

Getting to Zero

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As California goes, so goes the nation and the planet. And Net Zero Carbon points the way.

Net Zero is a relatively rarified sustainability concept, which is really too bad because it must be adopted on a massive scale planet wide within 11 years or global warming will enter an irreversible negative feedback loop of increasing temperatures that humans will not be able to escape. This apocalyptic forecast is deadly real, brought to you by the [International Panel on Climate Change](#).

Yet, right now in the U.S., the government agencies and building trades most critical to Net Zero's deployment can't even agree on what it is or what to call it.

The current ingredients in Net Zero's acronym soup include NZE (Net Zero Energy), ZNE (Zero Net Energy), NZC (Net Zero Carbon), ZEB (Zero Emissions Building), ZEB (Zero Energy Building), Site ZEB (Net Zero Site Energy), and Source ZEB (Net Zero Source Energy).

I won't torment the reader with the intricacies of each definition but will focus on only two. First, the "official" definition:

The US Department of Energy, the government's guiding light on energy issues and regulations, uses the term [Zero Energy Buildings \(ZEB\)](#), defined as "an energy-efficient building where, on a source energy basis, the actual annual delivered energy is less than or equal to the on-site renewable exported energy."

ZEBs definitely begin to move the building industry in the right direction but it's just not good enough. Precious few buildings in the US are truly "off the grid," meaning that they use only the renewable energy produced on site and do not depend at all on the electrical grid. Most renewable-energy-producing buildings deliver what they produce on site onto the grid and then require grid-supplied electricity to power them. With ZEBs, "actual annual delivered energy" – the energy supplied by the grid – can be generated by anything, including fossil fuels. ZEBs increase the amount of renewable energy on the grid, which is great, but do not completely zero out the use of greenhouse-gas-producing energy.

ZEBs will not get us where the IPCC says we need to be in a little more than a decade. If we're going for truly green Zero, we've got to account for carbon.

Architecture 2030, in coordination with the Rocky Mountain Institute and the New Buildings Institute, has provided what, for us, is the best and most expeditious pathway toward zero fossil fuel emissions. It's called ZERO NET CARBON (ZNC) building, and is defined as:

a highly energy efficient building that produces on-site, or procures, enough carbon-free renewable energy to meet building operations energy consumption annually.

It's both elegant and inclusive, accommodating as it does "all building types – new and existing residential, commercial, institutional, and industrial buildings – in various settings, including those located in dense urban environments where on-site renewable energy production may be limited." More, there's no carve out for greenhouse gas emissions. Period.

Architecture 2030's founder and CEO, Ed Mazria, was a keynote speaker at the NZ19 conference and expo at the Los Angeles Convention Center in early October. Organized by LA-based green building consult Verdical Group, NZ19 presented a kind of green continuum: at one end, Southern California Gas took the stage to argue that natural gas would have to play a role in getting to zero. From my perch in the audience, this pitch was met with quite a few raised eyebrows. At the other end was Mazria, who argued that we need to get to 100 percent sustainable electrification in buildings by 2030. He made a great point that California is leading the way in trying to get new construction to net zero, noting that this summer Berkeley became the first US city to ban natural-gas hookups in new buildings. (In September, San Jose, CA, became the largest US city to ban the hookups in most new buildings; and, according to a natural-gas industry website, more than 50 cities across the state are considering similar bans – a trend it found highly troubling.)

Title 24, California's existing energy efficiency building code standards, is good and has already driven growth in renewable energy production and use, Mazria said. But Title 24 needs to go all in when it updates in 2023. "If California doesn't develop and implement a [carbon conscious] 'zero code,' it won't happen anywhere," Mazria argued.

If the competing net zeroes at NZ19 is any indication, it's still the wild west when it comes to vanquishing carbon. I was both inspired and distressed by this. Me and the 1,200 other NZ19 attendees were all trying to get a bead on the strongest line of attack against the climate crisis. That is inspiring. It is also inspiring that though many of those present are competitors, the vibe at the conference was collaborative and 'best practices.' The distressing part is that the language of net zero hasn't even gelled yet, much less the public and private will to achieve it. An updated Title 24 that spells out and requires Net Zero Carbon buildings will change the course of this battle and could, therefore, sustainably change the world.