



# Energy Codes and State Climate Plans

## Introduction

Energy codes play a key role in reducing building energy usage and emissions, but their development, adoption, and implementation are often siloed from other state energy efficiency work since they are commonly adopted, implemented, and enforced by a state or municipality's building code department rather than in a state's energy efficiency or sustainability office. As a result of this siloing, state energy offices often omit energy codes from both their goals and their energy efficiency and climate plans. Building energy codes have a large impact on building energy usage and emissions and should be considered when drafting and implementing state climate plans. In conjunction, states must also update their energy codes as they are among the most cost-effective ways to reduce energy usage and emissions.

### *What are Energy Codes and Their Benefits?*

Energy codes establish energy efficiency requirements for new and renovated buildings, guaranteeing certain reductions in energy use and emissions, depending on the version of energy code adopted, over the lifetime of the building. Energy code adoption usually occurs at the state level, and there are two primary energy codes states adopt in the United States: the International Energy Conservation Code (IECC) and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1 standards, which are both known as model codes. These model codes are updated and available for state adoption every three years, and states are often required by law to adopt the newest version of each code within a certain timeframe.

Buildings account for 40 percent of U.S. energy consumption. According to the U.S. Department of Energy (U.S. DOE), building energy codes represent a significant cost savings opportunity for home and building owners as well as an opportunity for states to lower their building stock's greenhouse gas (GHG) emissions. U.S. DOE [estimates](#) that recent model energy codes, such as the 2021 IECC and ASHRAE 2019-90.1 standard, are projected to achieve \$138 billion in energy cost savings for building owners and avoid 900 million metric tons of carbon dioxide emissions by 2040.

### *What are State Climate Plans?*

State climate action plans are comprehensive and strategic frameworks used by states to measure, plan, and reduce their greenhouse gas (GHG) emissions and to mitigate or prevent future climate impacts. States and municipalities often adopt climate action plans as tailored roadmaps to consult when making decisions on where



and how to achieve the largest, most cost effective and impactful emissions reductions that align with their desired goals. State climate action plans vary, but usually include three main components:

- An inventory of existing GHG emissions to establish a baseline from which reductions can begin;
- Reduction goals and/or targets that are established to showcase the climate plan's intentions; and
- An action plan outlining how reduction goals can be achieved.

Several states in the NEEP region have developed and implemented their own climate action plans that address reducing building energy usage and GHG emissions. Below are some best practice examples:

**Vermont:** [Vermont's Climate Action Plan](#) outlines actions to reduce current energy use in buildings by at least 25 percent through cost-effective and affordable weatherization, energy efficiency improvements, and the use and enforcement of energy codes. The plan describes the state's intention to regularly update its statewide energy code so as to be ready to adopt a zero-energy building code by 2030 and to fund a state-level energy code circuit rider initiative that will provide code training and enforcement assistance to municipalities to ensure code compliance.

**Massachusetts:** [Massachusetts Climate Action Plan](#) outlines the state's goal to achieve a 28 percent reduction of emissions in commercial buildings by 2025 through updating its existing stretch energy code and developing a new municipal opt-in net zero energy code. For existing buildings, Massachusetts plans to expand incentives available through Mass Save® and provide financial assistance for heat pump installations.

**Washington, D.C.:** [The Washington D.C. Climate Action Plan](#) outlines the District's plan to achieve a 50 percent GHG emissions reduction target by 2032. The plan encourages the Construction Code Coordinating Board (CCCB), which is responsible for adopting the District's energy code, to regularly adopt the newest version of the model codes in order to adopt a zero-energy building code by 2027. The plan also empowers the Department of Consumer and Regulatory Affairs, which houses the CCCB, to ensure code compliance through increased investment and enforcement.

**New Jersey:** [The New Jersey Climate Change Resilience Strategy](#) aims for an 80 percent emissions reduction from its 2006 baseline by 2050. The climate change resilience strategy focuses on areas such as coastal resiliency, climate financing, and GHG reductions. The strategy describes how the state legislature should expand the authority of the Department of Community Affairs, which adopts and implements all building codes, to include more about climate change in future adoptions of the code.

**Maryland:** [The Maryland Greenhouse Gas Emissions Reduction Act](#) outlines how the state plans to reduce statewide GHG emissions by 40 percent from 2006 levels by 2030. The Act stresses the importance of the Building Codes Administration, which adopts and implements all state building codes, adopting the most recent versions of model energy codes, which the state must do within 18 months of their publication under current law.



### *Why Should States Include Energy Codes in Their Climate Plans?*

It is important for states to prioritize energy codes in their state climate plans because they are an effective way to achieve large energy use and emissions reductions. If every state were to adopt and implement the 2021 IECC, U.S. DOE estimates [that the country would save more than \\$74 billion in energy savings while also avoiding 435 million tons of carbon pollution.](#) States must also ensure that codes are included in their climate plans because they are one of the best and most cost-effective ways states can reduce energy consumption and GHG emissions from new and existing buildings. Retrofitting an existing building (or a new one as the energy code becomes more stringent) is significantly more expensive than constructing a building using higher efficiency levels at the outset. Finally, energy codes ensure that the overall energy use of buildings is included as a fundamental part of the design and construction process, which provides an early investment in energy efficiency that will benefit owners and occupants for years into the future.

Vermont, Massachusetts, and the District of Columbia all serve as models by highlighting the importance of energy codes in their climate action plans as a means of helping to reduce statewide GHG emissions. Their climate plans describe important actions outside of the normal state code adoption process, like ensuring code compliance and providing training opportunities, that will ensure that new buildings will be built to the most updated codes and therefore be the most efficient. New Jersey and Maryland mention energy codes in their climate plans but do not expand upon actions outside of the current state adoption process and how energy codes can be used to reduce overall statewide GHG emissions. These states, and others in the NEEP region, must stress the importance of building energy codes in their climate plans and develop essential strategies like code official trainings and code compliance to ensure that buildings are being built to the most up-to-date and efficient codes.

### **Conclusion**

Building energy codes save money and energy by reducing the unnecessary consumption of energy used to heat, cool, light, ventilate, and provide hot water for buildings while also reducing GHG emissions. As states develop and implement climate action plans, they must emphasize and prioritize adopting updated energy codes. Energy codes will assist states in reaching their goals as they are one of the most cost-effective ways to reduce energy usage and emissions while also providing monetary savings for states and for building owners.