

## Urban planning is key to achieving the two-degree-target

The design of today's transportation systems, buildings and other infrastructures will largely determine tomorrow's CO<sub>2</sub> emissions. Climate smart urban infrastructure and buildings could cut future emissions in half or about 10 Gt CO<sub>2</sub> per year from 2040 onwards.

These are core findings of a new study in *Nature Climate Change* and led by Felix Creutzig from the Mercator Research Institute on Global Commons and Climate Change (MCC), Robbie Andrew and Glen Peters from CICERO, and other international colleagues.

To embark on this climate smart path, cities around the world would need to incentivize the construction of higher-density, energy-efficient housing and implement new mobility concepts such as car sharing, electric cars and bicycles, and bike paths. The challenge would also call on urban planners to provide citizens with shorter commutes, set up inner-city tolls and realize architectural and technological upgrades of buildings. Last, but not least, it would require higher gasoline taxes.

"Urban planning and transport could become a major roadblock to reaching the two-degree-target. Once infrastructures are in place, they determine carbon emissions for nearly an entire century—much longer even than coal-fired power stations," says lead author Felix Creutzig. "If the world makes a dedicated effort to seize the existing opportunities within the next 15 years to upgrade infrastructure, urban planning will become a key arena for achieving ambitious climate change."

"Many cities around the world are leading the fight on climate change, filling a void left by inaction by many national governments" said Glen Peters from CICERO. "Oslo is perhaps the only city in the world to have climate goals consistent with aspiration 1.5°C goal in the Paris Agreement".

[https://twitter.com/Peters\\_Glen/status/746239967114887169](https://twitter.com/Peters_Glen/status/746239967114887169)

Oslo plans to reduce emissions by 50% below 1990 levels by 2020 and 95% by 2030, and is implementing 42 measures to meet those goals.

<http://www.cicero.uio.no/en/posts/news/oslos-climate-budget-leading-the-way>

"The measures being implemented by Oslo are necessary to reduce emissions from existing infrastructure" said Peters. "The real challenge lies ahead, designing climate smart cities and infrastructures that do not require emissions in their 100 year lifetimes whilst continuing to enhancing the quality of city life."

The new study aggregates existing data to show that the highest emission reduction globally potential is from the use of new energy-efficient infrastructures. The annual global reductions that may be achieved by the year 2040 when using new infrastructures is three to four times higher than that of upgrading existing urban infrastructures. Moreover, the very act of building these new infrastructures will invariably involve introducing new CO<sub>2</sub> emissions into the atmosphere.

At the individual city level, the importance of these different factors varies. A city such as Oslo has most of its infrastructure in place, while new cities in Asia, Africa, and the Middle East are rapidly expanding infrastructure that will remain in place for 100 years.