

SINGAPORE

1. CONTEXT OF THE BUILT ENVIRONMENT

Urban population

Total population	Functional Urban Area population*	Share of urban population	Average urban growth
5.909 million (2020)	5.909 million (2020)	100% (2020)	5% (2015-2020)

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

Building data

	Building stock	Built before 1980	Annual construction	Annual construction rate
Residential	N/A thousand dwellings	N/A	N/A thousand dwellings	N/A
Non-residential	N/A million m ²		N/A million m ²	N/A

Energy & emissions data

Residential buildings**	1990	2021	+/- rate
Final energy consumption (PJ/year)	12	34	188%
	1990	2021	+/- rate
GHG emissions (MtCO ₂ /year)	0.18	0.22	19.6%

**Data source: IEA Countries & Regions²

Energy consumption by end-use (Residential)

N/A

Non-residential buildings	2021
Final energy consumption (PJ/year)	616.5
GHG emissions (MtCO ₂ /year)	N/A

Heating degree days***

0

Degree (°C) Days (2020)

Reference degree day: 16 degree (°C)

Cooling degree days***

2332.5

Degree (°C) Days (2020)

Reference degree day: 21 degree (°C)

***Data source: IEA Weather, Climate and Energy Tracker³

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

² <https://www.iea.org/countries>

³ <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

A Ministry of National Development	B Ministry of Trade and Industry	C Prime Minister Office	D Ministry of Sustainability and the Environment	E
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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 standards⁴

—	Local governments can customise national standards.
—	Local governments cannot adjust national standards, but the standards differ across regions depending on the local climate.
—	Local governments cannot adjust national standards. All building codes, standards or requirements are uniform across the entire country.
—	Neighbourhood level approach/planning
—	The national government is tracking progress on decarbonisation efforts at the local level
—	More ambitious policy instrument by local governments

Capacity building

Government funding programmes to train/enhance skills for SMEs

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

⁴ This section is not applicable given that Singapore is a city-state with no devolved local or regional government.

Actions undertaken by the national government to support local governments for BEE policy implementation⁵

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 <div style="border: 1px solid black; height: 100px; width: 100%;"></div>	District heating/cooling <div style="border: 1px solid black; height: 100px; width: 100%;"></div>
Insulation <div style="border: 1px solid black; height: 100px; width: 100%;"></div>	Heat pumps <div style="border: 1px solid black; height: 100px; width: 100%;"></div>
<div style="background-color: #76b82a; color: white; padding: 5px;"> Rooftop PVs</div> Singapore is also exploring other types of PVs, targeting 2GWp solar energy by 2030. <div style="border: 1px solid black; height: 100px; width: 100%;"></div>	Solar heating of water <div style="border: 1px solid black; height: 100px; width: 100%;"></div>
Other renewable energy <div style="border: 1px solid black; height: 100px; width: 100%;"></div>	<div style="background-color: #76b82a; color: white; padding: 5px;"> Other</div> 80% of our buildings GFA to be green by 2030, 80% of new developments to be Super Low Energy Buildings from 2030, 80% improvement in energy efficiency by 2030. +

⁵ This section is not applicable given that Singapore is a city-state with no devolved local or regional government.

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 checked="" type="checkbox"/>
Energy efficiency on cooling	<input checked="" type="checkbox"/>
Switching energy to sustainable energy	<input type="radio"/>
Renewable energy	<input checked="" type="checkbox"/>
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 checked="" type="checkbox"/>
Energy efficiency on cooling	<input checked="" type="checkbox"/>
Switching energy to sustainable energy	<input type="radio"/>
Renewable energy	<input checked="" type="checkbox"/>
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 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"/>

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="checkbox"/>
	State level	<input type="checkbox"/>
	Local level	<input type="checkbox"/>

Type of buildings covered by the mandatory energy efficiency code

Residential buildings		
New	<input type="checkbox"/> All	<input checked="" type="checkbox"/> Only large units
Renovated	<input type="checkbox"/> All	<input checked="" type="checkbox"/> Only large units
Non-residential buildings		
New	<input type="checkbox"/> All	<input checked="" type="checkbox"/> Only large units
Renovated	<input type="checkbox"/> All	<input checked="" 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 checked="" 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 type="checkbox"/>
Energy labelling on passive house	<input type="checkbox"/>
Energy labelling on annual energy consumption	<input type="checkbox"/>
Comprehensive built environment certification	<input checked="" type="checkbox"/>
Labeling for whole life carbon emissions	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/> Governmental	<input type="checkbox"/> Non-governmental
Grant for using the following materials	<input checked="" type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/> Residential (rent)	<input checked="" type="checkbox"/> Residential (sale)
<input checked="" type="checkbox"/> Office (rent/sale)	<input checked="" type="checkbox"/> Public buildings	<input checked="" type="checkbox"/> Other

Climate resilience

🔥 Extreme heat adaptation measures implemented in the building sector

Strategic orientation of main building facades	<input checked="" 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 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 checked="" 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 type="checkbox"/>
Wild fire	<input type="checkbox"/>
Other	<input 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.