

# KOREA

## 1. CONTEXT OF THE BUILT ENVIRONMENT

### Urban population

Total population	Functional Urban Area population*	Share of urban population	Average urban growth
51.781 million (2020)	45.127 million (2020)	88% (2020)	2.1% (2015-2020)

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

### Building data

	Building stock	Built before 1988	Annual construction	Annual construction rate
Residential	4,576 thousand dwellings (2022)	50%	69.158 thousand dwellings (2022)	1.5%
Non-residential	2,218 million m <sup>2</sup> (2022)		115.975 million m <sup>2</sup> (2022)	5.2%

### Energy & emissions data

Residential buildings**	1990	2021	+/- rate	Non-residential buildings	2022
Final energy consumption (PJ/year)	542	890	64%	Final energy consumption (PJ/year)	11,852
	1990	2021	+/- rate		2022
GHG emissions (MtCO <sub>2</sub> /year)	43	32	-25%	GHG emissions (MtCO <sub>2</sub> /year)	69.6

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

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

N/A

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

1,991.1

Degree (°C) Days (2020)

Reference degree day: 16 degree (°C)

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

324

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> Ministry of Land, Infrastructure and Transport (MOLIT)	<b>B</b> Ministry of Trade, Industry, and Energy	<b>C</b> Ministry of Environment	<b>D</b> Regional and local governments	<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
<b>A B C D E</b>	<b>A B C D E</b>	<b>A B C D E</b>	<b>A B C D E</b>	<b>A B C D E</b>
BEE standard	Act/law for BEE regulation	Whole life carbon	Energy policy in general	NDC
<b>A B C D E</b>	<b>A B C D E</b>	<b>A B C D E</b>	<b>A B C D E</b>	<b>A B C D E</b>

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

—	Local governments can customise national standards.
✓	<b>Local governments cannot adjust national standards, but the standards differ across regions depending on the local climate.</b>
—	Local governments cannot adjust national standards. All building codes, standards or requirements are uniform across the entire country.
✓	<b>Neighbourhood level approach/planning</b> 1) In existing cities, projects such as building additional solar facilities (Seoul Energy Independent Village) 2) In new development areas, create energy-independent single-family housing complexes (Busan Smart Village) or designate zero-energy city business districts in new city planning and proceed with energy design of buildings, infrastructure, parks, etc. (Seongnam, Suwon, etc.)
✓	<b>The national government is tracking progress on decarbonisation efforts at the local level</b> 1) The central government establishes a 'Green Building Coordination Support Plan' every four years, and each local government is required to establish a green building plan for each local government by referring to it, and the established local green building plans are reported to the central government. 2) The central government evaluates local governments' efforts to create green buildings every year, using a database of energy in buildings nationwide, and awards three outstanding local governments with ministerial awards to encourage them to continue building energy reduction activities.
✓	<b>More ambitious policy instrument by local governments</b> 1) Seoul, the city with the largest number of buildings, is working to implement a cap-and-trade system for existing energy-inefficient buildings (limiting the total amount of energy used). A pilot project is currently underway to encourage voluntary participants to reduce energy consumption in buildings. 2) Gyeonggi-do declared RE100 and is installing solar panels on building rooftops and parking lots, with plans to increase the share of renewable energy generation to 30 per cent by 2030.

### Capacity building

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

Designing for ZEB	✓	Insulation	✓
Calculation for energy performance of buildings	✓	Installation of energy efficient equipment	✓
Calculation for life cycle CO2 of buildings	—	Other	—

**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	Priority ✓
Hosting annual conferences focused on BEE policy implementation	Priority ✓
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
<b>Other renewable energy</b> 40% of total energy consumption with renewable installations in public buildings (>1000 m <sup>2</sup> ) by 2030.	<b>Other</b> Achieve an energy independence rate of 60% or more of major energy consumption (heating, cooling, ventilation, lighting, water heating) required in public buildings by 2030

## Policy focus for decarbonising buildings (Top 3)

### Current focus

Passive design to reduce heating demand	<input type="radio"/>
Energy efficiency on heating	<input checked="" type="radio"/>
Passive design to reduce cooling demand	<input type="radio"/>
Energy efficiency on cooling	<input checked="" type="radio"/>
Switching energy to sustainable energy	<input type="radio"/>
Renewable energy	<input checked="" 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 checked="" type="radio"/>
Passive design to reduce cooling demand	<input type="radio"/>
Energy efficiency on cooling	<input checked="" type="radio"/>
Switching energy to sustainable energy	<input type="radio"/>
Renewable energy	<input checked="" 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 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 checked="" type="checkbox"/> <input checked="" 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 checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Energy bill coupon	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
Energy coach/consultation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Other	<input checked="" 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 checked="" type="radio"/>
	State level	<input type="radio"/>
	Local level	<input 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 checked="" 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 checked="" 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**

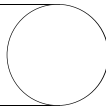
**Types of certificates/programme**

Energy Performance Certificate (EPC)	<input checked="" type="checkbox"/>
Energy labelling on passive house	<input 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**

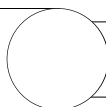
New buildings (residential)	<input checked="" type="checkbox"/>
New buildings (non-residential)	<input checked="" type="checkbox"/>
Existing buildings for renovation	<input type="checkbox"/>
Existing buildings for sales/rent	<input type="checkbox"/>

## Standardised calculation methods for embodied carbon/LCA



Database of CFP/EPD	<input 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 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 checked="" type="checkbox"/>	<input type="checkbox"/> Regulations	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Hip-roof	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Hurricane straps	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Impact-resistant glass	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Backup generators	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input type="checkbox"/> Financial incentives
Microgrids	<input type="checkbox"/>	<input type="checkbox"/> Regulations	<input 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 checked="" type="checkbox"/>

This survey is designed for national governments.