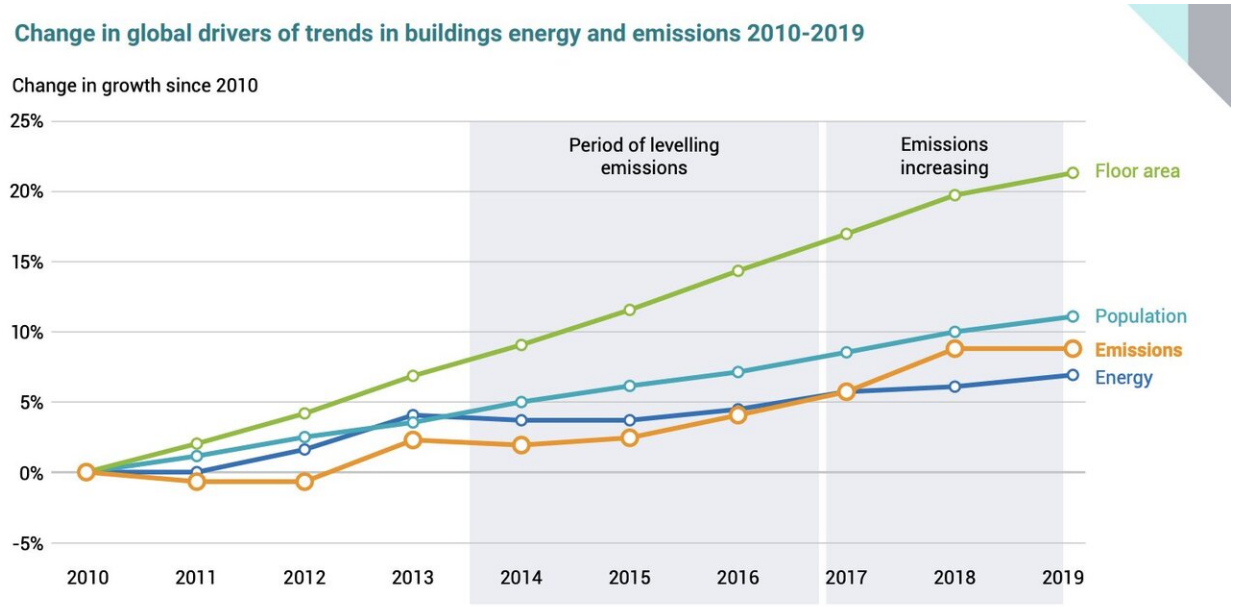
Buildings-related carbon dioxide emissions hit record high: UN

December 16 2020



To achieve net-zero carbon building stock by 2050, the IEA estimates direct building CO2 emissions would need to decrease by 50% and indirect building sector emissions decline through a reduction of 60% in power generation emissions by 2030. Credit: UNEP

Emissions from the operation of buildings hit their highest-ever level in 2019, moving the sector further away from fulfilling its huge potential to slow climate change and contribute significantly to the goals of the Paris Agreement, according to a new report released today.

However, pandemic recovery packages provide an opportunity to push deep building renovation and performance standards for newly constructed buildings, and rapidly cut emissions. The forthcoming updating of climate pledges under the Paris Agreement—known as nationally determined contributions or NDCs—also offer an opportunity to sharpen existing measures and include new commitments on the buildings and construction sector.

The 2020 Global Status Report for Buildings and Construction, from the Global Alliance for Buildings and Construction (GlobalABC), found that while global building energy consumption remained steady year-on-year, energy-related CO_2 emissions increased to 9.95 $GtCO_2$ in 2019. This increase was due to a shift away from the direct use of coal, oil and traditional biomass towards electricity, which had a higher carbon content due to the high proportion of fossil fuels used in generation.

When adding emissions from the building construction industry on top of operational emissions, the sector accounted for 38 percent of total global energy-related CO_2 emissions.

"Rising emissions in the buildings and construction sector emphasize the urgent need for a triple strategy to aggressively reduce energy demand in the built environment, decarbonize the power sector and implement materials strategies that reduce lifecycle carbon emissions," said Inger Andersen, Executive Director of the UN Environment Programme (UNEP).

"Green recovery packages can provide the spark that will get us moving rapidly in the right direction," she added. "Moving the buildings and construction sector onto a low-carbon pathway will slow climate change and deliver strong economic recovery benefits, so it should be a clear priority for all governments."

To get on track to net-zero carbon building stock by 2050, the International Energy Agency (IEA) estimates that direct building CO_2 emissions need, by 2030, to fall by 50 percent and indirect building sector emissions by 60 percent. This equates to building sector emissions falling by around 6 percent per year until 2030, close to the 7 percent decrease in 2020 global energy sector CO_2 emissions due to the pandemic.

Worryingly, the GlobalABC's new Buildings Climate Tracker—which considers measures such as incremental energy efficiency investment in buildings and the share of renewable energy in global buildings—finds that the rate of annual improvement is decreasing. It in fact halved between 2016 and 2019. To get the buildings sector on track to achieving net-zero carbon by 2050, all actors across the buildings value chain need to increase decarbonization actions and their impact by a factor of five.

Even though progress in efficiency efforts has not kept up with an increase in sectoral growth, there are positive signs and opportunities to catch up on climate action, the report finds.

Green recovery potential

The recent Emissions Gap Report 2020 from the UN Environment Programme (UNEP) found that a green pandemic recovery could cut up to 25 percent off predicted 2030 greenhouse gas emissions and bring the world closer to meeting the 2°C goal of the Paris Agreement on Climate Change. Much more needs to be done to get to the 1.5°C goal.

Governments can help achieve these gains by systematically including building decarbonization measures into recovery packages—increasing renovation rates, channeling investment into low-carbon buildings, providing jobs, and increasing real estate value.

While construction activities have dropped by 20 to 30 percent in 2020 compared to 2019 as a result of the pandemic and around ten percent of overall jobs have been lost or are at risk across the building construction sector, stimulus programs for the building and construction sector can create jobs, boost economic activity, and activate local value chains. Under its Sustainable Recovery Plan, the IEA estimates that up to 30 jobs in manufacturing and construction would be created for every million dollars invested in retrofits or efficiency measures in new builds.

"Buildings are a strategic sector to simultaneously address various global challenges such as climate change, the economic crisis resulting from the COVID 19 pandemic, improve living conditions and the resilience of our cities. For Mexico, the implementation of mitigation measures that improve the thermal and energy performance of buildings is a key ingredient for sustainability." Said Sergio Israel Mendoza, General Director of Environmental, Urban and Tourism Promotion, Mexico's Secretariat of Environment and Natural Resources (SEMARNAT)

NDC updates open window for faster action

Most countries have yet to submit their second NDCs. Buildings remain a major area that lacks specific mitigation policies, despite its importance to global CO_2 emissions. Of those who have submitted an NDC, 136 countries mention buildings, 53 countries mention building energy efficiency, and only 38 specifically call out building energy codes.

National governments must step up commitments in NDCs, longer-term climate strategies and support for regulation to spur uptake of net-zero emissions buildings. This means prioritizing performance-based, mandatory building energy codes alongside wide-spread certification measures and working closely with sub-national governments to facilitate adoption and implementation.

"We urgently need to address carbon emissions from buildings and construction, which constitute almost 40% of global carbon emissions.

We must give governments visibility of this at COP26 to inspire policies and decisions that result in the significant decarbonisation of this sector," Nigel Topping, United Kingdom High-Level Climate Champion said.

"We need to challenge the incumbency of steel and concrete. Whether or not zero carbon steel and concrete become the materials of the future will depend on how fast those industries innovate in the face of new and disruptive technologies. We have some far-reaching commitments under the Science-Based Targets Initiative by leading materials companies which can serve as examples pushing the industry to go further, together."

Energy-efficient building investment rising

In 2019, spending on energy-efficient buildings increased for the first time in three years, with building energy efficiency across global markets increasing to USD 152 billion in 2019, 3 percent more than the previous year.

This is only a small proportion of the USD 5.8 trillion spent in total in the building and construction sector, but there are positive signs across the investment sector that building decarbonization and energy efficiency are taking hold in investment strategies.

For example, of the 1,005 real estate companies, developers, REITS, and funds representing more than USD 4.1 trillion in assets under management that reported to The Global ESG Benchmark for Real Assets in 2019, 90 percent aligned their projects with green building rating standards for construction and operations.

Green buildings represent one of the biggest global investment opportunities of the next decade, estimated by the IFC to be USD 24.7 trillion by 2030.

Further recommendations

Aside from calling for a green recover post-pandemic and updated NDCs, the report also recommends that owners and businesses should use science-based targets to guide actions and engage with stakeholders across the building design, construction, operation and users to develop partnerships and build capacity.

Investors should reevaluate all real estate investment through an energy-efficiency and carbon reduction lens.

Other actors across the value chain should adopt circular economy concepts to reduce the demand for construction materials and lower embodied carbon and adopting nature-based solutions that enhance building resilience.

More information: www.unep.org/news-and-stories/ … action-gap-un-report

Provided by UN Environment Programme, Energy and Climate Branch

Citation: Buildings-related carbon dioxide emissions hit record high: UN (2020, December 16) retrieved 28 April 2024 from https://phys.org/news/2020-12-buildings-related-carbon-dioxide-emissions-high.html