

California NZEB Roadmap

California's NZEB strategies are one of its "Big Bold Energy Efficiency Strategies" to achieve long term energy efficiency through market transformation. The NZEB policy vision, authored by California Public Utilities Commission, the leading implementing body for NZEB policies in the state, specifies ultra-high energy efficiency as vital in achieving net zero energy goals. Clean energy production and demand response is also to be encouraged to realize net zero energy buildings.

NZEB Goals

The state has developed separate milestones for residential and commercial buildings. By 2020, all new residential construction in California will be net zero energy. By 2030, all new commercial construction and 50% of existing commercial buildings in the state will also be net zero energy. Distinct zero energy targets are set for federal buildings. By 2015, 15% of existing federal buildings will conform to new energy efficiency standards and 100% of all new federal buildings will be zero net energy by 2030.

Near (2009-2011), mid-term (2012-2015) and long term (201-2020) milestones have been framed for timely implementation of the NZEB policy goals and to map progress toward the overarching objectives.

NZEB Strategies

California has adopted a combination of pull and push market transformation strategies for NZEB goals.

- **Catalyse improvement in energy efficient building technologies and practices** by defining aggressive interim mandatory energy efficiency goals for buildings.
- **"Path to Zero"** campaign to create demand for high energy efficiency buildings by marketing campaigns, financial incentives and information dissemination on zero energy and low energy technologies and design practices.
- **Advancement in stringency of California energy codes (Title 24)** -at each triennial update cycle, "beyond code" voluntary requirements of the preceding version are adopted as the mandatory requirement for the updated code.
- **Green building ordinances** adopted by the largest cities of California for large commercial buildings.
- Encouraging local leadership initiatives for information dissemination on NZEBs.
- Innovative financing programs realised partially through private sector funding.

NZEB Programs

[Building Energy Efficiency Program](#)

California Building Energy Efficiency Standards or Title 24 – Part 6 of the California Codes are applicable to new and alterations or additions to residential and non-residential buildings. The codes are being used to raise the bar for energy efficiency in buildings to eventually get them to net zero energy use. The standards now include voluntary “beyond code” or “reach” requirements over and above the mandatory ones, and in each update, beyond code requirement of the previous one become mandatory in the updated version. To improve code effectiveness, they are being synchronized with other state initiatives.

<http://www.energy.ca.gov/title24/>

[Appliance Efficiency Program](#)

Appliances must comply with California’s appliance efficiency standards. Manufacturers are required to submit data about each product prototype, which if compliant, is provided a compliance label. The appliance efficiency database is a public repository with up-to-date information on specific parameters of each appliance introduced in the market.

<http://www.energy.ca.gov/appliances/>

<http://www.appliances.energy.ca.gov/>

[ZNE Pilot Programs](#)

A host of resource and non-resource demonstration programs by utility companies in California are striving to prove the feasibility and advantages of NZEBs. The non-resource programs do not offer rebates for energy savings, but either provide technical assistance in design, implementation and operations of the pilot projects, or guide potential pilots to other incentive programs. Some pilot programs also try to directly accelerate commercialization of innovative, new-in-the-market technologies by providing information and analytical tools to use them.

[Pacific Gas and Energy ZNE Pilot Program](#)

[Non Residential Building Energy Use Disclosure Program](#)

Program regulations are currently applicable only to non-residential buildings larger than 10, 000 square feet. Energy use and ENERGY STAR® scores have to be disclosed to prospective buyer, lender and lessee.

<http://www.energy.ca.gov/ab1103/>

[California Green Building Standards](#)

CAL Green Code or Part 11 of the California Building Standards Codes focuses on improving design and construction practices of buildings to reduce their environmental footprint. Mandatory sustainable design practices and construction practices are defined in the standard along with minimum efficiency to be achieved in water, energy and material use. Local authorities can increase the stringency of CAL Green code in areas under their jurisdiction.

<http://www.bsc.ca.gov/Home/CALGreen.aspx>

Links

Targets , Legislation and Regulations
<p>DOE Zero Energy Ready Home / DOE Challenge Home http://energy.gov/eere/buildings/zero-energy-ready-home http://energy.gov/sites/prod/files/2013/11/f5/ch_label_methodology_1012.pdf</p>
<p>California Public Utilities Commission's Energy Efficiency Zero Net Energy Program (2010) http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Zero+Net+Energy+Buildings.htm</p>
<p>Building Energy Codes Program (DOE) http://www.energycodes.gov/development</p>
Economic Instruments
<p>Climate Showcase Communities Program (2009) http://www.epa.gov/statelocalclimate/local/showcase/index.html Assisted Housing Stability and Energy and Green Retrofit Investments (2009) http://www.grants.gov/web/grants/view-opportunity.html?oppld=45922</p>
Information and Awareness
<p>U.S. Department of Energy Race to Zero Student Design Competition http://energy.gov/eere/buildings/us-department-energy-race-zero-student-design-competition U.S. Department of Energy Solar Decathlon http://energy.gov/eere/buildings/us-department-energy-solar-decathlon</p>
<p>Home Energy Score http://energy.gov/eere/buildings/home-energy-score Housing Innovation Awards by Department of Energy http://energy.gov/eere/buildings/housing-innovation-awards</p>
<p>Guidelines for Home Energy Professionals http://energy.gov/eere/buildings/guidelines-home-energy-professionals</p>
<p>Home Performance with Energy Star® http://energy.gov/eere/buildings/home-performance-energy-star Home Performance with ENERGY STAR (HPwES)</p>
Other Initiatives (not specific to California)
<p>Better Buildings Challenge https://www4.eere.energy.gov/challenge/home Living Building Challenge: NETZERO http://living-future.org/netzero ASHRAE VISION 2020 https://www.ashrae.org/File%20Library/docLib/Public/20080226_ashraevision2020.pdf</p>