

# UNITED STATES

## 1. CONTEXT OF THE BUILT ENVIRONMENT

### Urban population

Total population	Functional Urban Area population*	Share of urban population	Average urban growth
335.816 million (2020)	246.714 million (2020)	73% (2020)	5% (2015-2020)

\*Data source: European Commission (2023), FUA and eFUA methodology: OECD/European Commission (2020)<sup>1</sup>

### Building data

	Building stock	Built before 1980	Annual construction	Annual construction rate
Residential	123,530 thousand dwellings (2020)	51%	912 thousand dwellings (2016-20)	1%
Non-residential	9,000 million m <sup>2</sup> (2018)		120,900 million m <sup>2</sup> (2010-18)	1%

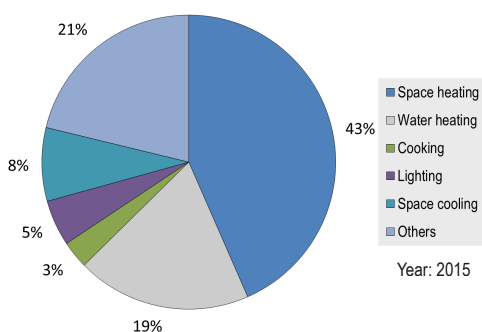
### Energy & emissions data

Residential buildings**	1990	2021	+/- rate
Final energy consumption (PJ/year)	8,788	11,147	27%
	1990	2021	+/- rate
GHG emissions (MtCO <sub>2</sub> /year)	326	300	-8%

\*\*Data source: IEA Countries & Regions<sup>2</sup>

Non-residential buildings	
Final energy consumption (PJ/year)	N/A
GHG emissions (MtCO <sub>2</sub> /year)	N/A

#### Energy consumption by end-use (Residential)



#### Heating degree days\*\*\*

1,548.8

Degree (°C) Days (2020)

Reference degree day: 16 degree (°C)

#### Cooling degree days\*\*\*

558.1

Degree (°C) Days (2020)

Reference degree day: 21 degree (°C)

\*\*\*Data source: IEA Weather, Climate and Energy Tracker<sup>3</sup>

<sup>1</sup> <http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cfe>, <https://doi.org/10.1787/d58cb34d-en>

<sup>2</sup> <https://www.iea.org/countries>

<sup>3</sup> <https://www.iea.org/data-and-statistics/data-tools/weather-climate-and-energy-tracker>

## 2. GOVERNANCE AND CAPACITY BUILDING

### Who does what

#### Ministries/Agencies responsible for BEE (building energy efficiency) and related policies

<b>A</b> State and Local governments	<b>B</b> Department of Housing and Urban Development	<b>C</b> Department of Energy	<b>D</b> Other	<b>E</b>
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#### Ministries/Agencies responsible for each policy area

Building code	Governmental buildings	Housing policy in general	Financial incentives for BEE	Behaviour change for BEE
A B C D E	A B C D E	A B C D E	A B C D E	A B C D E
BEE standard	Act/law for BEE regulation	Whole life carbon	Energy policy in general	NDC
A B C D E	A B C D E	A B C D E	A B C D E	A B C D E

#### Local governments' authority to customise BEE standards

<input checked="" type="checkbox"/>	<b>Local governments can customise national standards.</b>	
<input type="checkbox"/>	Local governments cannot adjust national standards, but the standards differ across regions depending on the local climate.	
<input type="checkbox"/>	Local governments cannot adjust national standards. All building codes, standards or requirements are uniform across the entire country.	
<input checked="" type="checkbox"/>	<b>Neighbourhood level approach/planning</b>	Sub-national governments, like those receiving grants from the Department of Housing and Urban Development (HUD) such as the Community Development Block Grant Program (CDBG), HOME Investment Partnerships Program (HOME), Emergency Solutions Grants Program (ESG), and Housing Opportunities for Persons with AIDS Program (HOPWA), must detail their plans in a Consolidated Annual Action Plan (ConAction Plan). This plan, spanning three to five years, sets goals for utilizing HUD funds and other resources for initiatives like housing rehabilitation and energy efficiency programs. HUD also promotes place-based efforts, notably through programs like the Choice Neighborhoods Program.
<input checked="" type="checkbox"/>	<b>The national government is tracking progress on decarbonisation efforts at the local level</b>	Some data is collected despite being limited in scope. HUD-funded retrofits are reported in various systems depending on the funding mechanism. For instance, projects funded under the Community Development Block Grant (CDBG) are reported by grantees through the Consolidated Annual Performance and Evaluation Report (CAPER) submitted to HUD following the completion of each programme year. Projects implementing elements of the Green and Resilient Retrofit Programme (GRRP) are tracked through different HUD systems.
<input type="checkbox"/>	More ambitious policy instrument by local governments	Not applicable. The national government cannot set decarbonisation standards.

### Capacity building

#### Government funding programmes to train/enhance skills for SMEs

Designing for ZEB	<input checked="" type="checkbox"/>	Insulation	<input checked="" type="checkbox"/>
Calculation for energy performance of buildings	<input checked="" type="checkbox"/>	Installation of energy efficient equipment	<input checked="" type="checkbox"/>
Calculation for life cycle CO2 of buildings	<input type="checkbox"/>	Other	<input type="checkbox"/>

**Actions undertaken by the national government to support local governments for BEE policy implementation**

Co-ordinating regional networks for knowledge exchange and support	-
Providing funding for training	-
Distributing toolkits and guidelines	✓
Developing online platforms to share best practices	✓
Hosting annual conferences focused on BEE policy implementation	✓
Offering grants to hire consultants	✓
Collaborating with research institutes offering specialised courses on BEE practices	-
Creating incentive programmes to reward local governments	✓
Supporting the Implementation of local regulations	-
Establishing mentorship programmes	✓
Other	-

### 3. GOALS AND POLICY FOCUS

**Policy areas covered in the goals and existing commitments**

	Zero emission for new buildings	Zero emission for existing buildings	Renewable energy for new buildings	Renewable energy for existing buildings	Whole-life cycle carbon reduction
NDC	-	-	-	-	-
LT-LEDS	-	-	-	-	-
Ministerial plan	-	-	-	-	-

**Quantitative targets included in long-term goals**

Fossil fuel-free buildings	District heating/cooling
Insulation	Heat pumps
Rooftop PVs	Solar heating of water
Other renewable energy	Other

## Policy focus for decarbonising buildings (Top 3)

### Current focus

Passive design to reduce heating demand	<input type="radio"/>
Energy efficiency on heating	<input type="radio"/>
Passive design to reduce cooling demand	<input type="radio"/>
Energy efficiency on cooling	<input type="radio"/>
Switching energy to sustainable energy	<input type="radio"/>
Renewable energy	<input type="radio"/>
Embodied carbon	<input type="radio"/>
Circularity of building materials	<input type="radio"/>



### Future priorities

Passive design to reduce heating demand	<input type="radio"/>
Energy efficiency on heating	<input type="radio"/>
Passive design to reduce cooling demand	<input type="radio"/>
Energy efficiency on cooling	<input type="radio"/>
Switching energy to sustainable energy	<input type="radio"/>
Renewable energy	<input type="radio"/>
Embodied carbon	<input type="radio"/>
Circularity of building materials	<input type="radio"/>

## Energy poverty

### Strategies to reduce poverty and inequality via decarbonising buildings



Stronger financial support for decarbonising public housing for low-income people	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial support to buy zero-energy/emission homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial support to renovate their homes to zero-energy/emission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allowing partial retrofits to ease financial burden on upfront cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provide energy efficient appliances (e.g. LED)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy bill coupon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy coach/consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Policies targeting specific households Low-income Elderly Households with more than 3 children Other

## 4. DEVELOPMENT OF POLICY INSTRUMENTS

### Standards and regulations for decarbonising buildings

Building codes	National level	<input type="radio"/>
	State level	<input checked="" type="radio"/>
	Local level	<input checked="" type="radio"/>

#### Type of buildings covered by the mandatory energy efficiency code

Residential buildings	
New	<input checked="" type="checkbox"/> All <input type="checkbox"/> Only large units
Renovated	<input checked="" type="checkbox"/> All <input type="checkbox"/> Only large units
Non-residential buildings	
New	<input checked="" type="checkbox"/> All <input type="checkbox"/> Only large units
Renovated	<input checked="" type="checkbox"/> All <input type="checkbox"/> Only large units

#### Elements of building codes (new buildings)

Insulation/heat transmission coefficient	<input checked="" type="checkbox"/>
Primary energy consumption	<input type="checkbox"/>
Primary fossil-fuel energy consumption	<input type="checkbox"/>
Energy efficiency of equipment	<input checked="" type="checkbox"/>
Operational carbon reduction	<input type="checkbox"/>
Whole life cycle carbon	<input type="checkbox"/>
Comprehensive green building assessment	<input type="checkbox"/>
Other	<input type="checkbox"/>

**Stricter standards for public buildings than private buildings**

🏠 For new construction   🔧 For renovation

	Public buildings	Public housing
Energy efficiency	– –	– –
Zero energy/emission	– –	– –
Renewable energy	– –	– –
Embodied carbon/life cycle	🏠 🔧	– –
Locally sourced & recycled materials	– –	– –

**Certificates/labeling programme for built environment**

**Types of certificates/programme**

Energy Performance Certificate (EPC)	<input checked="" type="checkbox"/>
Energy labelling on passive house	<input checked="" type="checkbox"/>
Energy labelling on annual energy consumption	<input checked="" type="checkbox"/>
Comprehensive built environment certification	<input checked="" type="checkbox"/>
Labeling for whole life carbon emissions	<input type="checkbox"/>

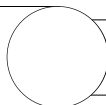
**Target for Mandatory EPC**

New buildings (residential)	<input type="checkbox"/>
New buildings (non-residential)	<input type="checkbox"/>
Existing buildings for renovation	<input type="checkbox"/>
Existing buildings for sales/rent	<input type="checkbox"/>

**Standardised calculation methods for embodied carbon/LCA**


Database of CFP/EPD	<input checked="" type="checkbox"/>	<input type="checkbox"/> Governmental	<input type="checkbox"/> Non-governmental
Grant for using the following materials	<input type="checkbox"/>	<input type="checkbox"/> Low-carbon	<input type="checkbox"/> Bio-based <input type="checkbox"/> Reused
Policy tools for reusing building materials	<input checked="" type="checkbox"/>		
Mandatory declaration	<input type="checkbox"/>	<input type="checkbox"/> Public	<input type="checkbox"/> Residential <input type="checkbox"/> Non-residential
Limit value on CO2 emissions	<input type="checkbox"/>	<input type="checkbox"/> Public	<input type="checkbox"/> Residential <input type="checkbox"/> Non-residential

Minimum energy performance standards (MEPS) regulation for existing buildings



<input type="checkbox"/> All buildings	<input type="checkbox"/> Residential (rent)	<input type="checkbox"/> Residential (sale)
<input type="checkbox"/> Office (rent/sale)	<input type="checkbox"/> Public buildings	<input type="checkbox"/> Other

## Climate resilience

**🔥 Extreme heat adaptation measures implemented in the building sector**

Strategic orientation of main building facades	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Light coloured and reflective materials	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Green roof	<input checked="" type="checkbox"/>	<input type="checkbox"/> Regulations	<input checked="" type="checkbox"/> Financial incentives
Green facades	<input checked="" type="checkbox"/>	<input type="checkbox"/> Regulations	<input checked="" type="checkbox"/> Financial incentives
Other	<input type="checkbox"/>		

**🏠 Floods/storms adaptation measures implemented in the building sector**

Lowest liveable floor above ground level	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Roof drainage system	<input checked="" type="checkbox"/>	<input type="checkbox"/> Regulations	<input checked="" type="checkbox"/> Financial incentives
Hip-roof	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Hurricane straps	<input checked="" type="checkbox"/>	<input type="checkbox"/> Regulations	<input checked="" type="checkbox"/> Financial incentives
Impact-resistant glass	<input checked="" type="checkbox"/>	<input type="checkbox"/> Regulations	<input checked="" type="checkbox"/> Financial incentives
Backup generators	<input checked="" type="checkbox"/>	<input type="checkbox"/> Regulations	<input checked="" type="checkbox"/> Financial incentives
Microgrids	<input checked="" type="checkbox"/>	<input type="checkbox"/> Regulations	<input checked="" type="checkbox"/> Financial incentives

**Publicly available geographic database with climate risk information**

Flood risk	<input checked="" type="checkbox"/>
Heat wave	<input checked="" type="checkbox"/>
Storm	<input checked="" type="checkbox"/>
Wild fire	<input checked="" type="checkbox"/>
Other	<input checked="" type="checkbox"/>

**Building certificate system on climate resilience**

Resilience to flood risk	<input type="checkbox"/>
Resilience to heat	<input type="checkbox"/>
Other	<input type="checkbox"/>

This survey is designed for national governments.