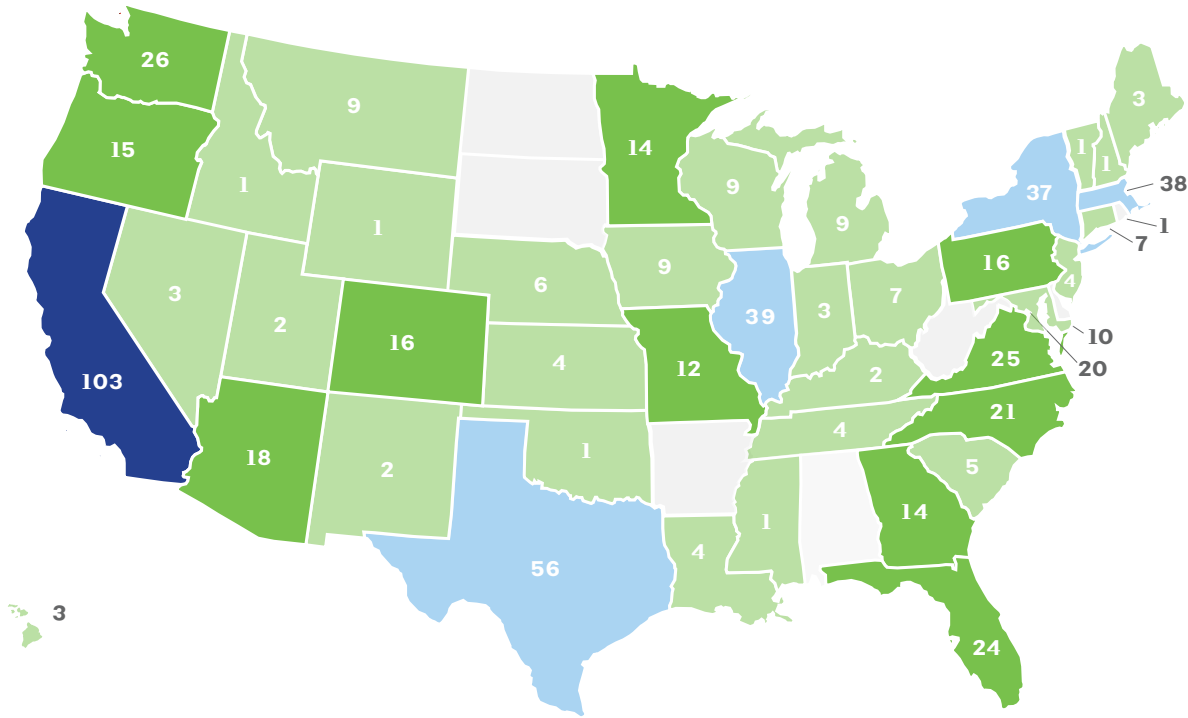
KLUGER ARCHITECTS, INC  
KPMB Architects  
LOHA  
M+A Architects  
Maclay Architects  
MASS Design Group  
MF Architecture  
MKK Consulting Engineers  
nARCHITECTS  
Natalye Appel + Associates Architects, LLC (NA+AA)  
NC-office  
NO ARCHITECTURE, PLLC  
Olson Kundig  
P6PA+Architects  
Peckham Architecture  
Pill-Maharam Architects  
Precipitate, PLLC  
Retail Design Collaborative & Studio One Eleven  
Richärd + Bauer  
RNT Architects  
Rodwin Architecture  
Ross Barney Architects  
Schadler Selnau Associates, PC  
Steinberg Architects  
Stern Design  
Stonorov Workshop  
Studio G Architects  
Studio Ma

Tilton, Kelly + Bell, LLC  
Trakref  
Trivers Associates  
Urban Design Perspectives  
UrbanWorks, Ltd.  
Vermont Integrated Architecture  
waterleaf architecture  
ZH Architects

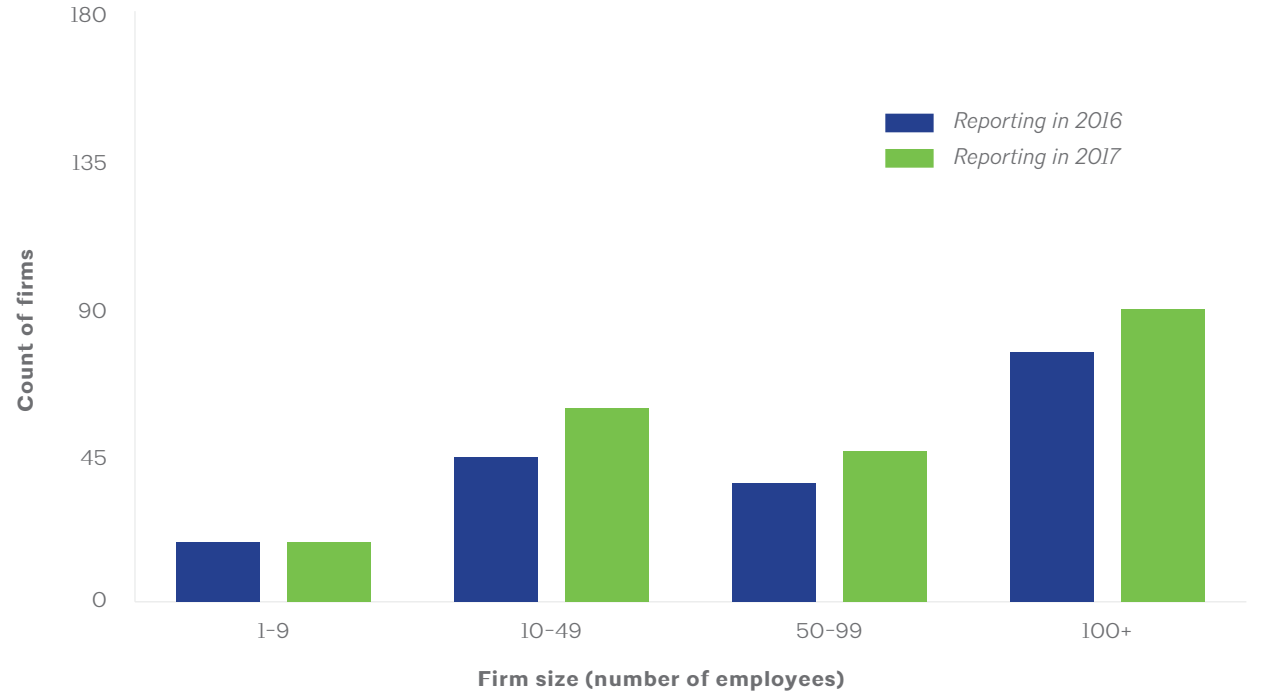
**KNOWLEDGE** / Firm demographics & resources

**COUNT OF 2030 OFFICE LOCATIONS THAT CONTRIBUTED 2017 DATA**

■ > 100    
 ■ 26-100    
 ■ 11-25    
 ■ 1-10



**COUNT OF PORTFOLIO SUBMISSIONS**



**PARTICIPATION IS GROWING & THERE ARE RESOURCES TO HELP**

Between local 2030 networks, the peer mentorship program coordinated by AIA national, and the AIAU+2030 online series, numerous resources exist to help firms get started and learn more about what adopting the 2030 Commitment can mean to their practice. Visit [aia.org/2030commitment](http://aia.org/2030commitment) to learn more or email [2030commitment@aia.org](mailto:2030commitment@aia.org).

“The AIA 2030 DDx is much more than a reporting tool. Design teams use it to benchmark, actively establish targets, and incorporate this data into their design goals. Fully embracing the 2030 Commitment creates value for the firm, for our clients, and for future generations. A triple bottom-line win for 21st century architecture!”

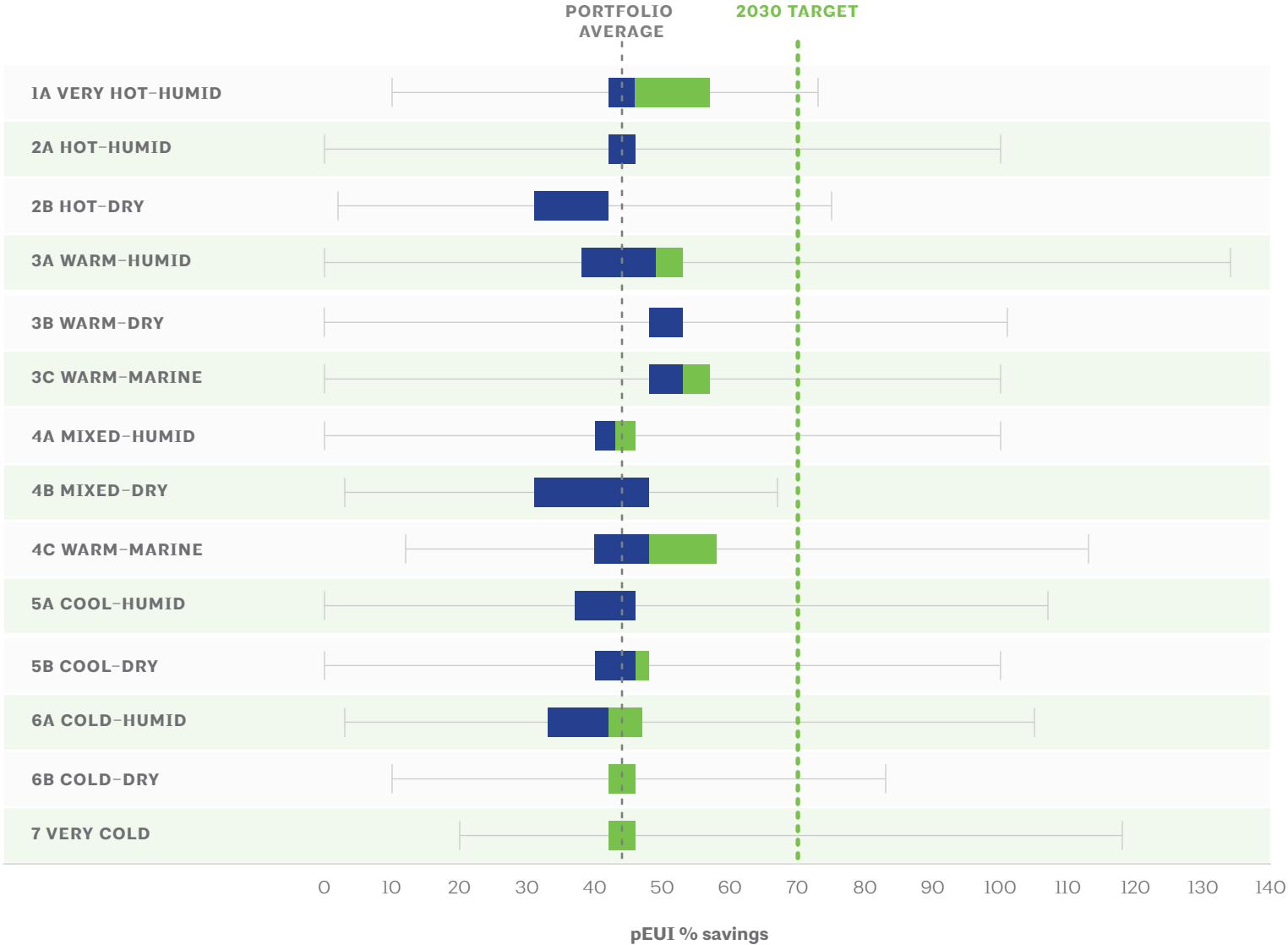
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**Rand Ekman, FAIA, LEED Fellow**

Associate Principal, Chief Sustainability Officer, HKS Architecture



**KNOWLEDGE** / Impact of climate region on pEUI savings



**2030 TARGETS ARE ACHIEVABLE IN ALL REGIONS**

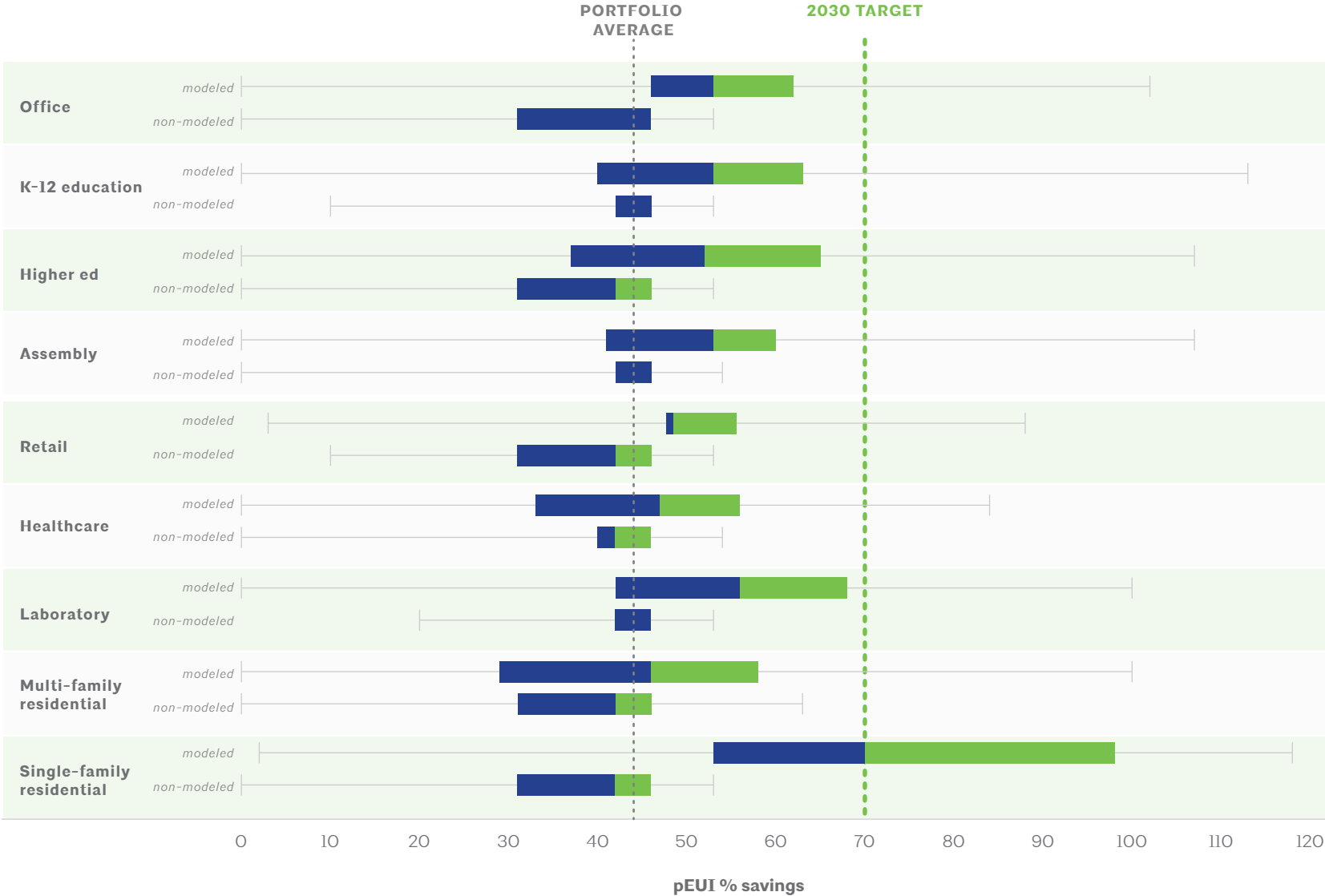
Project location and use type have the biggest impact on energy use. Looking at the portfolio of reported 2017 projects by climate zone and use types can help set expectations and encourage project teams to exceed median performance and make incremental improvement toward 2030 targets.

**Key**



Data filtered to exclude international use projects, interiors projects, and any climate zones with fewer than 30 projects. Climate zones are described by the ASHRAE climate zone map.

**KNOWLEDGE** / Impact of energy modeling on pEUI savings by use type



**MEDIAN MODELED SINGLE FAMILY PROJECTS MEET 2030 TARGETS**

All use types can meet the 2030 targets if using energy modeling. The median performance for single family projects actually hit the 70 percent target in 2017. Energy modeling is also the only way to predict savings that meet the 2030 targets, but code improvements help drive the broader market improvement.

**Key**

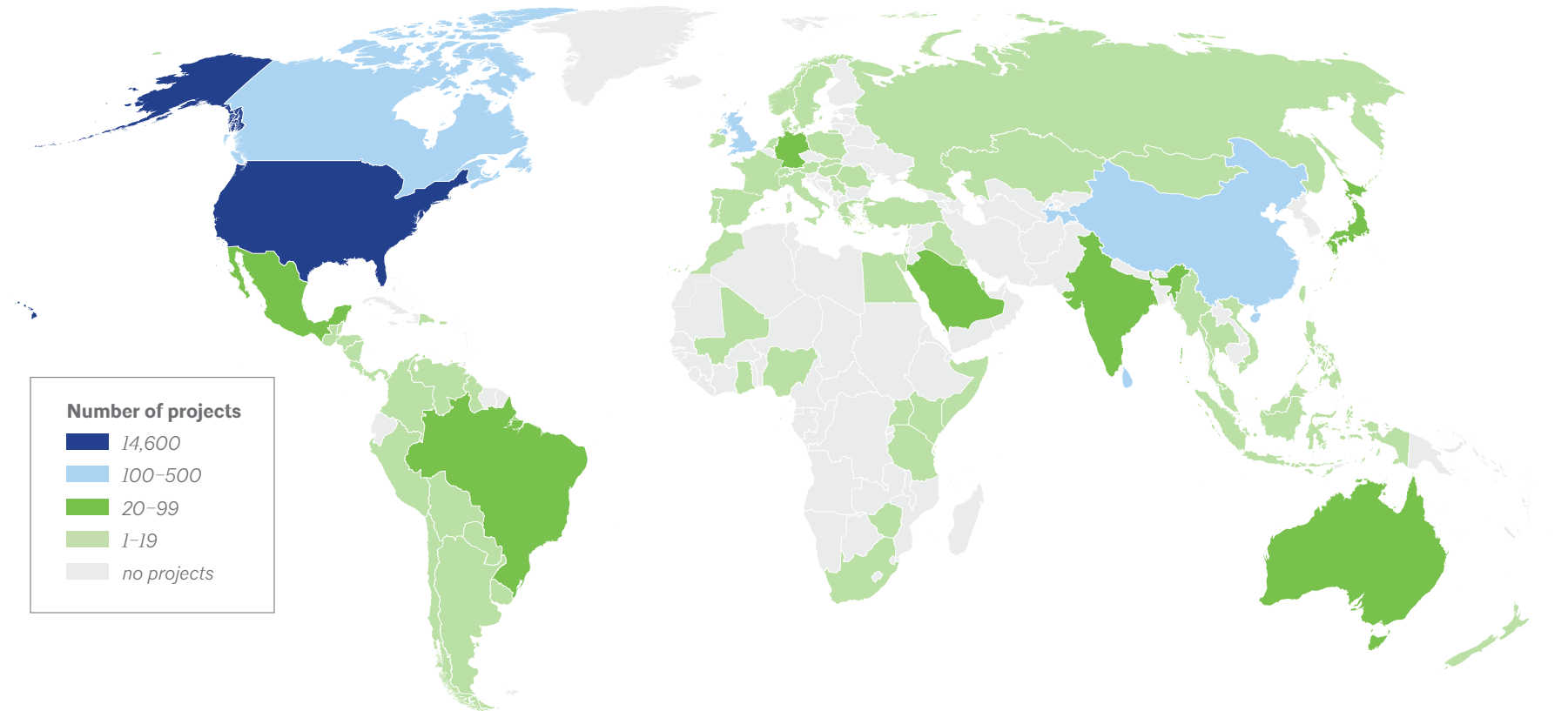


Data filtered to exclude interiors projects, some use types, and projects submitted as "will be modeled."

“The AIA 2030 Commitment is a powerful first stepping stone in our dialogue about sustainable design with new clients. From there we are able to successfully leap forward together into different approaches and certification programs—like Passive House, NZEB, and Living Building Challenge—that can otherwise be too overwhelming and specific for starting out. With the weight of AIA behind it and alignment with our Minnesota B3 requirements, the 2030 Commitment is a trusted, neutral program that can act as a critical foundation and catalyst for advancing all sustainable design initiatives.”

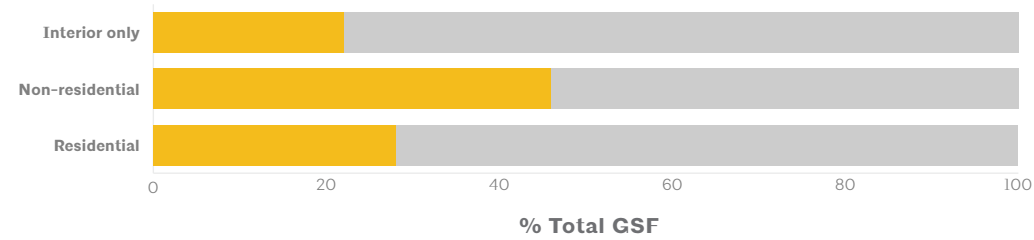
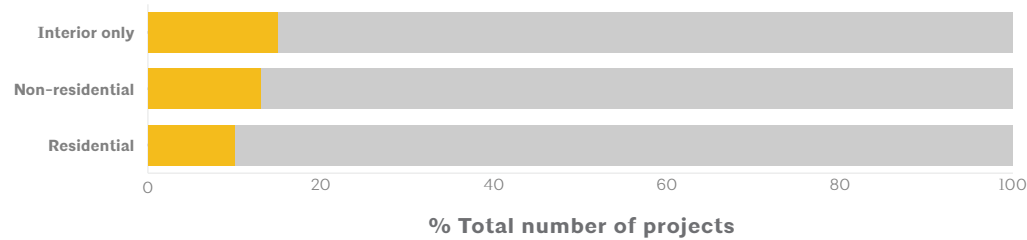
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**Carly Coulson, AIA, LEED AP**  
Founder & Principal, Coulson



## 40% Of total GSF

Projects reported in 2017 represent 93 different countries. These international projects represent 13 percent of the total number of projects and 40 percent of the GSF, or 1.2 billion GSF. US architects have a role in leading energy efficiency efforts globally and are making an impact.



**Key**

- International
- Domestic

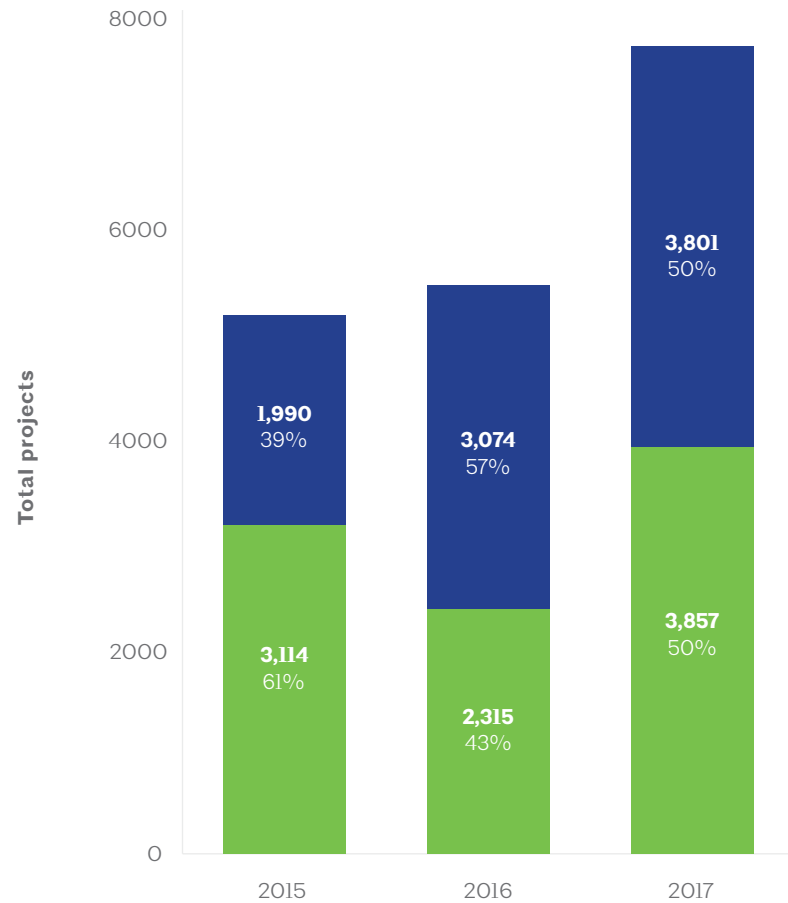
SECTION 4.

THE 2030  
COMMITMENT  
DRIVES  
IMPROVEMENT



## IMPROVEMENT / Energy modeling improvements

**% MODELED VERSUS NON-MODELED PROJECTS**



### 50% Of projects are using energy modeling

3,857 projects used energy modeling in 2017. Although the proportion of modeled versus non-modeled projects did not exceed 2015, the growth in overall projects means more were modeled in 2017 than any previous year.

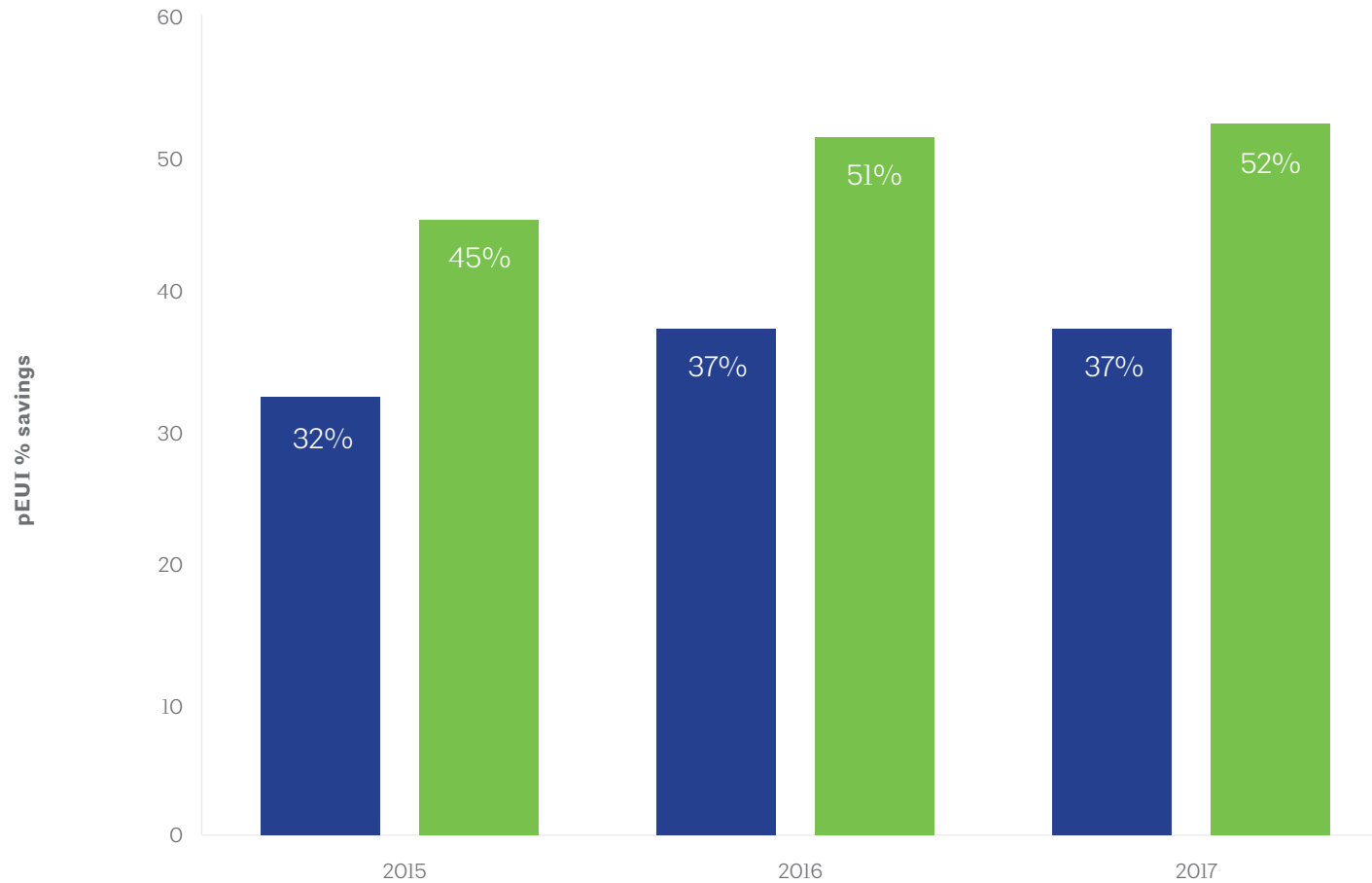
The AIA 2030 Commitment continues to encourage more energy modeling as the only way to track predicted energy improvements above and beyond energy code.

#### Key

- Non-modeled
- Modeled

Data filtered to exclude interiors projects and projects submitted as "will be modeled."

## IMPROVEMENT / Energy modeling & stronger codes



### 52% pEUI savings for modeled projects

There are two ways to achieve greater energy savings: Set ambitious targets and use energy modeling to track progress toward meeting these targets, or design to more stringent energy codes. Both play an important role. Modeling enables more precise measures and further integrated design, and it provides a baseline to inform advocacy for stronger codes that automatically increase savings.

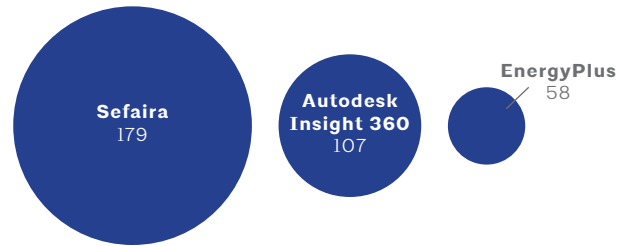
#### Key

- Non-modeled
- Modeled

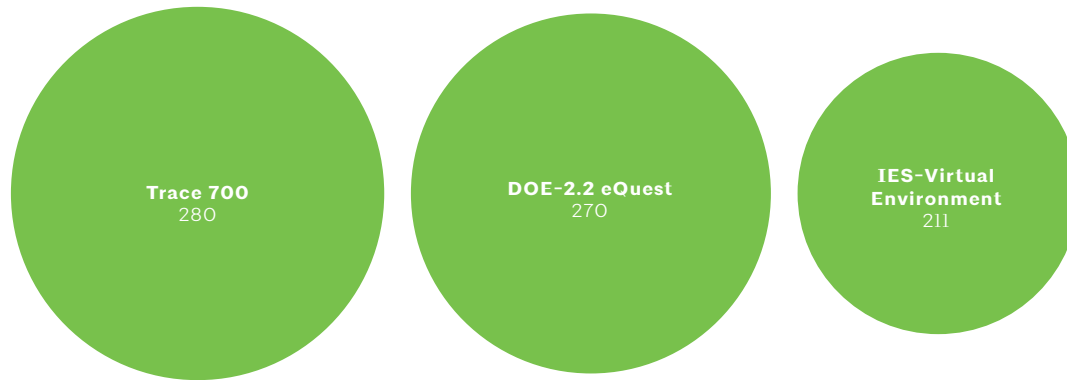
Data filtered to exclude interiors projects and projects submitted as "will be modeled."

## IMPROVEMENT / Tools & teams

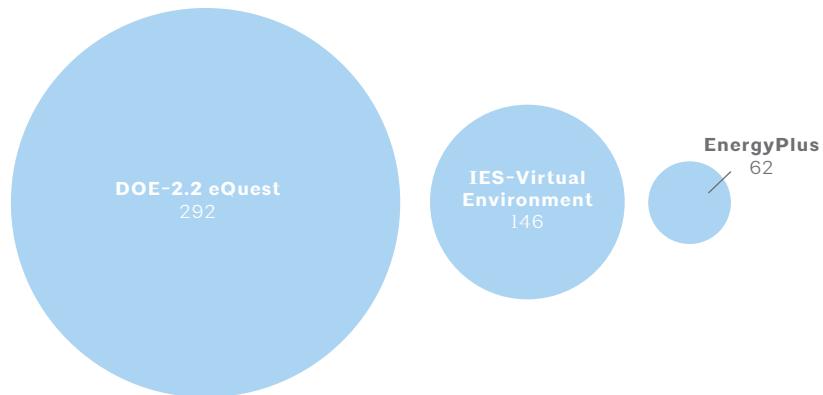
### ARCHITECTURE TEAM



### DESIGN ENGINEER



### MODELING CONSULTANT



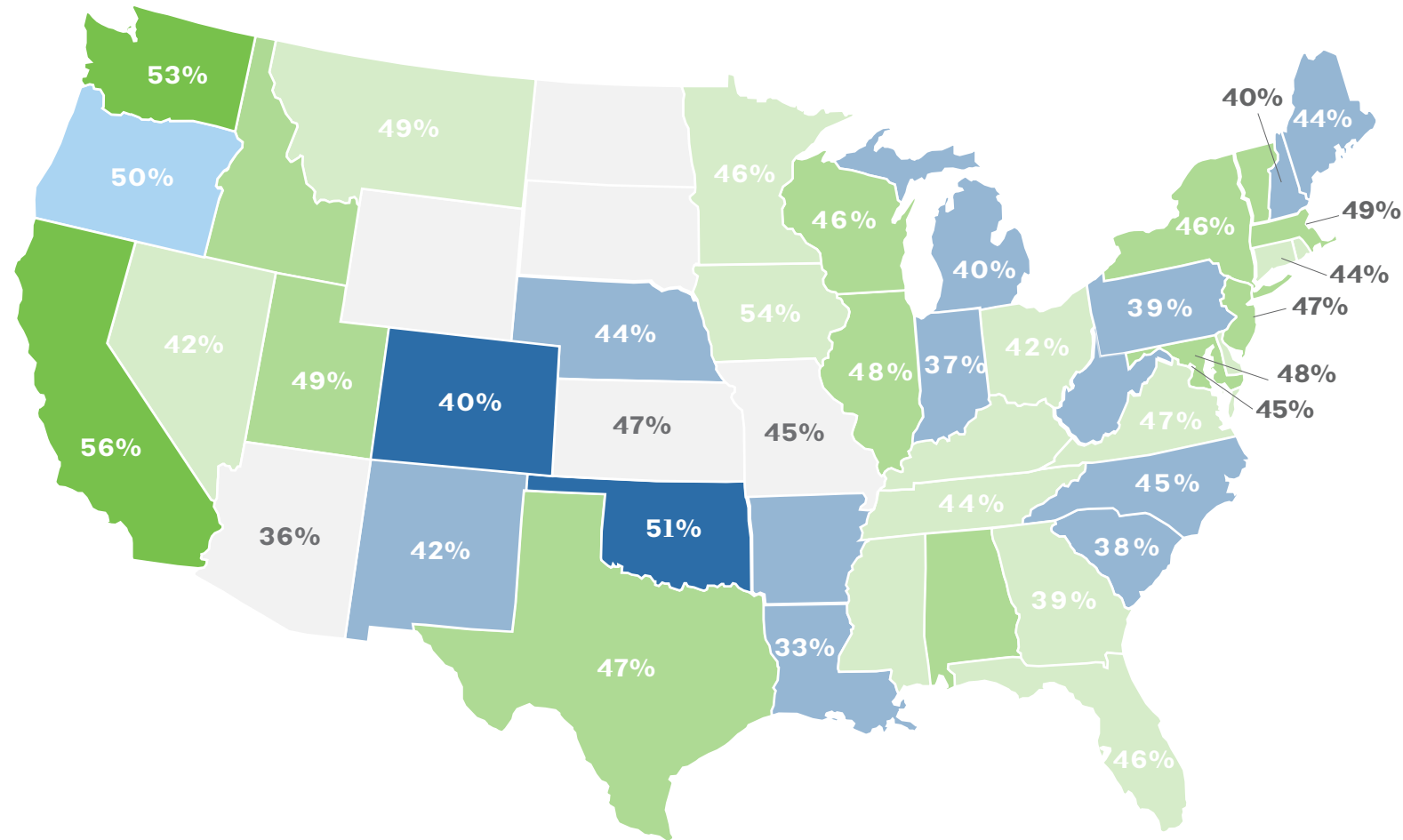
The scale of the bubble is relative to total number of projects.

### TOP THREE TOOLS BY TEAM

Engineers and consultants did the energy modeling work for the majority of projects that were reported. However, tools and expertise exist for all members of the project team to improve performance through modeling and communicating shared targets.



## IMPROVEMENT / State pEUI savings by code baseline & reported



### STATE-BY-STATE COMPARISON

States with more stringent codes report greater pEUI savings, and initiatives like the 2030 Commitment drive improvement and help fill regulation gaps. Architects with the knowledge and experience to design high-performing buildings can lead advocacy efforts for more stringent codes, and their work demonstrates progress beyond code thresholds is both possible and valuable.

#### Color legend

Energy code prescribed savings

- <= 25%
- 31%
- 40%
- 42%
- 46%
- 48%
- None or home rule

#### State labels

2017 average pEUI savings %

This map shows the state-by-state weighted average pEUI savings in the labels and the pEUI savings prescribed by the adopted energy code in each state coded by the color legend. The state-adopted energy code<sup>8</sup> is shown aligned with the percent pEUI savings analysis relative to 2030 baselines and is described in the AIA 2030 DDx help pages.<sup>9</sup> Data is filtered to show non-residential whole building projects and states with less than 30 projects are not labeled.

“When it comes to affecting the long-term environmental footprint of a city, there’s no such thing as a ‘small’ reduction in building energy use. Each advance architects make in designing low- and no-carbon buildings today brings positive results that will last a generation. Equally important, it helps raise performance expectations and sets the bar higher for the designs of the future.”

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**Karen Weigert**

Senior Fellow for Global Cities, Chicago Council on Global Affairs,  
and former Sustainability Officer for the City of Chicago



**2030 Participants are leaders**

By participating in the 2030 Commitment, architects are the leaders we need in the built environment, business, government, and society. As this year's report shows, the 2030 Commitment is making significant positive impact, creating healthier environments and businesses. As we get closer to carbon neutral, we know there is still work to be done—that's where you come in.

**Join us**

If you haven't already, join the 2030 Commitment. Connect with your peers locally or through the 2030 mentorship program to exchange ideas and share strategies. Enhance your practice through AIAU's 10-part AIA+2030 Online Series. And of course, use energy modeling and the DDx resources to track your firm's progress toward 2030 carbon neutral goals and contribute to the body of data-based evidence that points the way forward.

**All hands to reach net zero**

We all need to push for a paradigm shift in the architecture and design community. Supporting stronger and stricter energy codes, incorporating 2030 goals into project requirements, and collaborating with participating firms to track progress toward these goals will help us achieve the best results. Together, we can get to carbon neutral.

### Projected CO<sup>2</sup>e emissions reduction calculation

- 1) The project use type was used to determine the percentage of electricity and natural gas for each project in the US and Canada.<sup>10</sup>
- 2) For US and Canadian projects, the eGrid subregion was determined based on the project zip code.<sup>11</sup>
- 3) The eGrid subregion was used to define the CO<sup>2</sup>e emissions factors for electricity and natural gas, which were multiplied by the fuel source energy savings.<sup>12</sup>
- 4) For international projects, the country name was used to determine the CO<sup>2</sup>e emissions factor, which was multiplied by the energy savings.

### Design energy projected cost savings calculation

- 1) The project use type was used to determine the percentage of electricity and natural gas for each project in the US and Canada.<sup>13</sup>
  - 2) For simplicity, all project energy savings for international projects were considered electricity savings.
  - 3) For interior projects in all locations, all project energy savings were considered electricity savings.
  - 4) Whole building and interior-only projects projected energy savings were totaled.
  - 5) The electricity and natural gas design energy savings for all projects were multiplied by the US average commercial rate for electricity<sup>14</sup> and natural gas.<sup>15</sup>
- CO<sup>2</sup>e and carbon sequestration equivalencies (such as acres of trees sequestered) were calculated using the EPA Greenhouse Gas Equivalencies Calculator.<sup>16</sup>

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## ACKNOWLEDGMENTS

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**69% Predicted reduction from national average EUI for building type.**

#### Page 2

Mundo Verde at Cook Campus  
Studio Twenty Seven Architecture  
Anice Hoachlander, Hoachlander Davis Photography  
**58.8% Predicted reduction from national average EUI for building type.**

#### Page 3

Nancy and Stephen Grand Family House  
Leddy Maytum Stacy Architects  
Roger Swanson  
2018 FH COTE\_02 Community 1.jpg  
**41% Predicted reduction from national average EUI for building type.**

#### Page 8

Sonoma Academy's Janet Durgin Guild and Commons  
WRNS Studio  
Celso Rojas  
SonomaAcademy\_key.jpg  
**62% Predicted reduction from national average EUI for building type.**

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**53% Predicted percent reduction from national average EUI for building type.**

#### Page 30

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2018 FH COTE\_10 Discovery\_k.jpg  
**41% Predicted reduction from national average EUI for building type.**

#### Page 37

Mundo Verde at Cook Campus  
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Anice Hoachlander, Hoachlander Davis Photography  
**58.8% Predicted reduction from national average EUI for building type.**



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