UPDATE: ENERGY CODES FOR BUILDINGS & EQUIPMENT EFFICIENCY STANDARDS

U.S. GOVERNMENT ANNOUNCES NATIONAL INITIATIVE TO MODERNIZE BUILDING CODES

On June 1, 2022, the Administration announced a new initiative to help state, local, Tribal, and territorial governments adopt the latest building codes and standards. As part of this initiative, the federal government is going to take the following actions:

- Federal agencies will use “innovative incentives in federal funding to support and reward jurisdictions for code adoption and enforcement.”
- Federal agencies will design all large new construction / retrofit projects (above 25,000 gross square feet), starting now (in Fiscal Year 2022), to be net-zero emissions by using all-electric equipment / appliances and above code high-efficiency measures.
- The Administration also will implement the first-ever Federal Building Performance Standards to advance retrofits of existing federal buildings and to establish metrics, targets, and tracking methods to reach the Administration’s federal carbon emissions reduction goals, which include a net-zero emissions building portfolio by 2045, with a 50 percent emissions reduction by 2032. The White House Council of Environmental Quality (CEQ), along with other federal agencies, have drafted the performance standards and sent the “pre rule” document to the Office of Management & Budget for review on June 7, 2022.

Legislation

The Administration also announced specific actions for certain federal agencies, including:

- FEMA will implement its new Building Codes Strategy, which will integrate and, where legally permissible, require current building codes in its programs, policies and guidance.
- The Department of Energy (DOE) will deploy $225 million from the Infrastructure Investment and Jobs Act (IIJA) that was signed into law in November 2021 to support building energy code adoption, enforcement, training, and technical assistance at the state and local level. With this funding, DOE is launching a Resilient and Efficient Codes Implementation program to advance energy efficiency and resilience through building codes.
- The Department of Housing and Urban Development...
HUD also will seek to require above-code green and resilient construction standards in HUD-assisted housing wherever feasible, and continue developing new incentives for above-code standards, including through the Multifamily and Residential Healthcare Facility Green Mortgage Insurance Premium programs.

The Bottom Line

The federal government continues to take aggressive actions to improve federal buildings, update building energy codes and standards, and to increase the use of building performance standards across the United States. Member companies with federal government customers should be aware of all of these activities and action items that will be taken over the next several years.

DOE PROPOSES AND FINALIZES SIGNIFICANT APPLIANCE EFFICIENCY STANDARDS RULEMAKINGS

Over the past few months, the US Department of Energy has published significant proposed and final rules for several appliances used by consumers and businesses. The Administration previously announced a goal for DOE to complete 100 appliance rulemakings by the end of 2022 (test procedures and efficiency standards). Recent key proposed and final rules include the following:

General Service Incandescent Lighting: On May 9, 2022, DOE published two final rules related to general service lighting. One final rule updated the definitions of general service lamps, and the other final rule created the “backstop” efficiency requirements. If there are no lawsuits, the “official” effective dates are July 9, 2022, for the updated definitions and July 25, 2022, for the efficiency requirement of 45 lumens/Watt.

This efficiency requirement will eliminate many, but not all, incandescent and halogen light bulbs from the U.S. marketplace. There are “niche” products that are exempt from the efficiency requirement or have separate efficiency requirements (such as rough service lamps and three-way incandescent or halogen lamps).

DOE’s enforcement of the standard will be phased in over time, beginning with warning notices to manufacturers and retailers then progressing to penalty fines. For manufacturers, full enforcement of the new rule will begin January 1, 2023. Retailers and distributors will have an extra seven months to comply (July 1, 2023), giving them more time to sell existing inventory.

Residential Pool Water Heaters: On April 15, 2022, DOE issued a proposed rule to increase the efficiency standards of gas-fired pool heaters from 82 percent thermal efficiency to 84 percent thermal efficiency and require electronic ignition to eliminate the use of standing pilot lights.

The proposed rule also would set first-time efficiency standards for electric pool heaters, effectively eliminating electric resistance pool heaters from the marketplace. Only heat pump pool heaters with a thermal efficiency of 551 percent or greater would be allowed to be sold in the United States which is very close to the “max tech” efficiency level of 595 percent according to DOE’s technical analysis. Electric resistance pool heaters often are located in space-constrained areas and customers who replace their electric resistance pool heaters with heat pump technology may face additional costs or performance issues that limit the heat pump from operating at maximum efficiency.

Commercial Water Heaters: On May 19, 2022, DOE published a proposed rule on commercial water heaters that go above and beyond the levels set in ASHRAE Standard 90.1. The key requirements in the proposed rule are:

- Commercial gas storage water heaters: 95 percent minimum thermal efficiency
- Commercial gas hot water supply boilers: 96 percent minimum thermal efficiency

Under this proposed rule, non-condensing commercial gas storage water heaters and hot water supply boilers will not be allowed for manufacture or sale in the United States within 3-5 years of the publication of the final rule.

Manufactured Housing: On May 31, 2022, DOE published a final rule to establish energy conservation standards for manufactured housing to comply with requirements in the Energy Independence and Security Act of 2007. The standards are based on the 2021 version of the International Energy Conservation Code (IECC) that provide a set of “tiered” standards based on house size. Single-section manufactured homes are subject to less stringent building thermal envelope requirements compared to multi-section manufactured homes. The effective date of this final rule is August 1, 2022. Compliance with the adopted standards established for manufactured housing in the final rule is required on and after May 31, 2023.

Residential Gas Furnaces: On June 14, 2022, DOE issued a “pre-publication” Federal Register notice of
proposed rulemaking to update energy conservation standards for consumer furnaces. Under the proposed rule, 95 percent AFUE (condensing units) for furnaces in new residences and replacement units installed in mobile/manufactured homes and single-family homes/residences will have meet a minimum of 95 percent AFUE. Under this proposal, non-condensing furnaces would no longer be allowed in the United States. DOE will be hosting a webinar on this proposed rule on August 3, 2022, from 12:30 to 5:00 p.m. (EDT).

In addition, DOE also has issued “no new standards” determinations for several products due to minimal energy savings and/or poor economics for consumers and/or businesses:

- General Service Fluorescent Lamps
- Commercial Pre-Rinse Spray Valves
- Commercial Warm Air Furnaces
- Unfired Hot Water Storage Tanks

The Bottom Line

DOE is proposing or finalizing several appliance efficiency standards that would deliver significant energy savings while also impacting customer choice and potentially increasing upfront costs to customers to retrofit homes and businesses to accommodate the higher efficiency equipment.

EEI FILES COMMENTS ON MAJOR DOE WATER HEATER RULEMAKING

On May 16, 2022, EEI filed comments on DOE’s preliminary analysis and webinar for residential water heaters. Among the issues raised in EEI’s comments were concerns that the economic and energy savings analysis in the technical support document likely would lead to the establishment of new efficiency standards for electric storage water heaters that only electric heat pump water heaters would be able to achieve, thereby banning electric resistance storage water heaters from the market. EEI also expressed concerns over DOE’s overstated source energy and emissions estimated for electric generation in future years, as well as concerns over understated retrofit costs for installing heat pump water heaters in existing homes.

STATE AND LOCAL UPDATE

CALIFORNIA AIR RESOURCES BOARD RELEASES UPDATED SCOPING PLAN TO ACHIEVE CARBON NEUTRALITY BY 2045

On May 10, 2022, the California Air Resources Board (CARB) released its updated Scoping Plan to achieve carbon neutrality in California. Under the proposed scenario, the following actions are recommended:

- New Residential and Commercial Buildings: All electric appliances are required beginning in 2026 (residential) and 2029 (commercial).
- Existing Residential Buildings: 80 percent of appliance sales are required to be electric by 2030 and 100 percent of appliance sales are required to be electric by 2035. Fossil fuel appliances are replaced with electric appliances at the end of life.
- Existing Commercial Buildings: 80 percent of appliance sales are required to be electric by 2030 and 100 percent of appliance sales are required to be electric by 2045. Fossil fuel appliances are replaced with electric appliances at the end of life.
- Combined heat and power facilities retire by 2040.
- End fossil gas infrastructure expansion for newly constructed buildings.
- Strengthen California’s building standards to support zero-emission new construction.
- Develop building performance standards for existing buildings.
- Adopt a zero-emission standard for new space and water heaters sold in California beginning in 2030, as specified in the 2022 State Strategy for the State Implementation Plan.
- Support electrification with changes to utility rate structures and by promoting load management programs.
- Increase funding for incentive programs and expand financing assistance programs focused on existing buildings and appliance replacements.
- Expand customer education efforts to raise awareness and stimulate the adoption of decarbonized buildings and appliances, especially in vulnerable communities.
According to this latest version of the plan, California will become carbon neutral by 2045. In previous drafts, CARB had reviewed four alternative scenarios, including two scenarios to achieve carbon neutrality by 2035. The scenarios for 2035 were rejected by CARB after studies showed that the increase in estimated direct costs and losses of jobs and economic growth were orders of magnitude higher than the 2045 carbon neutral scenarios.

COLORADO LAW REQUIRES LOCAL BUILDING ENERGY CODES TO BE LOW CARBON STARTING IN 2026

On May 11, the Colorado legislature passed HB22-1362 into law. On June 2, Governor Jared Polis signed the bill into law, tasking the Colorado energy office and an energy code advisory board to develop three sets of model codes: (1) electric- and solar-ready code language; (2) low energy and carbon code language; and (3) model green code language.

Under the law, local governments are first required to update their building energy codes to the 2021 version of the IECC by 2023. The bill also requires local governments to introduce electric- and solar-ready code language beginning in 2023, followed by “low-energy” and “low-carbon” code language beginning in 2026.

According to the new law, “On or after July 1, 2023, and before July 1, 2026, municipalities and counties that update a building code shall adopt and enforce an energy code that achieves equivalent or better energy performance than the 2021 International Energy Conservation Code and the model electric- and solar-ready code language identified for adoption by the energy code advisory board.”

It also states that “On or after July 1, 2026, municipalities and counties that update a building code shall adopt and enforce an energy code that achieves equivalent or better energy performance than the model low energy and carbon code language identified for adoption by the energy code advisory board.”

The law also funds two new grant programs:

- Building electrification for public buildings: provides grants to local governments, school districts, state agencies, and special districts for the installation of high-efficiency electric heating equipment.
- High-efficiency electric heating and appliances: provides grants to local governments, utilities, nonprofit organizations, and housing developers for the installation of high-efficiency electric heating equipment in multiple structures within a neighborhood.

LOS ANGELES CITY COUNCIL ENACTS ORDINANCE ON BUILDING ELECTRIFICATION; REQUIRES REGULATIONS TO BE ENACTED BY JANUARY 1, 2023

On May 27, the Los Angeles City Council unanimously passed a motion directing the Los Angeles Department of Building and Safety (DBS) to develop an implementation plan for a new ordinance requiring all new residential and commercial buildings to be built to achieve zero-carbon emissions, effective January 1, 2023.

The plan must include recommendations for a policy implementation timeline and regulatory language that ensures the transition will not burden low-income tenants, destabilize housing, or displace communities. The DBS also must analyze and provide ways to mitigate any negative impacts on construction costs and the scheduled completion of publicly-funded housing. Finally, the department must consult with workers and labor unions to provide strategies to mitigate losses in construction work and to create new jobs. The council directed the DBS to engage with technical experts and key stakeholders and to incorporate findings from a series of meetings on climate policy and equity hosted by the climate office since March.

The motion did not specify whether Los Angeles would seek to prohibit natural gas hookups in new buildings or require all-electric construction through a reach code. However, the motion said Los Angeles should transition from fossil fuels to electric power.

MARYLAND’S “CLIMATE SOLUTIONS NOW ACT OF 2022” (SB 528) REQUIRES LARGE COMMERCIAL AND MULTI-FAMILY BUILDINGS TO BE NET-ZERO EMISSIONS BY 2040

In April 2022, the Climate Solutions Now Act became Maryland law without the Governor’s signature. The final version of the bill passed the House by a vote of 95-42 on March 29 and passed the Senate by a vote of 32-15 on March 31.

The law is significant because it requires most commercial and multi-family residential buildings in the state greater than 35,000 square feet to achieve net-zero direct (on-site combustion) greenhouse gas emissions by 2040. It also requires these buildings to achieve a 20 percent reduction of greenhouse gas emissions by 2030, compared to a 2025 baseline of average buildings of the same type.

Buildings exempt from these requirements include historic buildings (under federal, state, or local designation), elementary or secondary schools (public or private), manufacturing facilities, and agricultural buildings.
The law also requires the state Building Codes Administration to develop recommendations for an all-electric building code for the state and to develop recommendations for the fastest and most cost-efficient methods for decarbonizing buildings and other sectors in the state.

The law did not go as far as many environmental advocates would have liked in that it did not ban natural gas or other fossil fuel-fired appliances and heating systems in new buildings as proposed in the original bill.

WASHINGTON STATE BUILDING CODE COUNCIL APPROVES GAS SPACE HEATING AND WATER HEATING RESTRICTIONS IN COMMERCIAL AND MULTI-FAMILY BUILDINGS STARTING IN 2023

On April 22, the Washington State Building Code Council (SBCC) voted 11-3 to require electric heat pump space heating and heat pump water heating in an update to the state’s commercial energy code. The new requirements will take effect in 2023.

The SBCC also sent several proposals requiring heat pumps in residential buildings to technical advisory groups for review. If adopted, the mandates would be significant because cities do not have the authority to amend the state residential energy code, which covers single-family homes and multifamily buildings with up to three floors. These proposed changes also would go into effect in 2023 alongside the commercial code updates.

The new commercial and multi-family requirements apply to buildings that are four or more stories in height. There are exceptions for very small buildings (under 2,500 square feet) and buildings with very low heating requirements, along with other specialized exceptions. There also are exceptions for hospitals, research facilities, and other buildings where fossil fuels are required for “specific needs that cannot practicably be served by heat pump.”

The SBCC approved a substantial last-minute amendment to the state code updates that would only require developers to meet 50 percent of water heating capacity (instead of 100 percent) with heat pump water heaters. By allowing fossil fuel combustion in new buildings, the amendment would reduce the provision’s energy efficiency and emissions reductions but lower the upfront cost to builders.

Proponents said the heat pump requirements would help the SBCC meet a mandate from the state legislature to improve energy efficiency in each three-year code cycle. Washington state law requires the council to adopt energy code updates that reduce annual net energy consumption in new or renovated buildings by 70 percent from 2006 levels by 2031.

“This isn’t an attack on gas,” said Kjell Anderson, an architectural design professional who chairs SBCC’s Energy Code Technical Advisory Group. “In order to hit our efficiency targets, we need to move to heat pumps.”

The electrification proposals elicited thousands of public responses, with roughly 5,000 letters in support outnumbering about 1,400 in opposition, according to Anderson.

Energy companies in Washington criticized the electrification requirements in the commercial code for prohibiting the use of equipment such as high-efficiency gas heat pumps. The mandates also would jeopardize the opportunity to use gas distribution systems to transport renewable natural gas and hydrogen, according to a letter filed by Northwest Natural Gas Co., Puget Sound Energy Inc., Avista Corp. and Cascade Natural Gas Corp.

“Enacting these limiting, technology-reductive proposals will damage equity, threaten regional energy reliability and contradict Washington law that protects consumer energy choices,” the companies said in a March 11, 2022, letter to the SBCC.

The Bottom Line

More cities and states are taking regulatory and legislative actions to make residential and commercial buildings more energy efficient and more electrified in order to reduce carbon emissions. These actions will have significant impacts on new and/or existing buildings along with energy companies over the next several years.

Comments or Questions?

For questions or more information, please contact Steve Rosenstock at srosenstock@eei.org.