

GETTING TO **zero** 2015 Forum NATIONAL FORUM Event Report



J. Craig Venter Institute | La Jolla, CA
Stephen Whalen Photography

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On February 1-3, 2015, New Buildings Institute, the National Association of Energy Officials and Rocky Mountain Institute gathered over 250 leading policymakers, designers, building owners, commercial real estate professionals and others at the 2015 Getting to Zero National Forum. The event provided a platform for thought leaders and early adopters could come together to share perspectives on the growth of zero energy buildings, learn about best practices for successful projects and collaborate on opportunities to drive zero energy performance in the built environment. Zero energy buildings are highly efficient structures that consume only as much energy as can be produced onsite through renewable resources.

This event report summarizes the highlights and critical outcomes of the event. More information including links to view presentations can be found at www.newbuildings.org/gettingtozero

To stay up-to-date on zero energy news and updates by signing up for our blog at www.gettingtozeroforum.org/blog

Please take a moment to note the sponsor list on the facing page. Without the support of these change-making companies and organizations the National Forum would not have been possible.

 **Over 250 participants sharing + connecting**

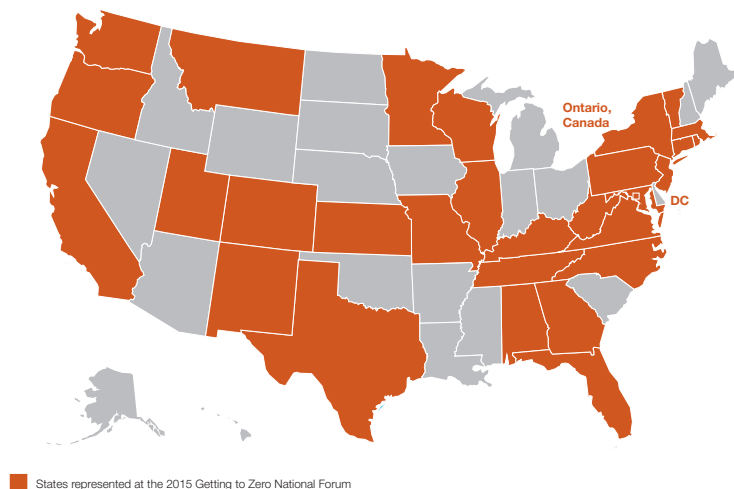
13 sessions focused on critical issues



 **48 leading-edge presentations**

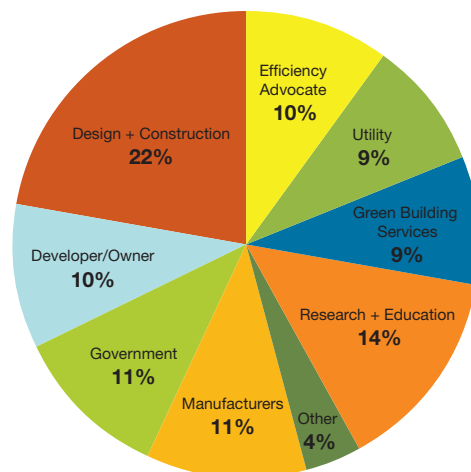
4 hours on the \$ Value of Zero

Delegates hailed from 29 states and 1 province across North America



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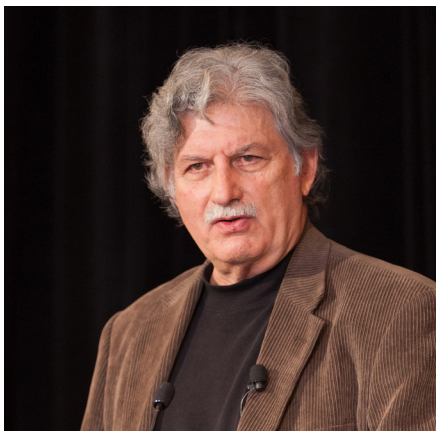
Professions of the 2015 Getting to Zero National Forum Delegates



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Forum Participants enjoying a Networking Break



Left to Right: Keynote speaker Ed Mazria of Architecture 2030, RMI's Michael Benewald and ZEDx Speaker Herb Stevens of Nixon Peabody address participants

Key Themes from the 2015 Getting to Zero National Forum

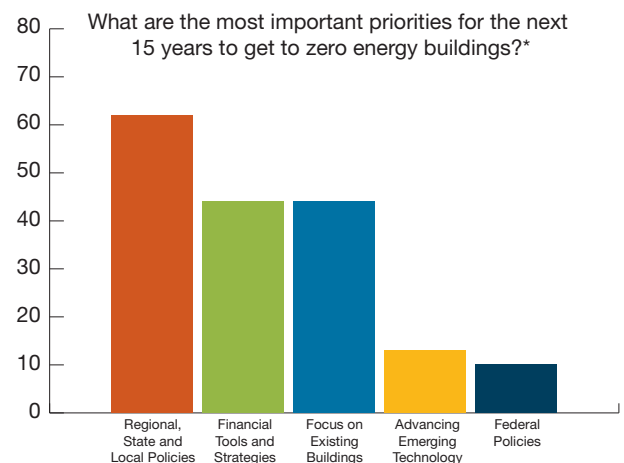
With over 50 speakers and hundreds of attendees, this year's Forum provided an abundance of diverse presentations and open-mic time. Several common themes and takeaways emerged.

1. Getting to Zero: What it Takes

- **Emphasize the ZNE Goal + Process.** Setting the zero net energy (ZNE) goal is an essential first step to driving a quantum shift in project approach, team building and ultimately achieving successful outcomes. As one speaker said, "It cuts through the layers of conflicting objectives and clarifies the outcome" and is shifting the market from traditional incremental steps, percent-better-than thinking and reliance on estimated results. When it comes to getting to zero, having a strong process was frequently cited as being equally or more important than either design or technology factors. Bring the right people to the table and inspire with examples of like buildings and ZNE success stories. Keep the ZNE goal out front throughout design and construction to guide those decisions that enhance performance outcomes.

- **Lead with Policies.** While historically energy policies follow practice, in the case of ZNE buildings state and local policies are out in front. These leading policies are responding to pressures to meet carbon reduction targets where buildings play the largest part in emissions. From the Pacific Coast Collaborative¹ to Massachusetts, New York, Hawaii, the city of Fort Collins and the federal government, policies for zero net energy are in place and increasing. Trends in stretch and outcome-based codes, energy use disclosure and the pressing impacts of climate change on city and state budgets are bringing more attention to the role of the built environment and the importance of leading with policy.

2015 GETTING TO ZERO NATIONAL FORUM POLL



*Participants were asked to select 2

- **Make the Case with Marketing Fundamentals and Defining Value.** We can take a page from Madison Avenue and leverage what sells. ZNE buildings are not responding to market demand; we need to create demand by illustrating what's happening on the street. ZNE buildings offer a solution for public agencies working to achieve climate goals. In the private sector, owners and investors want to reduce the risks associated with impending regulations and avoid falling behind the trends and innovations playing out in their market. It's clear to early adopters that ZNE buildings are creating new value streams; those leaders are getting ahead of policies and gaining early market advantage with their real estate assets. But the broader market is lagging behind in its understanding of this territory. As happened 15 years ago with LEED adoption, ZNE buildings are providing market differentiation and responding to the values of tenants. This early advancement is defining the new best in class that can drive needed market competition in the next 15 years to achieve 2030 goals.

¹ The leaders of British Columbia, California, Oregon and Washington, as part of the Pacific Coast Action Plan on Climate and Energy, are working together to advance national and international policy on climate. <http://www.pacificcoastcollaborative.org>

2. Getting to Zero: Design through Occupancy

- **Go Passive First.** A freeloader, 'passive-first' approach to energy is the starting point for design. Where and how can thermal, light and ventilation requirements be met before adding mechanical systems? Building orientation, envelope strategies of mass and shading, glazing type and the locations and ratio of windows, and the use of natural ventilation strategies—these are the foundations of a zero net energy building. These passive priorities are the first layer of a systems approach to reducing loads and minimizing mechanical equipment size and energy use.
- **Model early and often and apply life cycle costing tools.** Several leading design firms are using modeling as a communication tool within teams and with clients. Making frequent iterations to consider alternatives and impacts helps reflect the trade-off opportunities critical to getting to zero and can expose new design options. To understand the many facets and benefits of ZNE you have to step back to get the big picture. A fully integrated approach to the building systems during design and operation, occupant-based controls and feedback, and a life-cycle cost and value assessment paint that picture.
- **Design for the Occupants and for Occupancy-Based Performance.** Ultimately all buildings influence their occupants. We need better and broader translators that put a credible value on the many factors that affect occupants and contribute to the economics of green and ZNE buildings. These include the health impacts of buildings, the influence of daylight, fresh air and views on the workforce, well-being metrics, next-generation worker preferences and expectations, tenant attraction and retention, and customer sales and market perception. A ZNE building should be designed to make these benefits explicit and provide occupants with the environment and controls that put their needs in synch with the desired energy outcomes. Designers recognize the significance of this connection; increasing their involvement after occupancy goes a long way toward ensuring design intent matches performance outcomes.

Setting the ZNE goal is an essential first step to driving a quantum shift in project approach, team building and ultimately achieving successful outcomes.



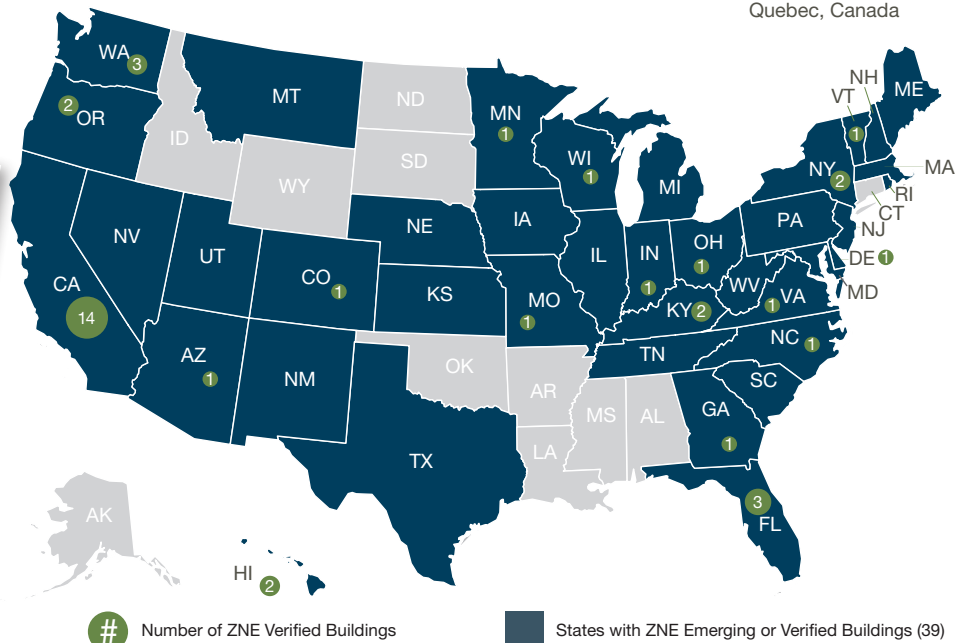
Forum participants during the lunch plenary

3. Getting to Zero: Optimize at the Right Scale

- **Optimize net zero buildings and communities to interplay with distributed generation and a modern utility grid system.** Whether a utility program manager, architect, engineer or equipment manufacturer, the time has come for everyone to consider both sides of the meter. With integrated demand side management (IDSM), ZNE buildings are becoming part of a complex exchange of energy through the development of smart grid technologies, microgrids, distributed generation and energy storage systems. As we transition to a clean energy economy, we need a better understanding of the best approaches to optimizing energy at appropriate scales to reduce carbon emissions, including strategies such as district energy systems and community solar projects.
- **Leverage demand response, smart controls, energy storage and electric vehicles.** The next generation of ZNE buildings must be designed with a sophisticated strategy for grid connection and engagement. Their energy consumption, energy production, energy storage and time-of-day impacts will be thoughtfully developed to play well with the utility grid. Leading efforts are centering on design for demand response and energy storage, and taking into account the growing prevalence of electric vehicles.
- **Engage the market through existing scale frameworks including portfolios, prototypes, campuses, districts and communities.** Meeting the objective of rapidly reducing carbon from building operations requires that we address the built environment as market sets as well as individual buildings. Aggregation of buildings by owner portfolios, prototypes, communities and districts, campuses, and even by investor groups such as pension funds and REITs can facilitate and accelerate the adoption of net zero goals and outcomes. Policies must also be 'aggregated' in order to reduce conflicting regulations and market boundaries. The Pacific Coast Collaborative is an example of this approach.

2015 List of Zero Energy Buildings

The most recent count by NBI of verified and emerging projects is 29 and 152, respectively, for a total of 191—more than triple the count just three years ago. Verified projects have reported 12 months of energy use and renewable production data. Emerging projects are either under construction or do not yet have 12 months of data. Another 53 projects have been verified as having exemplary energy performance on par with zero energy buildings, but are not actively working to achieve zero energy status. View the full list of projects at <http://newbuildings.org/2015-list-zero-energy-buildings>.



2015 List of Zero Energy Buildings

nbi new buildings institute

In 2011 and 2013 NBI conducted research to identify buildings with targets or verified achievement of net-zero energy. These results were published in "2013 Net-Zero Buildings" by NBI in early 2012 and 2014. NBI continues to track and update its research with new and previously existing buildings to support the market and policy needed in this field. This 2015 list of buildings is Merit-based, based on the company's research.

Verified Zero Energy Buildings for December are those with publicly released energy data that have been audited or are self-audited, over the course of a year, at net energy use (excluding on-site generation). Buildings are not on the list even if they are net-zero energy, unless they can document the energy use (excluding on-site generation) over the course of a year, at net energy use (excluding on-site generation).

Verified Zero Energy Buildings

Year	Building Name	Location	State	Building Type	Size (sq ft)	Net Energy Use (kWh)	Net Renewable (kWh)	Net Energy EDP
2011	Albany College Union Center	Albany, NY	Education, Other	13,600	28	0	0	
	Advanced Technology Center	Albany, NY	Education, Other	13,600	28	0	0	
	Environmental Technology Center	Albany, NY	Education, Other	13,600	28	0	0	
2012	University of California, Berkeley	San Francisco, CA	Education	2,200	3	4	-1	
	Little Saint Mary's School	Washington, DC	Other	2,200	3	4	-1	
	Academy of Art University	San Francisco, CA	Education - Higher	2,200	3	4	-1	
2013	St. John's University	St. John's, NY	Other	5,000	17	17	0	
	St. John's University	St. John's, NY	Other	5,000	17	17	0	
	St. John's University	St. John's, NY	Other	5,000	17	17	0	
2014	Midwest Industrial Center	Kankakee, IL	Other	1,000	20	20	0	
	Midwest Industrial Center	Kankakee, IL	Other	1,000	20	20	0	
	Midwest Industrial Center	Kankakee, IL	Other	1,000	20	20	0	
2015	University of California, Berkeley	San Francisco, CA	Education	2,200	3	4	-1	
	University of California, Berkeley	San Francisco, CA	Education	2,200	3	4	-1	
	University of California, Berkeley	San Francisco, CA	Education	2,200	3	4	-1	

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Page 1 of 2 - Verified Buildings



Amy Frykman of Resource Media delivers her ZEDx presentation, *Messaging Matters: Framing Zero for the Market Mind*

The Getting to Zero Forum brought together a wonderful mix of passionate, knowledgeable people from a broad diversity of sectors, though with a common purpose. The feeling of urgency and also of positive momentum was infectious . . . I learned more and made better connections than at other green building conferences. I will definitely participate in a future GTZ conference.

James Gray-Donald, VP Sustainability, Bentall Kennedy

Top tweets #GTZ2015

Jim Meyers @SWEEP Net-zero building is advancing. It's happening right before our eyes.

Brad Jacobson @Bradismo Kevin Bates of Sharp Development spent \$50/SF additional for net zero office, paid back by accelerated lease up time and rate

Peter Rumsey @PeterRumsey Over 60% in live survey say they think combustion has a place in #netzero energy buildings. What do you think?

Eric Soladay @Aerryck Inspiring Ed Mazria @Arch2030 solar "tipping point" in new power plants, solar cheaper than fossil fuel

Tracy Browne @tbrowne2 Occupant use and behavior is the key to optimizing building performance.

Ralph DiNola @RalphDiNola ZNE was not developed to meet market demand, it was developed to create market demand

See all at <https://twitter.com/hashtag/gtz2015>

Top Blog Posts

ZNE Pitch: No More Apologies!, guest blog by Amy Frykman, Resource Media

McDonald's Study Explores Idea of a Net Zero Energy Quick Service Restaurant

Wall Street Journal Reports on "Builders' New Power Play: Net-Zero Homes"

The Beginner's Mind, guest blog by Peter Rumsey, Point Energy Innovations



Chris Pyke of Global Real Estate Sustainability Benchmark gives his plenary talk on *Green Building Market Transformation: Energy Efficiency Achievements from LEED and GRESB*



Ralph DiNola, CEO of NBI opens the forum



Left to Right: David Eijadi, Bill Updike, Smita Gupta, Eric Solady, Greg Mella

Thank you to our 2015 Program Advisors

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GETTING TO zero NATIONAL FORUM

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See tweets from the event at #GTZ2015

Photography by: Teresa Choi Photography <http://www.theresachoi.com/>

Forum participants hear from RMI Founder, Amory Lovins during a plenary session



Learn. Share. Collaborate.