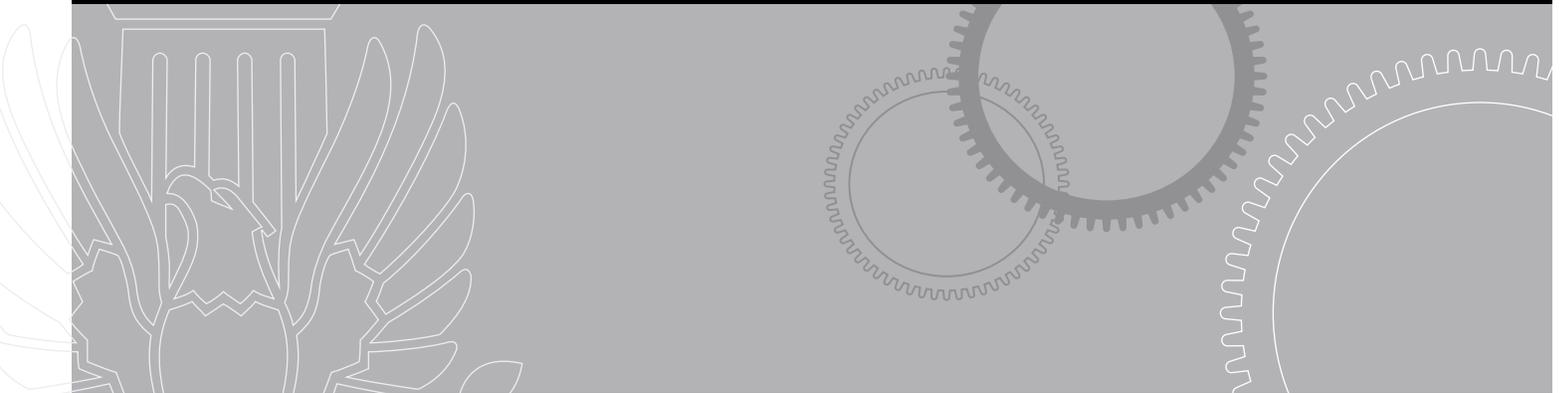


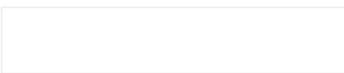


2030 COMMITMENT

Measuring Industry Progress Toward 2030



THE AMERICAN INSTITUTE
OF ARCHITECTS



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Foreword_

Connect, Innovate, Engage, and Lead are the foundations of the AIA's Repositioning initiative, which aims to move the Institute into the 21st century and empower members to excel in their work.

The AIA's ideal role is to be a visionary member organization that asserts the AIA's leadership proactively addressing the issues that are critical to the profession. Crucial to that effort is to provide the indispensable leadership and insight that its constituents seek. The organization's primary function: to serve and provide value to its members. Calling the AIA a visionary member organization means shifting its focus towards helping the profession maximize its impact.

Perhaps no other program within AIA embodies the values of the Repositioning effort more so than the AIA 2030 Commitment, which has been shaped since its inception by our members. The reporting process was developed, and remains continually vetted, by our members allowing for sharing lessons learned with their peers for the betterment of the entire profession. The fact that the local components are serving as the primary mechanism for this peer-to-peer collaboration is a model for other programs.

Repositioning calls on members to be a guiding force for positive change within their communities. Striving for energy efficiency goals on every project we design serves our practices, our communities and our profession. Our members recognize that it is no longer acceptable to strive to reduce the environmental impact of a building only for those clients that ask for, and can afford, green building certification. It is about responsible design. The AIA 2030 Commitment is the roadmap for helping firms to take the promise of sustainability and transition to the reality of architectural practice that achieves tangible, strategically targeted, performance goals on every project we touch. Building on this legacy, energy is one of the only four priority issues identified for the AIA's focus as part of the recent **Sustainability Leadership Opportunity Scan**.

As the program continues to grow and mature, we have been able to see both a dramatic increase in the data we have to evaluate the progress towards our ultimate goal of carbon neutrality, but we are also beginning to see a systemic change across the profession in how firms are adjusting their design practices to look at every element of their business through the lens of sustainability.





Chapter 1_

BACKGROUND & PURPOSE

The mission of the AIA 2030 Commitment is straightforward: to take the aspirational goals of 2030 and transition to the reality of achieving tangible, strategically targeted performance goals on every project the architecture profession touches.

The AIA 2030 Commitment program is the AIA's cornerstone effort to demonstrate the progress AIA members and allied professionals are making toward reducing the modeled operational energy use of their designs to meet the AIA 2030 net zero energy initiative. Developed by AIA members, the intent of this program is to drive fundamental change within architecture practice. It asks firms to transform how we approach practice by focusing on the firm's operations and the predicted performance of design projects across a firm's entire portfolio rather than just individual, exemplary projects. The program provides a consistent, national framework with simple metrics and a standardized reporting format to help firms evaluate the impact that design decisions have on an individual project's energy performance. To date, more than 260 firms have made the commitment, ranging in size from the sole practitioner to the international practice.

Never a report card on individual firm efforts or rankings, the program acts as a commitment among the entire profession to share knowledge and institute the changes needed within architectural practice to reach our goal of zero impact buildings.

This is the third annual AIA 2030 Commitment progress report that documents the energy use and practice findings from participating firms. This wealth of information offers useful insights into the myths, realities, benefits and opportunities of participating in the AIA 2030 Commitment. In addition this year, for the first time, data shared on energy use by specific project type and sizes enhances the report's direct impact on future designs. It can serve as a valuable resource for all types and sizes of architecture practices.





Chapter 2_

KEY TAKEAWAYS

+ Design is the solution.

Buildings consume 48% of the nation's energy. This is an architectural opportunity. It is also a responsibility. Energy efficiency, climate change and resiliency are clearly one of the 21st century's challenges. Transforming the design process is the work of the AIA 2030 Commitment.

+ The practice of energy modeling is not substantially increasing—and it must.

The percent of gross square footage that is being modeled has remained constant at 57–58%. However there is a 20% increase in energy use reduction for those projects that do model. Architects are not making energy modeling a fundamental part of our project design process. For 43% of our work, we cannot tell our client what they might expect for energy use.

+ This is architectural leadership.

A meaningful engagement with building performance through the whole life of a building brings long-term value to our clients and our communities. It is also good for our business's. While an increasing number of firms are engaging in the program, the reporting rate has decreased. This is a challenge and an opportunity for AIA members.

+ We can meet our goal.

From the project data shared there are 193 projects that are reducing the pEUI by 60% or greater. This includes a remarkable group of 14 projects that are 100% or greater—net positive.

+ The AIA 2030 Commitment is not yet viewed as relevant for smaller firms.

While many small firms are engaged with the program, this does not yet match the AIA member profile. Both the program and design tools need to be evaluated with an eye toward engaging this crucial group of AIA members.

+ We seem to be relying on code and regulation to lead the way.

In the last decade we have seen building codes increasingly focus on energy use. The IgCC, IECC 2012 and California's Title 24 are bringing a heightened focus on energy in building design. The question is whether the AIA members and architectural practice will lead this crucial effort, or will we continue to design only what is required by law.





+ This is a collective challenge—architects are ready and willing to solve this issue.

An extraordinary collaborative sharing process is occurring. For the first time, 52 architectural practices have shared their AIA 2030 Commitment data (projects are not identified) with the AIA. This is a wide range of firm types and sizes and indicates a deep desire for the AIA to assist with feedback and lead this effort.

+ Self-organized member led “grass-roots” efforts are leading the way.

Within the AIA, there are remarkable efforts occurring at the Component level. Working groups are actively sharing best practices across firms.

+ An improvement scenario.

Based on the shared project data, we all need to do two things to meet the 60% reduction target. We must energy model all projects, and we must increase the pEUI by roughly 16% in every instance.

2012 Key Results at a Glance

110	Number of firms submitting reports	6% Increase
1.4 BILLION	Total amount of gross square feet (GSF)	120% Increase
37%	Average Predicted Energy Use Intensity (pEUI) reduction	Up 2%
14%	Percent of total GSF meeting the current 60% reduction target	Up 2%
57%	Percent of total GSF using energy modeling to predict energy consumption	No Change
45%	Percent of total GSF for which actual energy use data will be collected	No Change
17%	Average Lighting Power Density reduction for interiors projects	Down 4%





Chapter 3_

MYTHS & MISPERCEPTIONS

Though the AIA 2030 Commitment is heading into its fourth year of existence, there remains a misunderstanding among many AIA members about what the program actually is and what firms are asked to do when they join. We asked some members what misperceptions they most often encounter when talking with practitioners about the AIA 2030 Commitment. Not surprisingly, some common themes surfaced.

MYTH

AIA 2030 Commitment, Architecture 2030, and 2030 Challenge—it's all the same, right?

REALITY

The AIA 2030 Commitment: an AIA program to help firms meet the 2030 Challenge.

Perhaps the single biggest misperception that exists relates to the program itself. The AIA 2030 Commitment and the 2030 Challenge is not the same program. Architecture 2030 is a separate non-profit that issued the 2030 Challenge. In December of 2005, The American Institute of Architects adopted the reduction goals outlined in the 2030 Challenge. The AIA 2030 Commitment was launched in 2009 as an initiative for the architecture profession to bring a reporting framework and level of accountability to the 2030 goals.

Norman Strong, FAIA | Partner, Miller Hull: There is still confusion with the AIA 2030 Commitment and Architecture 2030 Challenge. Both programs are doing the right thing and use many of the same metrics. However, the AIA 2030 Commitment is a firm wide report, one that hopefully we and others can learn from.

Clark Brockman, AIA | Principal, SERA Architects: Architecture 2030 has been successful in publicizing these targets and creating a simplified common vocabulary and metrics. The AIA 2030 Commitment has been successful in getting firms (like ours) to commit to reporting on design performance and providing tools to support this.





“What firms should understand is that the struggle doesn't indicate failure— simply tracking performance is beneficial by raising awareness, and modest improvements are valuable even if they fall short of the current 2030 target.”

—Clark Brockman, AIA
Principal, SERA Architects

MYTH

The paperwork and reporting is too complex.

REALITY

One spreadsheet.

Rand Ekman, AIA | Director of Sustainability, Cannon Design: I often encounter practitioners that assume the program and reporting is too complex and that the value to design is not clear. The easiest way to demonstrate value and the tool's ease of use is to simply open up the tool and share experiences. The AIA Chicago Working Group has been visiting the offices of firms that are interested to simply spend an hour walking through the program and the tool. That generally does the trick.

Michael R. Davis, FAIA | Principal, Bergmeyer: Frankly, I think they're imagining the kind of document production associated with a LEED submittal or a governmental permitting agency review. I say: “it's just one spreadsheet!” It may be a big, complicated spreadsheet and lots of other kinds of data go into the Sustainability Action Plan and the firm's Operational Objectives, but you set that stuff up once and then revise or update regularly. Reporting really does get easier after year one. Reducing those energy use metrics year after year...that's the REAL challenge!

MYTH

I need to have actual energy use data to participate.

REALITY

Predicted energy use from modeling or code is the measure.

MYTH

Participation means you must hit the targets.

REALITY

Any outcome is acceptable—it's all about tracking your results.





Andy Pease, AIA | Principal, InBalance Green Consulting: The people I encounter think that there is a threshold to achieve...OR ELSE. And they feel their clients would not be receptive so they don't want to get stuck.

Clark Brockman, AIA | Principal, SERA Architects: Many people assume that it tracks measured performance, not projected performance from energy modeling, and/or that they need an in-house mechanical engineer/energy analyst. What firms should understand is that the struggle doesn't indicate failure—simply tracking performance is beneficial by raising awareness, and modest improvements are valuable even if they fall short of the current 2030 target. Each firm, and the profession as a whole, needs to crawl before it walks or runs, and the 2030 commitment gives us the problem definition, the language, the tools and the aspirational goal to transform the built environment's impact on GHG emissions over the coming years.

M Y T H

I can't aim for 2030 if my client doesn't want it.

R E A L I T Y

The AIA 2030 Commitment is for the firm's use and understanding.

Colin Rohlfing, Assoc. AIA | Senior Associate, HOK: The biggest misconception encountered is the idea that achieving 2030 goals on design projects has to be adopted and encouraged by a client to truly work. I understand and empathize with this misconception. It's easy to strive towards performance if energy reduction and sustainability considerations are required as part of the Owner's project requirements. It's much more difficult to achieve 2030 compliance without the encouragement and insistence of a client. However, as long as a design team meets every other project goal related to aesthetics, program and financials, there is no reason why high levels of energy performance cannot also be achieved through the hard work and collaboration of the design team. If all other goals are met as well, the operational benefits can only add value for the client.





Chapter 4_

CHANGING FIRM CULTURE THROUGH OFFICE BEHAVIOR

An important aspect of the AIA 2030 Commitment environment is the focus on day to day office practices to reduce the negative environmental impact of firm operations. A sustainable workplace helps designers integrate sustainability into their mental models of their own firms' values through interactions with more sustainable practices. This change in thought and self-perception helps fuel changes in action, making the adoption of 2030 targets more easily accomplished. It's important that everyone feel invested in the overall sustainable practice goals.



Above: Bergmeyer Office
"Dumpster Dive"

We asked firms to share their thoughts on the importance of a sustainable workplace and the ways they engage staff to feel a sense of ownership in the successful implementation of the AIA 2030 Commitment.

Carl Elefante, AIA | Quinn Evans Architects: I can't begin to tell you how valuable the AIA 2030 Commitment has been in "maturing" sustainability practice in our firm, especially regarding office operations. There was a tendency to think that if we were trying to do green projects everything else didn't matter much. It has helped us understand that creating a culture of sustainability in our firm is the most important goal.

"It has helped us understand that creating a culture of sustainability in our firm is the most important goal."

—Carl Elefante, AIA
Quinn Evans Architects

Michael R. Davis, FAIA | Principal, Bergmeyer: *I think the biggest benefit to Bergmeyer from the AIA 2030 Commitment has been internal.* For starters, the Operational Objectives and Sustainability Action Plan have drawn everyone including the non-technical people into the act. Our accounting department is huge fans of our paper reduction efforts. The IT department is totally into energy efficient work stations and servers. Our marketing folks love the PR we get from our advocacy work. And HR is writing sustainability goals for everyone's performance reviews. I write a blog about Bergmeyer's efforts to improve the firm's projects' energy efficiency for the AIA 2030 Commitment. It's a 'stories from the trenches' kind of thing. Some of my favorite posts came from just seeing what happens when people become engaged in the Commitment. For example, there was the time that Bill came busting into my office with his hands full of wasted printer paper and the little piece of "performance art" that arose from it. I call it **2030 Fever**. And then there was the time we did our first all-office '**dumpster dive**', complete with a description of tips and tricks on how to pull one of those things off in your firm. And who could forget the first time we attempted to have a **management meeting without paper**? Funny thing is, almost two years later, everyone has forgotten that little act of creative disruption. Paperless meetings are standard procedure now!





Above: HOK Composting Stations.

Colin Rohlfing, Assoc. AIA | Senior Associate, HOK: Engagement is different for green office operations and design efforts, but they should always include cupcakes or beer! We typically combine a serious engagement like a lighting operations audit with a social, less formal engagement like an energy documentary. *It is always important to incorporate cupcakes or beer to drive up attendance and create a relaxed, interactive environment.* Design engagements tend to be more serious endeavors that revolve around charrettes and work sessions, but unique approaches to sustainable design are always possible. HOK has established “energy leaders” and “lighting advocates” in each office to help support AIA 2030 implementation on projects.

“Mandates and support is coming from senior leadership, but the creation of unique roles ensures that responsibility and implementation happens at ALL levels.”

—Colin Rohlfing, Assoc. AIA
Senior Associate, HOK

These individuals are identified based upon their sustainable knowledge, but mostly based upon their passion for sustainability. The mandates and support is coming from senior leadership, but the creation of unique roles such as these ensures that responsibility and implementation happens at ALL levels.

Clark Brockman, AIA | Principal, SERA Architects: SERA holds an annual Sustainable Action Committee Celebration on or around Earth Day to acknowledge the sustainability accomplishments of our projects and the sustainable operations of our office. The event presents that year’s 2030 reporting as well as our results from the past year.

Rand Ekman, AIA | Director of Sustainability, Cannon Design: Cannon Design develops an internal report that is shared across the firm through individual office and firm-wide presentations and discussions. We share the information on a project level, on a business unit level, on a building type level and on a geographic region level. *Everyone can see which projects and which parts of the firm are performing well, or less well. This transparency tends to get the competitive spirit engaged.* I have heard senior design leaders say, “I do not want to be shown in the low performing position with this project next year.”



Chapter 5_

TRANSFORMING THE DESIGN PROCESS

For many firms, the AIA 2030 Commitment serves as a method of articulating and verifying what has already been held as a firm value by creating a structured framework with tangible goals. It is the intent that as more practitioners become familiar with setting design goals that include energy performance targets and measuring building performance using standardized metrics, it will lead to a more meaningful understanding of predicted energy performance and actual energy use. It is then that the buildings we design can begin to transform the way we, as a profession, practice architecture.

Six Steps to Integrated Energy Performance



Above: Courtesy of HOK.





“Participating in the AIA 2030 Commitment is educating and motivating both staff and clients to think differently about how projects are designed and to push the envelope.”

—Clark Brockman, AIA
Principal, SERA Architects

Colin Rohlfing, Assoc. AIA | Senior Associate, HOK: Our sustainable design process has always been rooted in the idea that iterative modeling and sustainable analysis should happen early and often to help inform the design and not just report on what has already been established. However, because of the AIA 2030 Commitment, HOK has *now incorporated AIA 2030 language and goals into our project execution plans and BIM certification engagements. The metrics are now a part of this process and HOK projects now report compliance during monthly project meetings.* These reporting sessions help us to identify gaps and improvement opportunities early in the project before it is too late.

Clark Brockman, AIA | Principal, SERA Architects: It is significant that the program looks at ALL of the current work, not just a few high-profile projects that may not be representative of the full body of work. Furthermore, the simple act of publishing the projected energy performance of all of our projects, relative to all of our projects changes the dialogue and context of our designs going forward.

We’re using it as the impetus to move the pendulum forward. Participating in the AIA 2030 Commitment is educating and motivating both staff and clients to think differently about how projects are designed and to push the envelope. It shouldn’t be a monotonous and time consuming exercise similar to completing your taxes once a year. It should be an iterative process that improves the design performance of all projects over time.

Rand Ekman, AIA | Director of Sustainability, Cannon Design: Within our firm, the program has helped develop a broad awareness of energy as an intentional part of design. Project teams are increasingly establishing benchmarks, setting energy targets and using energy modeling. The annual reporting to the AIA and the internal feedback has elevated the relevance of energy within our practice.





Chapter 6_

THE VALUE OF THE REPORTING PROCESS

“The annual reporting has built an expectation across the firm that energy in design is a real ongoing concern for our practice.”

—Rand Ekman, AIA
Director of Sustainability,
Cannon Design

The first step to any solution is figuring out how to assess and measure the potential problem. Without an understanding of where we are now, it will be impossible for us to tell if we are improving as practitioners, as firms, and as a profession. For that reason, the commitment by a firm to report annual progress is a key element of the AIA 2030 Commitment program. Firms are asked to submit an assessment of their design work using an [Excel-based reporting tool](#) as a method of tracking and measuring progress towards the 2030 goals that is simple, accessible and normalized for firms of all types and sizes.

The accountability of reporting aims to bring the aspirational goals of 2030 into the real world of everyday architectural practice. The reporting process has another critical purpose, however. The core mission of the AIA 2030 Commitment—including the reporting process and the data it collects—is first and foremost to help firms improve project outcomes and guide improvements in the design process. So what kind of impact has the reporting process had on participating firms and what are they learning from the data?

Rand Ekman, AIA | Director of Sustainability, Cannon Design: *The annual reporting has built an expectation across the firm that energy in design is a real ongoing concern for our practice.* The program also shifts the focus from the exemplary project to the practice as a whole. This makes it much harder for practitioners to showcase the accomplishments of an individual project as a representation of their practice. I do not mean to downplay the importance of an exemplary project, but if the overall goal is to enable architectural design to effectively address the most critical issue of the 21st century...climate change, then we need an honest transparent focus on design practice as a whole.

Michael R. Davis, FAIA | Principal, Bergmeyer: We do a pretty wide variety of projects from retail interiors to university residence halls to restaurants at museums; new buildings, tenant fit-out, adaptive reuse and historic preservation and sometimes several of those together. If we just did one kind of project, it would probably be easier for project teams across the firm to come together on technical matters or design thinking. *The AIA 2030 Commitment [reporting structure] gives everyone on staff a set of universal measures against energy efficiency goals so we can all be talking about the same stuff.*

Clark Brockman, AIA |Principal, SERA Architects: The 2030 targets are aggressive energy goals, particularly the current 60% reduction and 70% in 2015. The AIA 2030 Commitment has been successful in getting firms (like ours) to commit to reporting on design performance and providing tools to support this. We appreciate the challenge of achieving these goals and *have found the program to be a means of discussing the goals with clients and consultant teams.* Our work with the GSA, the military and with many other clients shows us that the world of designing for the built environment is





“Rather, we are discovering that our design engagement and team structure for international projects is significantly different from our domestic engagements.”

—Colin Rohlffing, Assoc. AIA
Senior Associate, HOK

rapidly moving towards actual performance or ‘outcome-based’ metrics. The AIA 2030 Commitment is growing our firm’s and the profession’s capabilities as we move into an outcome-based world.

Andy Pease, AIA | Principal, InBalance Green Consulting: Participating in the AIA 2030 Commitment and going through the reporting process *positions us ahead of the curve for the next energy code cycle and our clients are much better prepared.*

Reporting: Value Beyond the Results

Colin Rohlffing, Assoc. AIA | Senior Associate, HOK: Over the past few years, HOK discovered that its domestic projects in North America are out-performing its international projects. This performance is not necessarily due to the fact that North American projects are more efficient, which we know is not the case based upon international energy code requirements. Rather, we are discovering that our design engagement and team structure for international projects is significantly different from our domestic engagements. Our design role in many international projects is limited to early conceptual and schematic design with little or no Engineering interaction. Since we have identified this gap in collection of performance metrics, we have pushed for more involvement in later phases of international design engagements and earlier engineering engagement even if we have to sub-contract engineers ourselves.”

Michael R. Davis, FAIA | Principal, Bergmeyer: After one year in the Commitment, Bergmeyer was already clearly able to identify the place where it could make the biggest difference. We do a lot of retail interiors, so many of our projects use LPD as their energy use metric. We kind of knew this intuitively, but when we saw that first AIA 2030 Commitment spreadsheet with a huge number of relatively smaller projects with their LPDs all over the map—we saw the light (pun very much intended)! Dee Spiro, Bergmeyer’s Sustainability Manager adds, *“It became very evident that the retail market offered us a huge opportunity to have a significant impact.* We’ve got our work cut out for us as we try to change the industry’s ‘more is better’ philosophy about lighting, but we love a good challenge!”

Andy Pease, AIA | Principal, InBalance Green Consulting: It was interesting to see how we had many small homes that were doing great, but *just a few percentage points on a big commercial building makes a much bigger impact* on [our portfolio] than all those homes combined.





“...giving gold stars to the projects with the highest EUI and LPD reductions.”

—Dee Spiro
Sustainability Manager,
Bergmeyer

Rand Ekman, AIA | Director of Sustainability, Cannon Design: From a firm perspective, I think the primary lesson is one we are still wrestling with, which is that setting appropriate use and client-focused targets is crucial. At this point in the program, (and increasingly true in the coming years) meeting the AIA 2030 Commitment energy reduction goals do not happen without early targets and mindful, intentional design. In addition to the pEUI and LPD data, for the group of projects that have deeper energy modeling analysis, we have been assessing predicted cost savings and carbon equivalent reductions. Needless-to-say, showing cost savings grabs the attention of another client focused leadership segment of the firm.

Sharing Lessons Learned

Colin Rohlfing, Assoc. AIA | Senior Associate, HOK: *Creating compelling graphics and displaying this information in public area* are two items that we utilize to tell our 2030 story. Although we address the best and worst performers, we highlight the best performers and create detailed case studies to share lessons learned with firm-wide employees. All of the best performers set targets, utilize iterative modeling and typically result in a building that is both aesthetically pleasing and that meets all client goals. Our high performance buildings historically have won more design awards as well.

Dee Spiro | Sustainability Manager, Bergmeyer: One of the things we have planned when the 2013 reporting is done in March is to post the results of the individual projects on the project boards around the office, giving gold stars to the projects with the highest EUI and LPD reductions. We also plan to list the projects in order of best to worst to generate a competitive spirit (a friendly one, of course) that will hopefully inspire the teams working on the worst performers to make improvements going forward.

Rand Ekman, AIA | Director of Sustainability, Cannon Design: We develop a rather detailed annual AIA 2030 Commitment report with a spirit of full transparency. We share the information on a project level, on a business unit level, on a building type level and on a geographic region level. Everyone can see which projects and which parts of the firm are performing well, or less well. *We also have been developing a set of possible scenarios to show the value of energy modeling and energy analysis to our firm and our clients that we are not effectively capitalizing on.* For example, if we modeled all of our project work and improved the average predicted performance by 10%, that could enable Cannon Design to show a +/- 67% pEUI improvement and bring an \$18 million annual savings to our clients. This is a motivator.





Chapter 7_

THE VALUE TO SMALL FIRMS

Roughly 80% of AIA members work in firms with less than 10 employees. That fact is not lost on those that work to shape the AIA 2030 Commitment—this initiative will not succeed without full engagement from small firms. A number of small firms and small project practitioners have expressed a hesitation to get involved with the AIA 2030 Commitment. Primary concerns seem to be a lack of resources and the incorrect assumption the reporting tool doesn't accommodate the type of work being done. We asked participating firms how they try and address these concerns and offer support when engaging their small firm peers

William D. Sturm, AIA | Serena Sturm Architects: While we hear of an increase in professional activity from our fellow medium and large firms, the health of the small firm is still tentative. We have seen some small proprietors immediately resist any additional task perceived to require significant time, is new and unknown thus suspected to be difficult, and which when completed may indicate we are failing to meet the 2030 goals. Yet while we might be voicing concerns, we are not turning our backs and walking away. We understand and feel this is an important initiative and we recognize that the burden of smallness is also a blessing. We can quickly take action and will often immediately see the positive results of a positive action. Some facts based on our experience as a small firm:

- + **Time Commitment:** If data is scarce, 1–3 hours per project. Once the project is set up and the data is accessible (such as the following year), 15–20 minutes per project.
- + **Staff Commitment:** We are often seeing one staff member being assigned to enter necessary data kept on each project and to make the final filing of the report.
- + **Difficulty:** Worries about 2030 reporting quickly dispels during actual involvement. The process is simple. Documenting some basic data (which serves to inform design decisions during the normal project process) is all that is currently necessary.
- + **2030 Targets—Success/Failure:** We are proud of putting a man on the moon at a time when many considered it far-fetched and requiring too much effort. Evidence already indicates that engaged small firms, more than hold their own in the pursuit of 2030 goals. The report is showing to be an informative environmental barometer of firm wide project performance not just the jewels we see in magazines. We recognize that we we will fail, need to learn from our failures, and work with our teams/clients with which we are fortunate to have intimate contact to eventually succeed.
- + **Confidentiality:** Though it must be stressed that reports are kept anonymous, it is likely small firms (often lacking a sophisticated marketing machine) will sense earlier than others that this tool is for self (and ultimately universal) improvement, rather than a boost or shot to the ego.





“Analysis tools are available for practices of all sizes and are improving rapidly.”

—Rand Ekman, AIA
Director of Sustainability,
Cannon Design

The benefits of participating in the AIA 2030 Commitment (for us and other small firms):

- + **Engages our staff and clients:** With recent passage of benchmarking in major cities and stricter energy codes, the EUI dialogue is only going to be greater and we want to be involved
- + **Improves project process:** We immediately recognized that some things need to be done differently. For example, we needed to reconsider deliverables from consultants and better record keeping.
- + **Informs and challenges design:** We are still scratching our heads for cause/effect on some projects but the facts are the facts and because of reporting, we have them and now need to respond to them.
- + **Unites and identifies Architects with an important goal:** We are freely learning from others and an unexpected benefit has been the use of shared power point slides, boards, writings, etc.
- + **Reinforces us as leaders:** Small firms are/can join leadership, equal with any in the profession, on an important cause recognized by the public

Rand Ekman, AIA | Director of Sustainability, Cannon Design: Change can be difficult and learning new tricks takes commitment for firms of any size. There is no doubt that practice is moving toward design more informed by energy use. Increasingly, our codes, regulations and clients are asking for this and it will be an inevitable component of design. Analysis tools are available for practices of all sizes and are improving rapidly. Now is the time to develop knowledge and understanding of how and where energy analysis is useful in the design process. It will set your practice apart.

Michael R. Davis, FAIA | Principal, Bergmeyer: I’ve had that conversation many times! I even blogged about it in a post called “**Power and Influence**”. I actually had to shorten the talking points to keep the post from getting too long, but the basic message was this: the AIA 2030 Commitment is great for small firms! We know that most AIA member architects work in small firms. A quarter of us are sole practitioners, 60% have fewer than five employees. These offices aren’t doing a large number of projects, and they’re generally designed and managed by the same people. *This actually provides a huge competitive advantage in the Commitment! If you’re only doing—say—10 projects a year and half of them are for energy-conscious clients, your annual PEUI is going to look really good.* If one or two projects are exemplary performers, those projects can pull your aggregate PEUI way down! It’s also much easier to institutionalize knowledge and learn from experience when you’re working with a smaller team of collaborators on multiple assignments. Yes, there’s an overhead burden associated with compliance reporting, but you shorten the learning curve so much faster when everyone understands the reporting mechanism. And you don’t have to CHASE so many people for numbers!





“...if they can afford to educate at least one member of their staff in energy metrics it does not take a lot of time to report...”

—Norman Strong, FAIA
Partner, Miller Hull

Dee Spiro | Sustainability Manager, Bergmeyer: There’s definitely time and overhead devoted to compiling the data for reporting, but in my mind, *the smaller firms and small project practitioners should have an easier time with the process after a time through.* Assuming as Mike said that they have a smaller number of projects, there’s not as much data to collect. What really amazes me is how the mammoth, multi-office, international firms do the reporting! Just the coordination alone strikes fear in my heart and makes me very thankful that we have one office, and I can chase everyone down if I need to.

Norman Strong, FAIA | Partner, Miller Hull: This mindset is a big barrier for all firms to participate. We would tell our small firm peers that if they can afford to educate at least one member of their staff in energy metrics it does not take a lot of time to report—less than 4 hours per project. It is a useful tool to show progress of the firm on a year-to-year basis. Young staff can be eager to take this on. As for the misconception that the reporting tool doesn’t accommodate the type of work, this is an issue for firms of any size. We all think that our projects don’t represent well in the reporting tool. That said, the tool is intended to look at a firm’s portfolio and not individual projects—so what may be overestimated in one project might be underestimated in another, and it tends to work itself out. We have found that our firm’s results over the 3 years of reporting actually reflect how we have felt intuitively about the comparative performance of the firm’s work over those years. We would say that the simplified nature of the reporting tool is both a curse and a blessing; it is best to not get overly concerned by the details, and instead to focus in trends in the firm’s work and to let those help you imagine how you can improve and also think about how the firm will begin to address the increasingly stringent targets.

Andy Pease, AIA | Principal, InBalance Green Consulting: Just do it! Even if the reporting tool doesn’t cover everything, just the exercise of tracking how you are doing brings an essential awareness of energy use.





Chapter 8_

THE IMPACT ON ARCHITECTURAL PRACTICE

“[The AIA 2030 Commitment] changes the role of the AIA from an inward professional organization to an organization committed to taking on the difficult challenges of our time through the value of design.”

—Rand Ekman, AIA
 Director of Sustainability,
 Cannon Design

The AIA 2030 Commitment participants recognize how the program provides a new leadership role for architects in alignment with the Repositioning initiative goals. It positions architects in the larger context as important contributors to a key global issue.



Above: Keelan Kaiser presenting The AIA 2030 Commitment.

Rand Ekman, AIA | Director of Sustainability, Cannon Design: The AIA 2030 Commitment has provided a platform to enable firms of all sizes and types, and in all parts of our country to come together toward a common goal. This goal, reducing the impact of the building design on energy consumption and greenhouse gases, is a value proposition for our businesses, our profession, our communities and our earth. [The AIA 2030 Commitment] changes the role of the AIA from an inward professional organization to an organization committed to taking on the difficult challenges of our time through the value of design.

Because of the AIA 2030 Commitment, the profession now has a shared, common platform to assess our design work. We are working from the same baselines toward the same goals. This is a big deal and was accomplished in a pretty short timeframe. We still deliver exemplary projects, but have successfully shifted the focus to practice. This is real substance. Firms are engaged in robust and informed internal feedback on many levels. This occurs at many levels, often through the local components. That the AIA is the means for this collaboration is superb. The AIA 2030 Commitment has played—and





“We believe the tracking of performance metrics is a significant industry trend that will help architecture firms retain their relevance and a strong business position.”

—Clark Brockman, AIA
Principal, SERA Architects

“For me, the AIA 2030 Commitment is one of the best reasons to be an AIA member.”

—Andy Pease, AIA
Principal, InBalance
Green Consulting

continues to play—a central role related to energy literacy in the profession. Terms like EUI and LPD are now understood in concept by many more architects. This is huge and one of the very real accomplishments of the AIA 2030 Commitment.

Colin Rohlfing, Assoc. AIA | Senior Associate, HOK: Over the past decade or so, industry colleagues have expressed concerns about the role architects are playing for the design and construction process. Architects are no longer considered to be “master builders” and leaders of a project process. Sustainable Thought Leadership through the AIA 2030 Commitment and many other sustainable design approaches *give our industry the opportunity to lead a project, our clients and our building industry peers toward higher levels of efficiency and sustainability.*

Norman Strong, FAIA | Partner, Miller Hull: We are thankful that the AIA has continued to take this on, and is working hard to expand the reach of the program within the profession. The honesty with which AIA is reporting the results is valuable. It is no longer marketing or PR—it is a reflection of the state of our industry and our role in it. Another interesting outcome is the level of communication between local firms that are involved in commitment has raised the level of conversation about practice between firms. We have a monthly round-table where representatives discuss successes and challenges. We have had structured presentations, open discussions, and everything in between. *Through the Commitment, the AIA has fostered communication between firms that benefits all involved.*

Clark Brockman, AIA | Principal, SERA Architects: We believe the tracking of performance metrics is a significant industry trend that will help architecture firms retain their relevance and a strong business position. It is frankly one of the biggest moves that the AIA has undertaken that has a direct and positive impact on our firm, and it seems very much in keeping with the current push towards ‘repositioning’.

Michael R. Davis, FAIA | Principal, Bergmeyer: In the quest for greater designed energy efficiency and the work to reduce greenhouse gas emissions from buildings, I think the AIA 2030 Commitment is one of the most singularly useful tools we have. *It’s how we can bring the global struggle to reduce the destabilizing impacts of climate change home to our design practices.* It gives architects a powerful but practical and applicable set of criteria to measure that which is arguably our projects’ greatest environmental responsibility. We needed this program, and the AIA delivered it.

Andy Pease, AIA | Principal, InBalance Green Consulting: The AIA 2030 Commitment has brought together more than a dozen firms in our chapter for mutual support and encouragement. Because of this larger group goal for AIA 2030 participation, we were able to conduct the excellent AIA+2030 Professional Series. For me, the AIA 2030 Commitment is one of the best reasons to be an AIA member.





Chapter 9_

AIA 2030 COMMITMENT: COLLABORATIVE INITIATIVES

The Importance of Local Component Support

While the AIA 2030 Commitment is providing the common language, it is our components which provide the best opportunity for practitioners to share with each other the lessons learned and best practices adopted through the process of implementing the commitment across their firm. Support at the component level is critical as a platform to connect and share their collective successes, challenges, best practices adopted, and innovative strategies implemented. It is in this environment where the intra firm collaboration and information sharing occurs and the true value of the AIA 2030 Commitment is realized.

As an example, AIA Chicago has taken an active leadership role in the AIA 2030 Commitment. In addition to developing the AIA 2030 Commitment reporting tool, the Working Group produces a **regional snapshot** of local firms' commitment to reducing energy consumption and greenhouse gases within the Chicago area. The end result creates a critical mass toward achieving sustainability goals, and builds a sense of community among participating firms.

"Chicago firms are maintaining a great open dialogue about the 2030 Commitment, internally and with colleagues. There's a sense of camaraderie and cooperation when it comes to 2030 metrics and reporting process. Even though there's a lot of work still ahead to achieve the targets, having everyone talking on the same language and understanding of what the goals are, is a great metric of success," says Jose B. Rodriguez, LEED AP, AIA Int. Assoc., Associate Principal of Sustainability for Willoughby Engineering.

With AIA 2030 Commitment efforts being championed by the AIA Central Coast Chapter, Boston Society of Architects, AIA San Francisco and others—it's a model AIA National hopes other components will continue to follow.





While the primary focus of the AIA 2030 Commitment is to transform the way in which architects approach practice, it is clear that it will take the joint effort of all allied professionals to meet these ambitious goals.

Structural Engineering Firms

By Wolfgang Werner, AIA | Vice President Thornton Tomasetti

Acknowledging the imperative for our industry to work toward a less carbon intensive model of the built environment, in 2010 Thornton Tomasetti signed the AIA 2030 Commitment—becoming the first primarily structural engineering firm to join the Commitment—and it has since taken steps to improve the carbon efficiency of its own operations, as well as helping customers achieve more carbon-efficient designs.

STRUCTURAL EMBODIED ENERGY AND CARBON IN BUILDINGS

We tally the total amount of structural materials in each project to calculate its EMBODIED ENERGY and EMBODIED CARBON.

Parameters affecting EMBODIED ENERGY and CARBON include:

- ▣ Structural material choices
- ▣ Recycled content
- ▣ Recycled vs raw materials
- ▣ Distances
- ▣ Energy sources
- ▣ Architectural building geometries

Percentage of cement (the primary carbon footprint factor in concrete) replaced by supplementary cementitious materials, such as fly ash, slag or silica fume

Raw material extraction/mining/harvest



Transportation to manufacturing plant



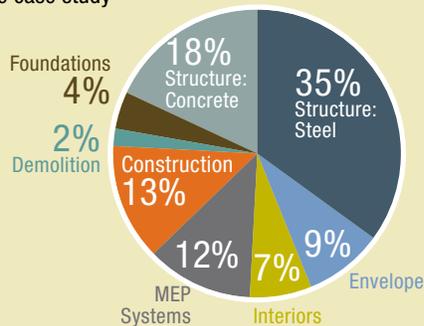
Manufacturing



For consistent comparisons across projects, the total EMBODIED ENERGY and EMBODIED CARBON for each are divided by total square feet. These per-square-foot values allow us to assess the relative embodied energy and carbon efficiencies of our projects. These are closely related to the structural design efficiencies (structural materials use per square foot), which in turn are influenced by the architectural geometry and many other factors. Our goal is to successively improve the average embodied energy and carbon efficiencies of our structural design portfolio over the coming years.

LIFE CYCLE OF EMBODIED CARBON IN A COMMERCIAL BUILDING

A sample case study



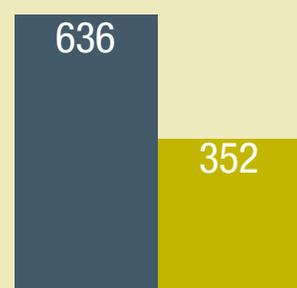
Source: Case Studies: Footprint Measurement and Reduction, dcarbon8, 2007.

EMBODIED ENERGY AND EMBODIED CARBON EFFICIENCIES

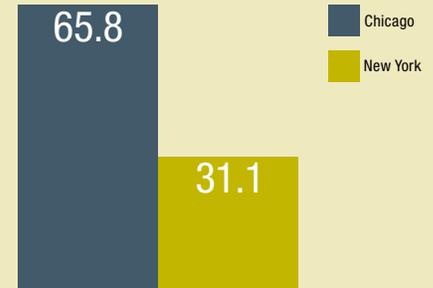
First-year averages for projects of the Chicago and New York offices

(Chicago project values are higher because of unique aspects of a few very large projects.)

EMBODIED ENERGY (MJ/sq ft)



EMBODIED CARBON (kg CO₂e/sq ft)





“We’re not an architectural design firm, but we have found that the door is open for us, too. The closer relationship between our firm and the AIA has given us new perspectives on design and sustainability.”

—Wolfgang Werner, AIA
Vice President,
Thornton Tomasetti

As a firm providing a wide spectrum of engineering design, investigation and analysis services, but typically not being in charge of designing the architectural and MEP systems that determine a building’s operational energy efficiency, we realize that the ‘standard’ AIA 2030 reporting protocol—based on Energy Use Intensity (EUI), i.e. operational energy efficiency—is not a viable reporting option for Thornton Tomasetti. However, in light of the company’s large structural design portfolio, we instead decided to focus on the metrics of embodied energy and embodied carbon (EE/EC).

As structural designers we are responsible for the conceptualization and design of load-bearing systems for buildings of all types and all sizes around the world. By their nature, these designs consist of substantial amounts of structural materials, predominantly steel and reinforced concrete. These materials in turn contain embodied energy/carbon that is a result of the energy used, and associated carbon emitted, for raw materials extraction, refining, manufacturing and transportation. These embodied impacts are not captured in the EUI metric, yet they are by no means insignificant. Therefore, given our specific range of services, we believe that measuring and attempting to reduce EE/EC impacts is our way to live up to the spirit of the AIA 2030 Commitment; this is how we can make a difference!

To do this we developed an internal system and tools to achieve the following: To annually collect structural quantity data from the firm’s entire structural design portfolio, to calculate project EE/EC impacts as total and per square foot values, and to build up a database of such EE/EC project data over time. As opposed to the operational energy use side of the life-cycle energy equation, there are, at this time, no generally recognized EE/EC baselines to which we can compare the results of our efforts.

Because the measurement of embodied carbon is still so new in the AEC industry, we are still in the process of collecting enough data to create a “baseline” that will allow us to make meaningful comparisons between projects and measure success going forward. We were surprised to find that the “embodied energy efficiency” (embodied energy/square foot) of our structural designs varies a great deal without revealing a clear correlation to parameters such as building size, location, construction type or occupancy type. One of our goals, as we build up our data set, is to tease out correlations that can inform our design approaches and best practices.

We have gotten a lot more involved with the AIA than we would have without participating in the AIA 2030 Commitment. We’re not an architectural design firm, but we have found that the door is open for us, too. The closer relationship between our firm and the AIA has given us new perspectives on design and sustainability. And we find that expanding our horizons always has benefits—to our firm and our work.





Chapter 10_

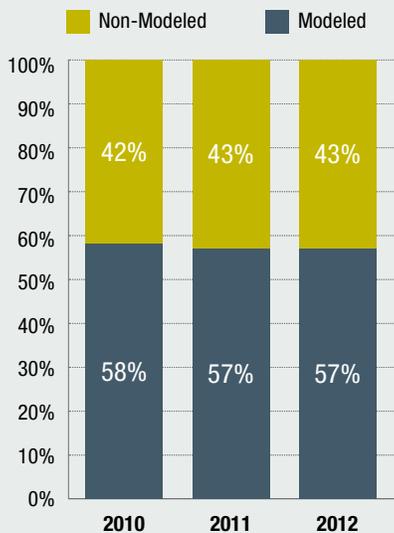
THE ROLE OF ENERGY MODELING

“Architects in all types and sizes of practice can and should be leaders in energy modeling for the building industry, taking responsibility as designers for assuring that buildings perform to high standards. To do so, we must learn new terms, strategies, and methods of calculation, as well as how to integrate this knowledge into the early decision making of a project.”

—*An Architect’s Guide to Integrating Energy Modeling in the Design Process*

Percent of Total GSF Being Modeled

110 Firms Reporting



The report data shows that modeled projects have an average 20% improvement in predicted performance which is a key process differentiator. However, the percentage of projects being modeled remained at 57% in 2012. In other words, reporting firms have no understanding of what the energy consumption or operational costs might be for more than 40% of their work. Clearly, opportunity to improve energy modeling usage is critical to further improvement.

Rand Ekman, AIA | Director of Sustainability, Cannon Design: Projects that engage in energy modeling analysis differ in two fundamental ways from those that do not. First, the team is actively engaged in conversations with the client. When the information is there it becomes part of the design dialogue. I have never met a client who was not interested in this analysis. It helps them to understand the design and anticipated operational needs for their asset. Second, using the AIA 2030 Commitment as a basis of comparison, projects that are energy modeled show an approximate 20% improvement in predicted performance. Some of this improvement can be attributed to simply not knowing the predicted pEUI and the code benchmark default. But that’s sort of the point, *without a model we are working blind.*

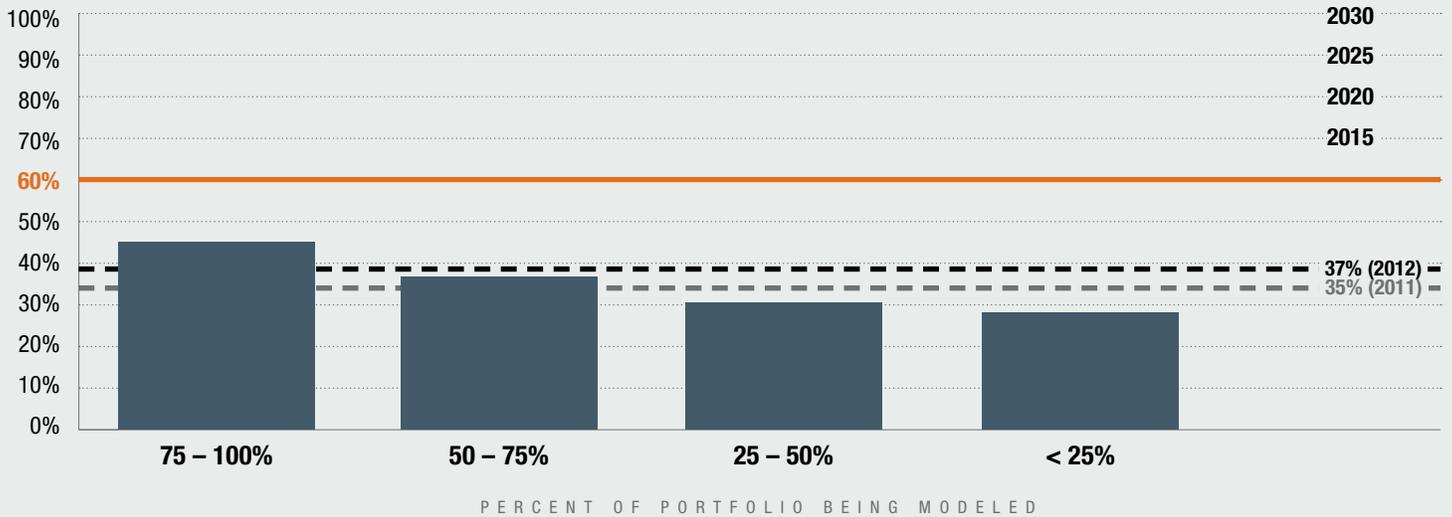
Michael R. Davis, FAIA | Principal, Bergmeyer: *The big difference between energy-modeled and non-energy-modeled projects is the nature of the conversation around the design table.* Once the engineers have come in with energy savings projections on different combinations of building mechanical and envelope systems and the builders have had a chance to put first-cost estimates to the scenarios, we can all have an informed design discussion about the best choices. Without this information, we’re usually working with much more subjective design criteria.





Predicted EUI Reduction by Percentage of Portfolio Being Modeled

Data from 110 Firms Reported



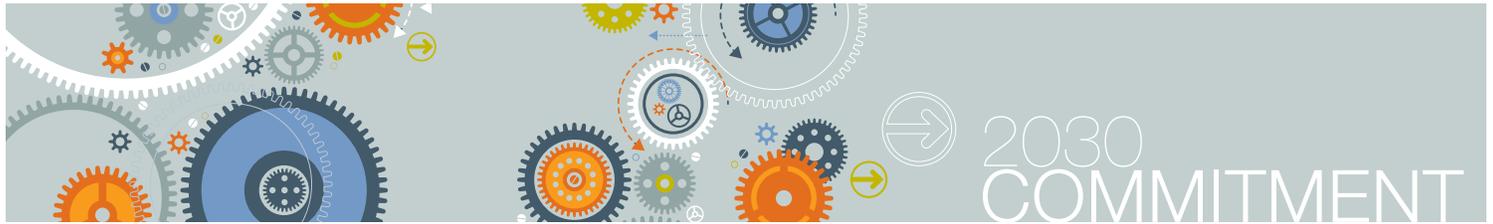
“...using the AIA 2030 Commitment as a basis of comparison, projects that are energy modeled show an approximate 20% improvement in predicted performance.”

—Rand Ekman, AIA
Director of Sustainability,
Cannon Design

Colin Rohlfing, Assoc. AIA | Senior Associate, HOK: All designers must incorporate sustainable ‘rules of thumb’ to ensure that a project is moving in the right direction from day one. However, every project approach is unique and ‘rules of thumb’ can cause a project to fall short of energy savings goals or even lead a design in the wrong direction. Strategies must be modeled and be subject to life cycle analysis thinking to verify potential savings and performance metrics. *Informed decisions should be based upon research and metrics derived from a scientific methodology, not hunches.*

Clark Brockman, AIA | Principal, SERA Architects: Although we incorporate sustainability and performance into all of our projects, those with the most aggressive energy performance goals always use energy modeling as a key iterative design input. We have, over the years, been able to convince a growing list of clients to incorporate energy modeling into the design process as a ‘best practice’, regardless of whether the project is pursuing LEED, Energy Star or Living Building certification. *Interestingly, when a firm/project can establish that energy modeling and commissioning are ‘best practices’ and not just part of the ‘cost of LEED’, the actual ‘cost of LEED’ is greatly diminished.* This change in the narrative of green building is an area where the (repositioned) AIA and its growing dataset from the 2030 commitment could really help move firms, and the practice in general, forward.





Chapter 11_

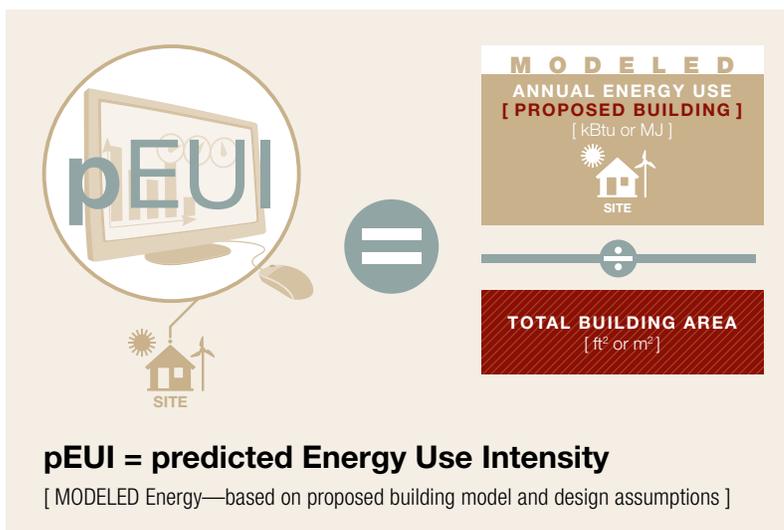
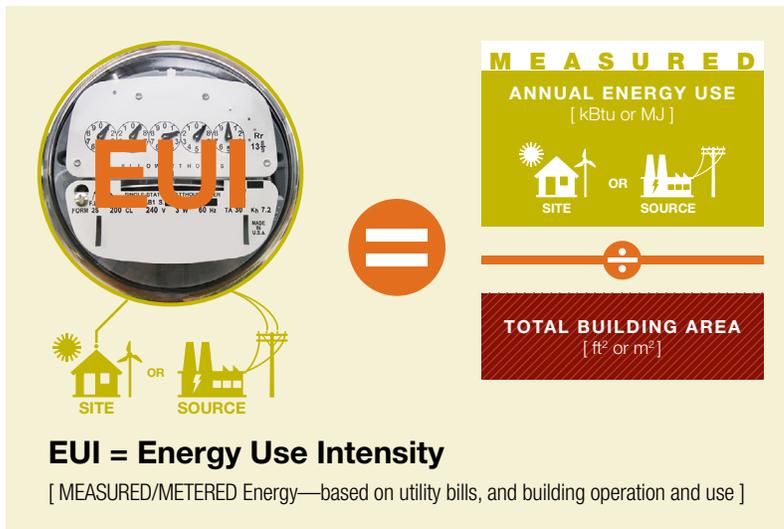
2012 Key Metrics Defined

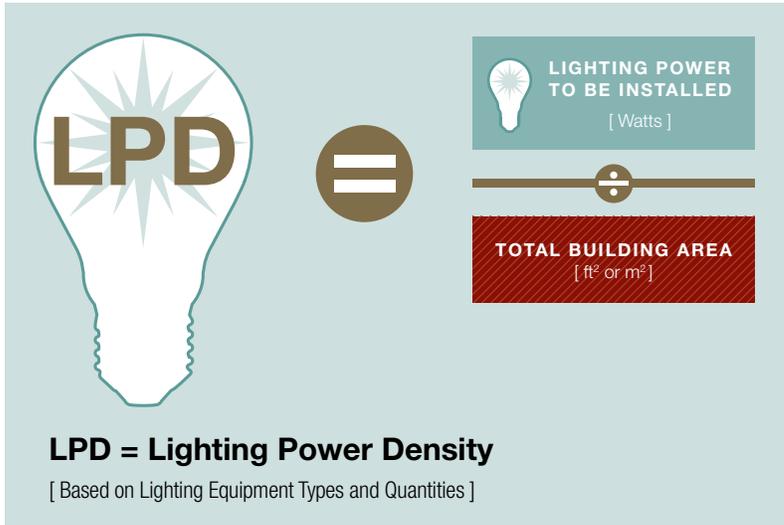
2012 AIA 2030 COMMITMENT DATA

Energy Use Intensity (EUI) is the basic standard unit for analyzing actual energy use in buildings and is measured in thousands of British thermal units per square foot per year (kBtu/sf/yr). The U.S. Department of Energy’s Commercial Buildings Energy Consumption Survey (CBECS)—specifically the 2003 CBECS database—serves as the widely adopted baseline for measuring operational energy use and reductions. The AIA 2030 Commitment

uses the term Predicted Energy Use Intensity (pEUI) to differentiate from actual operational (metered) energy use. Unlike the CBECS, which records actual use data from existing buildings, pEUI measures what we can broadly anticipate the building to consume based on the project’s design.

Additionally, reporting is based on site EUI, not source EUI. Source energy reflects the energy used not only at the building but also in electricity generation, transmission, storage, and the like while site energy measures the energy use only within the building. Although source EUI is an important measure of energy—and a vitally important part of calculating a “carbon footprint”—the focus of this reporting is to start with analyzing the energy performance of the design work of AIA member firms so uses the site EUI baseline. For each project that is not interior-only, the percentage pEUI reduction from the average is multiplied by the project’s gross square footage (GSF). The sum of these products is divided by the total GSF of the same projects to yield a weighted average percentage reduction from the average. This number represents the firm’s progress toward the 2030 goals. The approach allows for two key features: First, it allows member firms of differing sizes to report on an equal basis. Second, it emphasizes the importance of project size, as larger projects within a firm’s portfolio have a larger impact.





For interiors-only design work, the AIA 2030 Commitment measures designed lighting power density (LPD). Generally, the ability of an interior design project to affect building EUI is limited mostly to lighting design. Since interiors projects tend to not include HVAC system or envelope modifications, lighting power density is the criterion most applicable to interiors work. The LPD metric is the sum of wattage required for all lighting equipment (as calculated per American Society of Heating, Refrigerating and Air Conditioning Engineers [ASHRAE] methodologies) divided by project area. The wattage (W) in the W/sf is determined by the power rating of the lighting fixtures selected.

LPD is different from actual lighting energy use (which could be determined if the lighting was submetered and the power for lighting was measured over time). LPD is also different from lighting use intensity (LUI) which can be derived only from energy modeling, which is seldom employed for interiors-only projects.

Per ASHRAE 90.1-2007, installed interior LPD includes all power used by luminaires with a number of exceptions, including essential display or accent lighting, lighting that is integral to equipment, lighting specifically designed for use only during medical or dental procedures, and exit signs. ASHRAE 90.1-2007 offers two methods for determining a project's LPD and allowance: the Building Area Method and the Space-by-Space Method. The Building Area Method sets a single allowance for the entire project, while the Space-by-Space Method compiles varying allowances for multiple space types within a single project.



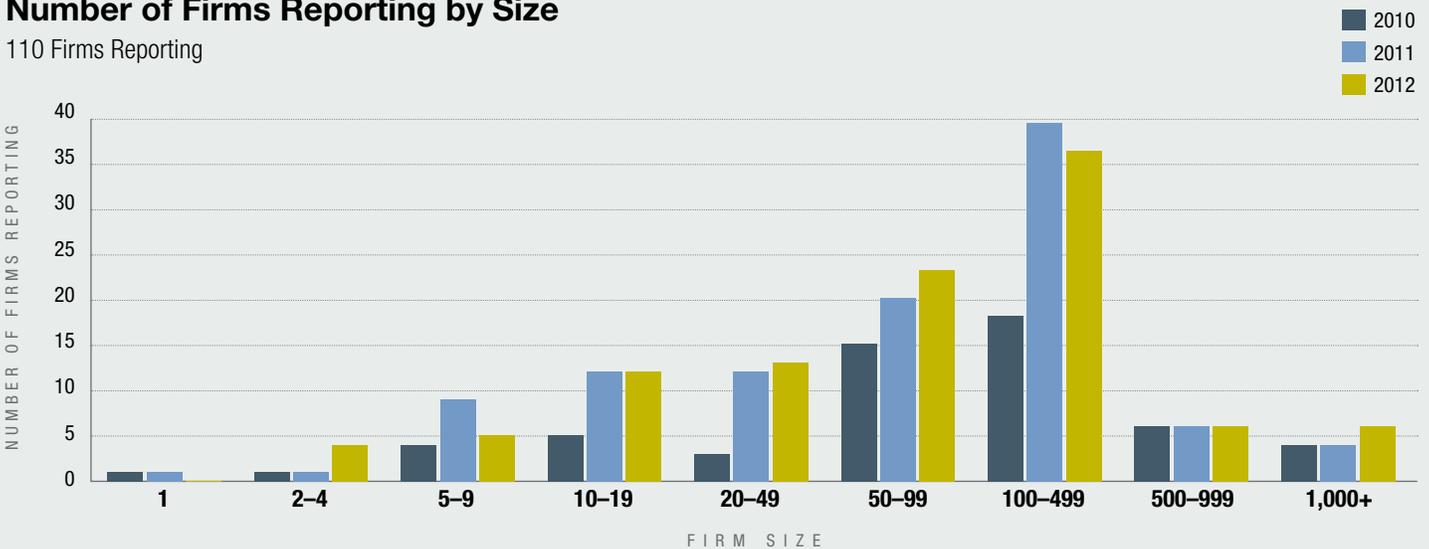


2012 Reporting Data Analysis

By the end of the 2012 calendar year, 241 firms had joined the AIA 2030 Commitment. Of those, 110 firms submitted an annual progress report representing a 46% follow-through rate for reporting. This is down from 53% last year. The first graphic illustrates the number of firms that reported, broken down by firm size. The second graphic illustrates the total number of firms participating in the 2030 Commitment, broken down by size, compared with the number of firms that submitted an annual report.

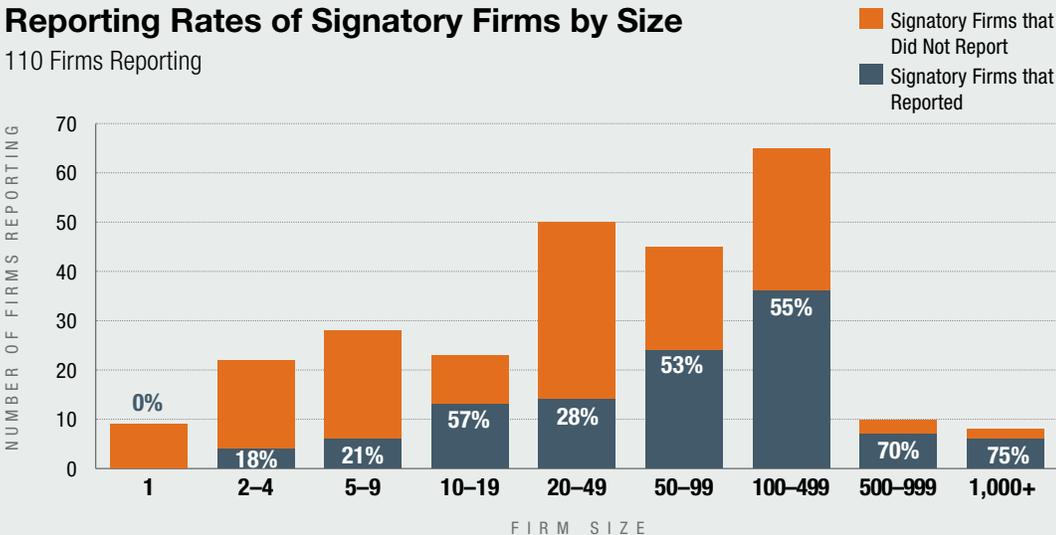
Number of Firms Reporting by Size

110 Firms Reporting



Reporting Rates of Signatory Firms by Size

110 Firms Reporting



Key Takeaways: Reporting

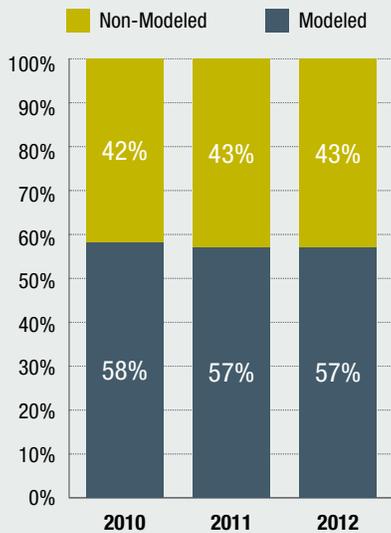
- + There is a need to focus on encouraging higher reporting rates for firms under 500 employees.
- + Efforts to reach firm signatories with fewer than 10 people to address their needs are necessary.





Percent of Total GSF Being Modeled

110 Firms Reporting



Percent of Total GSF Collecting Actual Performance Data

110 Firms Reporting

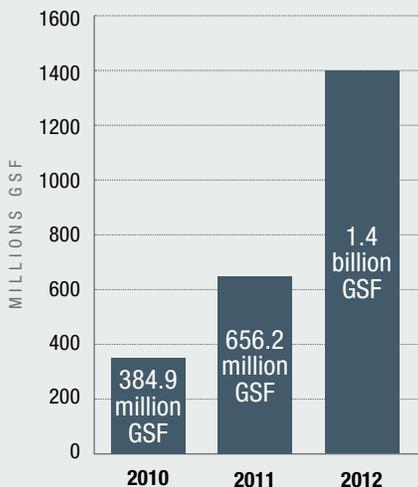


Key Takeaways: Summary Data

- + The biggest shift in 2012 is in the total amount of GSF reported, a 120% increase. This will result in a dramatic improvement in net energy use with even a small increase in efficiency.
- + Percent of Total GSF modeled and anticipated to collect actual performance data is unchanged. More effort in these areas is warranted.
- + There continues to be an incremental improvement towards the 60% reduction goal. More and rapid progress is needed to meet the commitment targets.

Total Gross Square Footage of Active Design Projects

110 Firms Reporting



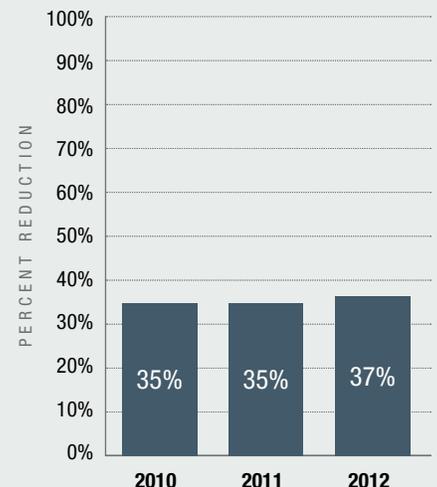
Percent of Total GSF Meeting Current 60% Reduction Target

110 Firms Reporting



Average Firm pEUI Reduction from National Average

110 Firms Reporting





2012 Reporting Data Analysis: Project Level Data

Through the course of this year's reporting process, the AIA has received some overwhelmingly consistent feedback. Chief among that feedback is that the annual report compiled by the AIA should provide more information about the progress of sustainable performance results. Specifically, firms indicated a desire to see the data sorted in more detailed methods. The AIA heard those concerns and is determined to be responsive to them. The purpose of collecting and publishing data has always been to guide a process of improvement. The value of the data is not just to see where we are, but understanding the data in a way that allows us to improve. We believe compiling the information in this manner will provide a value and benefit to all firms. More than 50 firms agreed to participate in a pilot attempt to analyze data at the project level. The following data represents the portfolios of 52 firms representing more than 1,600 design projects.

- Ayers Saint Gross
- Beck Group
- Bergmeyer Associates, Inc.
- Buro Happold
- BSKS Architects
- BNIM
- Cannon Design
- Coldham & Hartman
- Cunningham | Quill Architects
- EHDD
- English + Associates Architects, Inc.
- Eskew + Dumez + Ripple
- Gresham Smith and Partners
- Hord Coplan Macht
- Helix Architecture + Design
- HKS, Inc.
- HOK
- In Balance Green Consulting
- John A. Martin & Associates San Luis Obispo Structural Engineering (JAMASLO-SE)
- Kaplan Thompson Architects
- Lake | Flato
- Lehrer Architects
- LMN Architects
- Lord, Aeck & Sargent
- Mazzetti Nash Lipsey Burch (M+NLB)
- Malhum
- M.C. Harry & Associates, Inc.
- The Miller | Hull Partnership
- Moseley Architects
- NAC | Architecture
- NBBJ
- Orcutt | Winslow
- Payette
- Peters, Tschantz & Associates, Inc.
- Quinn Evans | Architects
- Ross Barney Architects
- Sasaki
- Schmidt Assoc.
- SERA Architects
- Serena Sturm Architects
- The S/L/A/M Collaborative
- Solomon Cordwell Buenz
- SOM
- The Sheward Partnership, LLC
- TLC Engineering for Architecture
- Valerio Dewalt Train Associates
- Wallace, Roberts & Todd, LLC (WRT)
- WBRC Architects/Engineers
- Yost Grube Hall
- Zimmer Gunsul Frasca (ZGF)

The results for the project data provided by these firms yielded a pEUI reduction from average of 37.4%; 62.1% GSF was modeled or had a target. This is very similar to the picture yielded from all firms' standard reporting. Following is a more in depth analysis of this project-level data.

Key Project Level Takeaways

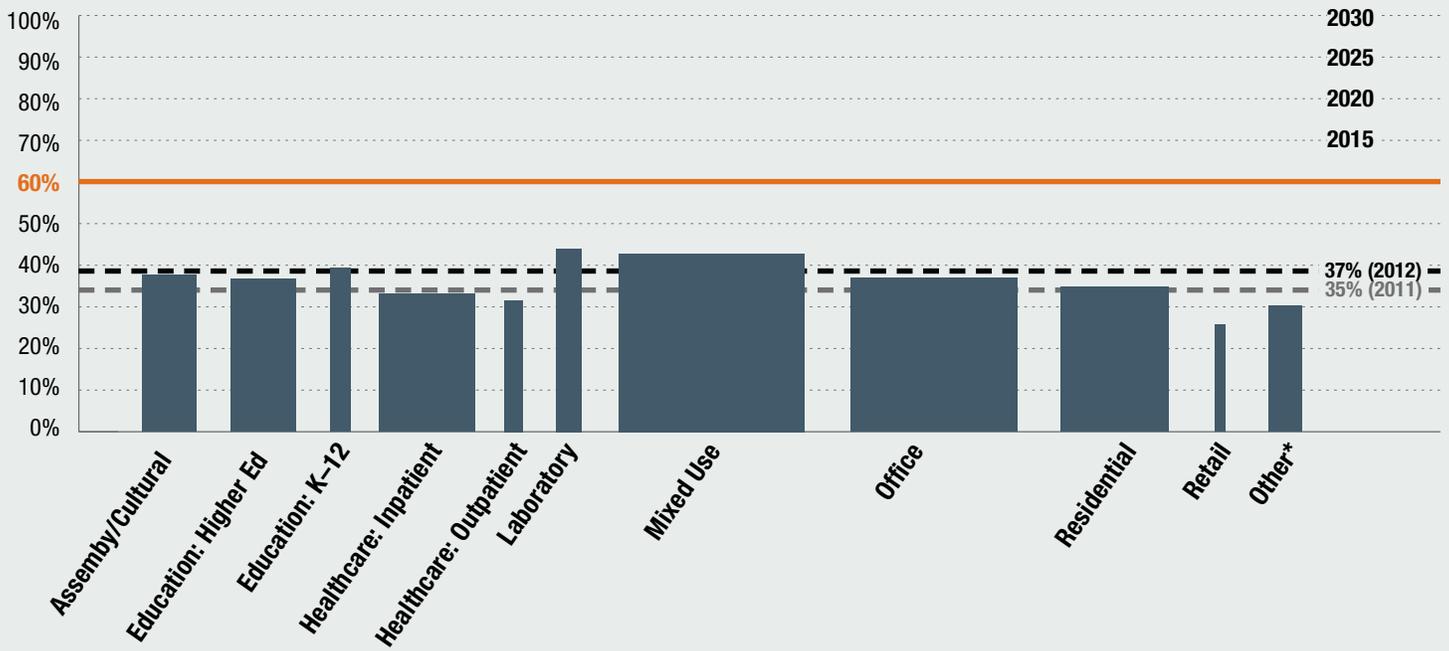
- + There is a 18% variance in pEUI reduction based on project use type with Laboratories and Mixed Use facilities having the greatest reduction above the average for all projects. More data will be very helpful in better identifying these use type differences.
- + All project sizes are close to the overall average while the largest (>1000000) and smallest (<25000) projects outperform the rest. All project sizes can improve through the AIA 2030 process.
- + 12% of projects meet or exceed the 60% target. These include projects in all sizes and use types. This means we have many project examples from which to learn.
- + All projects that met or exceeded the 60% target used energy modeling.





Predicted EUI Reduction by Project Use Type

1633 projects with detailed data provided. Width of bar represents relative project work in GSF.



*Includes data centers, fire/police stations, service, storage, warehouse and 'other.'

PROJECT USE TYPE

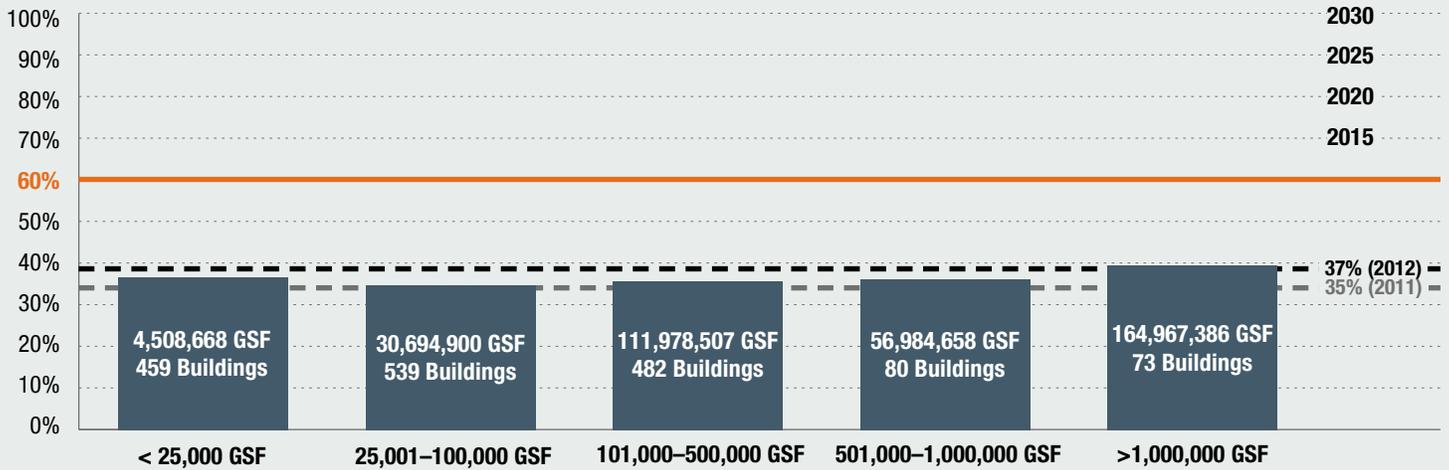
BROAD CATEGORY	PERCENT pEUI REDUCTION FROM AVERAGE BY USE TYPE	GSF INCLUDED	NUMBER OF WHOLE BUILDING/ ADDITION PROJECTS INCLUDED
Assembly/Cultural	37.7%	29,742,922	170
Education: Higher Ed	36.7%	24,671,735	198
Education: K-12	39.4%	8,428,447	106
Healthcare: Inpatient	33.1%	50,951,980	167
Healthcare: Outpatient	31.6%	9,810,560	99
Laboratory	43.2%	10,814,157	63
Office	37.0%	73,174,838	205
Residential	34.8%	44,508,618	328
Retail	25.7%	4,059,156	64
Mixed Use	42.8%	95,655,695	118
Other	30.2%	17,316,011	115
TOTALS		369,134,119	1633





Predicted EUI Reduction by Project Size

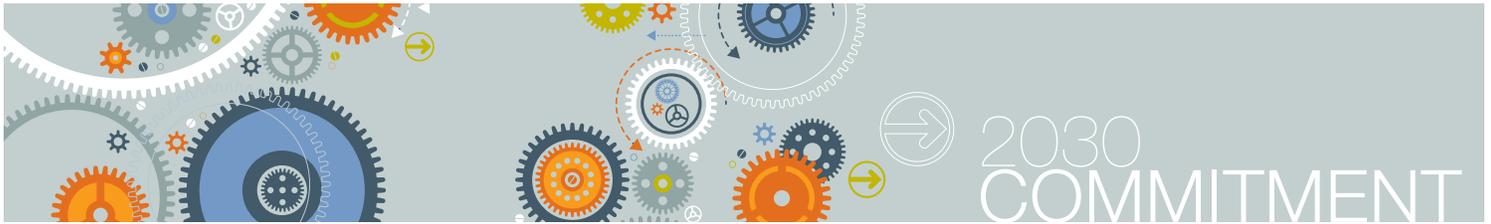
1633 projects with detailed data provided



MINIMUM	MAXIMUM	PERCENT pEUI REDUCTION FROM AVERAGE BY BROAD CATEGORY	GSF INCLUDED	NUMBER OF WHOLE BUILDING/ ADDITION PROJECTS INCLUDED
<25,000	25,000	36.7%	4,508,668	459
25,001–100,000	100,000	34.7%	30,694,900	539
100,001–500,000	500,000	35.7%	111,978,507	482
500,001–1,000,000	1,000,000	36.2%	56,984,658	80
>1,000,000	200,000,000	39.4%	164,967,386	73
Totals			369,134,119	1,633

PROJECT SIZE (GSF)	PERCENT pEUI REDUCTION FROM AVERAGE	GSF INCLUDED	NUMBER OF WHOLE BUILDING/ ADDITION PROJECTS INCLUDED
<25,000	74.0%	580,814	62
25,001–100,000	71.3%	3,297,815	58
100,001–500,000	69.0%	12,624,462	56
500,001–1,000,000	65.0%	5,232,284	7
>1,000,000	70.7%	24,787,110	10
Totals		46,522,485	193



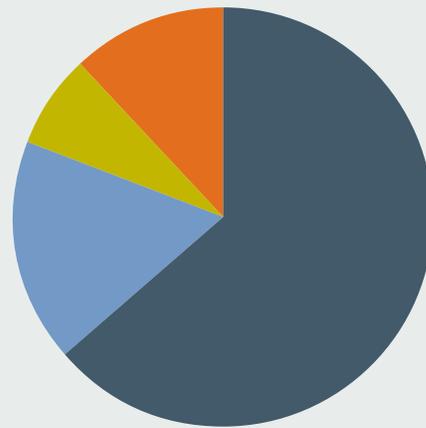


Projects Meeting or Exceeding 60% Reduction Target

In this data set, there are 193 projects (or 12%) which are meeting or exceeding the current 60% reduction target. These projects are from 40 firms of all sizes, and are comprised of projects in all use type categories and all project size categories. These are projects which will be examples within their firms and across the industry. Taking a closer look at the breakdown:

Predicted EUI Reduction Breakdown By Number of Projects

1633 projects with detailed data provided



- 60% or greater
- 50 – 59%
- 40 – 49 %
- less than 40%

PERCENT REDUCTION	NUMBER OF PROJECTS
less than 40%	1039
40% – 49%	283
50% – 59%	118
60% – 69%	117
70% – 79%	44
80% – 89%	16
90% – 99%	2
100% or greater	14

PROJECT USE TYPE CATEGORY	PERCENT pEUI REDUCTION FROM AVERAGE	GSF INCLUDED	NUMBER OF WHOLE BUILDING/ ADDITION PROJECTS INCLUDED
Assembly/Cultural	73.1%	5,071,186	20
Education: Higher Ed	70.2%	3,375,608	31
Education: K-12	81.7%	924,711	15
Healthcare: Inpatient	65.8%	4,264,529	7
Healthcare: Outpatient	63.1%	1,103,075	4
Laboratory	65.1%	1,581,379	13
Office	66.4%	15,019,747	30
Residential	70.2%	1,694,671	43
Retail	72.8%	198,450	6
Mixed Use	73.3%	13,077,526	20
Other	76.5%	211,603	4
Totals		46,522,485	193



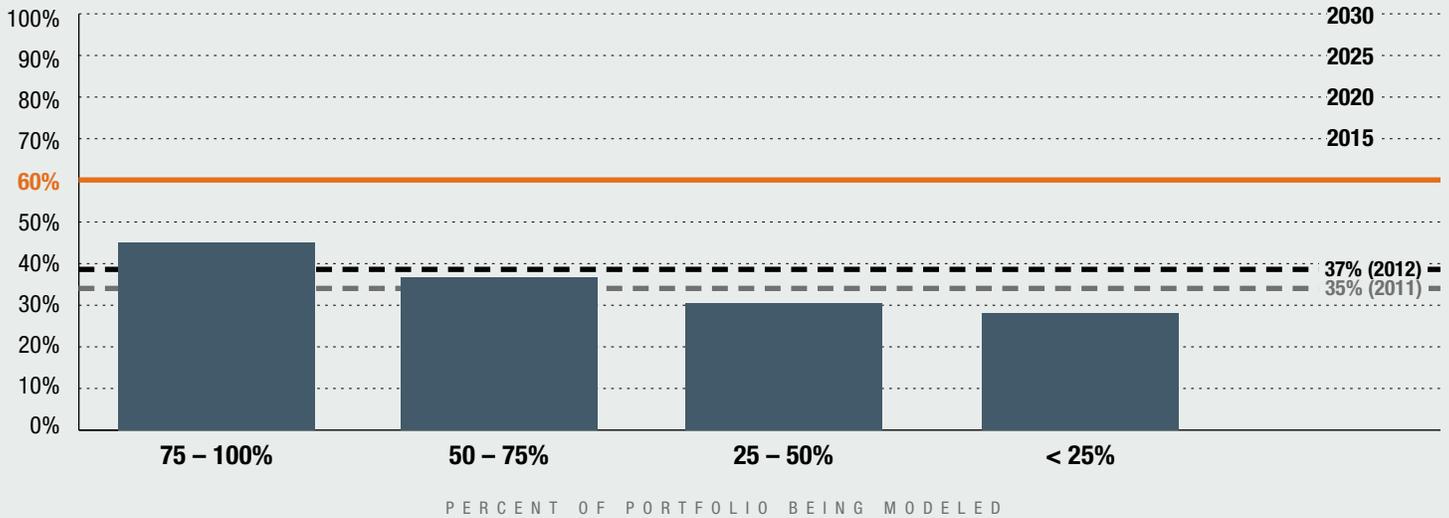


Key Takeaway: Energy Modeling

- + The higher the energy modeling usage, the greater the EUI reduction. Energy modeling is a key differentiator in determining energy use reduction and should be a major focus moving forward.

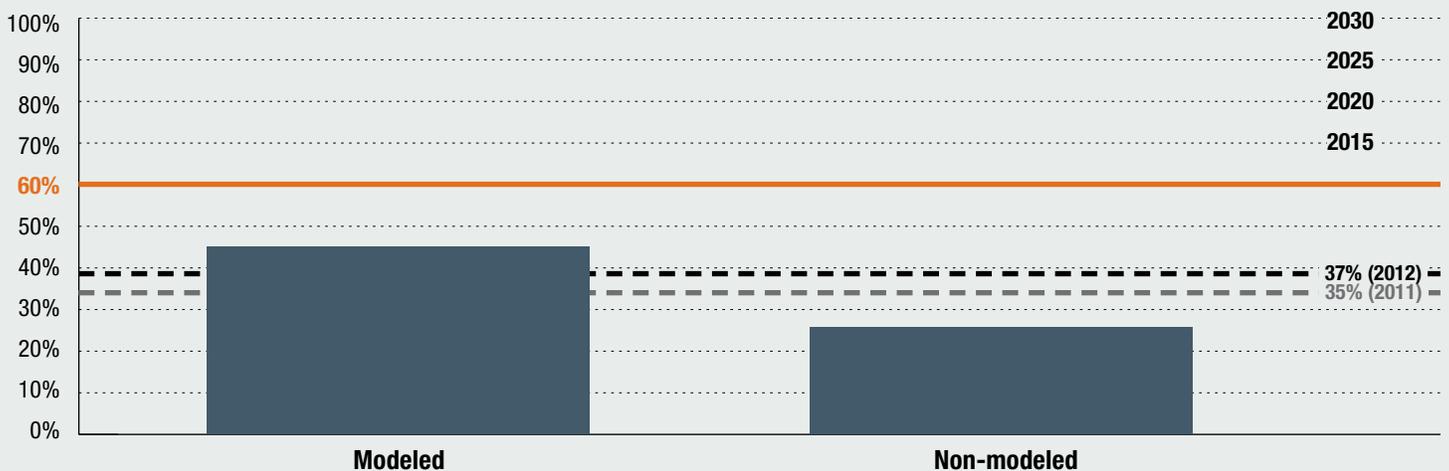
Predicted EUI Reduction by Percentage of Portfolio Being Modeled

Data from 110 Firms Reported



Predicted EUI Reduction by Modeled vs. Non-Modeled

1633 Projects with Detailed Data Provided





Scenarios for Improvement

What will it take to reach the 60% target across our portfolio? It will take a combination of code, culture and commitment. In order to put this in practical terms, several scenarios based on 2012 design data from the 52 contributing firms have been developed.

- + **Scenario 1 MODELING:** This 2012 data set shows that only 804 of 1633 projects were modeled (or had set a pEUI target). What would happen if the remaining 829 projects had the benefit of a model (or target)? For the modeled/targeted projects a weighted average reduction of 44% is achieved. Assuming the same achievement for all 1633 projects, the AIA 2030 portfolio increases to 44%.

This does not meet the current 60% reduction goal, but it is a step in the right direction. Modeling improves from 37% to 44% and is essential, but it is the process of

design and the project's pEUI that will reach the 60% goal.

Improvement Scenarios

1633 projects with detailed data provided

Scenario 1

For the modeled/targeted projects a weighted average reduction of 44% is achieved. Assuming the same achievement for all 1633 projects, the AIA 2030 portfolio increases to 44%.



44%

Scenario 2

As ASHRAE 90.1-2010 and other energy codes are more widely adopted, it will require us to improve. This shows what happens if the code/regulation minimum were 40% better than baseline in all instances.



45%

Scenario 3

In order to meet the current 60% reduction target the architecture profession must (1) model all projects and (2) increase the modeled pEUI by 16% from the current design in every case. This can be done. There are 193 projects in 2012 that are already doing this.



60%

- + **Scenario 2 REGULATION:** As ASHRAE 90.1-2010 and other energy codes are more widely adopted, it will require us to improve. Scenario 2 shows what happens if the code/regulation minimum were 40% better than baseline in all instances. (Energy modeling, of course, allows improvements above this 40%.)

Even with the newer more aggressive code, designing to code is not sufficient to meet the current or future 2030 targets.

- + **Scenario 3 MEETING THE COMMITMENT:** This is absolutely a "what if" scenario for the AIA 2030 Commitment signatories firms to collectively think about, but in order to meet the current 60% reduction target the architecture profession must (1) model all projects and (2) increase the modeled pEUI by 16% from the current design in every case.

We must push the 44% average which we see now for all of our modeled work to 60%. This can be done. There are 193 projects in 2012 that are already doing this.



Resources_

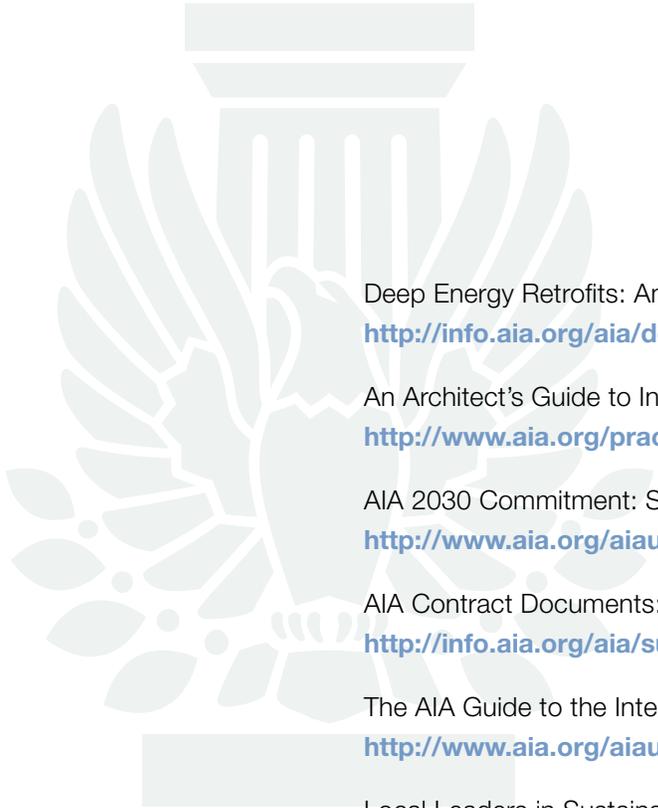
Signatory Firms That Reported in 2012

Reports from these 110 firms comprised the summary data:

- Adrian Smith + Gordon Gill Architecture
- Albert Kahn Family of Companies
- Architectural Alliance
- Ayers Saint Gross
- Bergmeyer Associates, Inc.
- BSK Architects
- BNIM
- Boora Architects
- Building Center No. 3
- Buro Happold North America
- Callison
- Cannon Design
- Coldham & Hartman Architects
- CoolEarth Architecture, Inc.
- CS&P Architects Inc.
- Cunningham | Quill Architects
- DLR Group
- DullOlsonWeekes - IBIGroupArchitects, Inc.
- EHDD
- English + Associates Architects, Inc.
- Epstein
- Eskew + Dumez + Ripple
- EYP Architecture & Engineering
- FKP Architects
- FXFOWLE Architects
- Garcia Architecture +Design
- GENSLER
- GGLO
- gkkworks
- Gresham, Smith and Partners
- Hahnfeld Hoffer Stanford
- Harley Ellis Devereaux
- Helix Architecture + Design
- High Plains Architects
- HKS Architects
- HMC Architects
- HOK
- Hord Coplan Macht, Inc.
- IKM Incorporated
- In BalanceGreen Consulting
- Innovative Design
- John A. Martin & Associates San Luis Obispo Structural Engineering (JAMASLO-SE)
- Jones Studio
- Kaplan Thompson Architects
- KMD Architects
- Krueck+Sexton Architects
- Lake | Flato Architects
- Landon Bone Baker Architects
- Leddy Maytum Stacy
- Legat Architects
- Lehrer Architects
- Leo A Daly
- Little Diversified Architectural Consulting
- L.M. Holder III, FAIA
- LMN Architects
- Lord, Aeck & Sargent
- LPA, Inc.
- LS3P Associates, Ltd.
- M.C.Harry & Associates, Inc.
- Mahlum
- Mazzetti Nash Lipsey Burch (M+NLB)
- Metrix Engineers
- Meyer, Scherer, Rockcastle
- The Miller Hull Partnership
- Mithun
- Moseley Architects
- NACI Architecture
- NBBJ
- Orcutt | Winslow
- PageSoutherlandPage
- Payette
- Perkins+Will
- Peters, Tschantz & Associates
- Pickard Chilton
- Quattrocchi Kwok Architects
- Quinn Evans | Architects
- Ross Barney Architects
- RTKL
- RVK Architects
- Sasaki Associates
- Schmidt Associates
- Sclater Partners Architects
- SERA Architects
- Serena Sturm Architects
- SHKS Architects
- SHP Leading Design
- SHW Group
- The S/L/A/M Collaborative
- SlaterPaull Architects
- SmithGroup/JJR
- Solomon Cordwell Buenz (SCB) Architecture
- Skidmore, Owings & Merrill LLP (SOM)
- Studio Ma
- Studios Architecture
- The Beck Group
- The Sheward Partnership
- TLC Engineering for Architecture
- TRO Jung Brannen
- Urban Design Group
- Valerio Dewalt Train
- VOA Associates
- WBRC Architects/Engineers
- Weber Thompson
- Westlake Reed Leskosky
- Wight & Company
- William Rawn Associates
- WLC Architects
- Wallace, Roberts & Todd (WRT)
- YostGrubeHallArchitecture
- Zero Energy Design
- Zimmer Gunsul Frasca (ZGF)

For a full list of AIA 2030 Commitment signatory firms, visit www.aia.org/2030commitment.





Deep Energy Retrofits: An Emerging Opportunity

<http://info.aia.org/aia/deep-energy-retrofits.cfm>

An Architect's Guide to Integrating Energy Modeling in the Design Process

<http://www.aia.org/practicing/AIAB097932>

AIA 2030 Commitment: Studying the Experiences of Participant Firms

<http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiab096492.pdf>

AIA Contract Documents: Updated Guide for Sustainable Projects

<http://info.aia.org/aia/sustainabilityguide.cfm>

The AIA Guide to the International Green Construction Code

<http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiab096094.pdf>

Local Leaders in Sustainability: Special Report from Sundance

<http://www.aia.org/advocacy/publicpolicy/AIAB093471>

PHOTO CREDITS

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HOK Composting Stations PHOTO COURTESY: HOK

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