



**Global Alliance  
for Buildings and  
Construction**

# **2019 Global Status Report for Buildings and Construction**

*Towards a zero-emissions, efficient and resilient  
buildings and construction sector*

## **Executive summary**

**iea**

**UN**   
**environment  
programme**

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## Executive Summary

The buildings and construction sector accounted for 36% of final energy use and 39% of energy and process-related carbon dioxide (CO<sub>2</sub>) emissions in 2018, 11% of which resulted from manufacturing building materials and products such as steel, cement and glass. This year's *Global Status Report* provides an update on drivers of CO<sub>2</sub> emissions and energy demand globally since 2017, along with examples of policies, technologies and investments that support low-carbon building stocks.

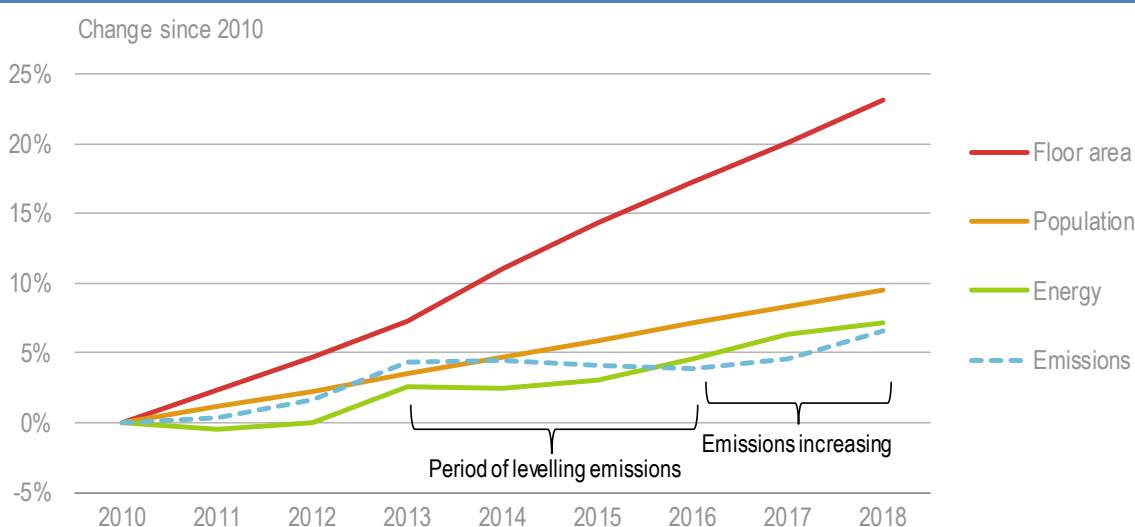
The key global buildings sector trends are:

- Global buildings sector emissions increased 2% from 2017 to 2018, to reach a record high, while final energy demand rose 1% from 2017 and 7% from 2010.
- Increases were driven by strong floor area and population expansions. While efficiency improvements continued to be made, they were not adequate to outpace demand growth.
- 2020 is a key year for countries to enhance their Nationally Determined Contributions (NDCs), especially concerning further actions to address energy use and emissions including embodied emissions in the buildings and construction sector.
- Countries are innovating and implementing measures to improve efficiency and reduce emissions from their building stock. As sharing effective measures globally would amplify their impact, regional roadmaps are being developed for this purpose.

## Global building stock emissions continue to rise

In 2018, global emissions from buildings increased 2% for the second consecutive year to 9.7 gigatonnes of carbon dioxide (GtCO<sub>2</sub>), suggesting a change in the trend from 2013 to 2016, when emissions had been levelling off. Growth was driven by strong floor space and population expansions that led to a 1% increase in energy consumption to around 125 exajoules (EJ), or 36% of global energy use.

**Figure 1 • Changes in floor area, population, buildings sector energy use and energy-related emissions globally, 2010-18**



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Source: Derived from IEA, *World Energy Statistics and Balances 2019*, [www.iea.org/statistics](http://www.iea.org/statistics) and IEA, *Energy Technology Perspectives*, buildings model 2019, [www.iea.org/buildings](http://www.iea.org/buildings).

A major source of rising energy use and emissions by the global building stock is electricity, the use of which has increased more than 19% since 2010, generated mainly from coal and natural gas. This indicates how crucial it is to make clean and renewable sources of energy accessible, and to use passive and low-energy designs more widely in building construction.

From 2017 to 2018, energy intensity continued to improve for space heating (-2%) and lighting (-1.4%), but increased for space cooling (+2.7%) and remained steady for water heating, cooking and appliances. At an 8% increase in 2018, space cooling became the fastest-growing use of energy in buildings since 2010, though it accounted for only a small portion of total demand at 6%.

## 2020 NDC revisions are a new opportunity to reduce buildings sector emissions

As part of their plans to limit greenhouse gas (GHG) emissions, 184 countries have contributed NDCs under the United Nations Framework Convention on Climate Change (UNFCCC). Although most countries (136) mention buildings in their NDCs, few detail explicit actions to address emissions within the buildings sector. In the next round of NDCs, covering 2020 to 2025, further focus is needed on actions to mitigate building emissions through switching to low-carbon and renewable energy sources, and greater attention should be paid to low-carbon building materials, building envelope improvements, nature-based solutions, and equipment and system efficiency.

These efforts will require higher investments than the USD 139 billion of 2018 – which was a 2% drop from the previous year. To tackle emissions and reduce energy intensities in the buildings and construction sector, governments, companies and private citizens must raise investments in efficiency adequately to offset growth.

## New policies lead the way forward

Although greater ambition is needed, policy makers, designers, builders and other participants in the buildings and construction value chain globally are undertaking activities to decarbonise the global building stock and improve its energy performance.

- In a number of countries, building codes are being introduced for the first time or are being strengthened, for example in India through the Eco-Niwas Samhita India's first energy conservation code for the residential sector, and in Rwanda through the Green Building Minimum Compliance System. Policies regulating the energy performance of new buildings are a powerful means to address future emissions growth.
- Building owners continue to adopt advanced certifications for high energy performance or low- and zero-carbon buildings, which stimulates improvements in both the new and existing building stock. The World Green Building Council offers support for such actions through its Net Zero Carbon Buildings Commitment that is being developed among its partners.
- Investors are establishing dedicated products and funding schemes for low-energy and low-carbon buildings across the world. For example, the EU Green Tagging strategy that sets rules for European green financing is the first to include recommendations for net-zero-energy buildings (nZEBs) and green renovation.

These activities to enact regulations and enable greater market adoption of low-energy buildings are encouraging signs of efforts to curb future energy demand and emissions.

Some countries have also established strategies to work towards achieving a net-zero-carbon building stock by 2050 or earlier. For example, Japan and Canada are developing new policies to achieve net-zero and net-zero-ready standards for buildings by 2030. As more countries prepare their NDCs, more ambitious strategies to address existing building stocks will be put forward.

The Global Alliance for Buildings and Construction (GlobalABC) and the International Energy Agency (IEA), in collaboration with regional members and stakeholders, are developing Regional Roadmaps for Latin America, Africa and Asia to forge pathways towards efficient and resilient zero-emissions buildings and construction sectors. The roadmaps:

- Highlight priority actions for each region in eight key areas: urban planning; new buildings; existing building retrofits; building operations; systems; materials; resilience; and clean energy.
- Are being developed through consultations, workshops and webinars held across the three regions to gather insights and opinions from regional, national and local stakeholders on the targets and timelines for delivering an energy-efficient, low-carbon building stock.
- Are regionally owned living documents that will be shared by the end of 2019 and continue to be developed throughout 2020.
- Support activities such as national alliances that unite local construction value chains to enable the development and implementation of national strategies for zero-net-energy and -emissions buildings.

