

# Cooling and extreme heat

Crippling heat is everywhere. With global average temperature now 1.2°C warmer compared to the preindustrial era, the world is seeing more intense heatwaves driven largely by a fossil-fuel charged, and human-induced climate crisis. More than **70 per cent of the global workforce**—2.4 billion people—are now at high risk of extreme heat and the most vulnerable communities are hit hardest. At 1.5°C of warming, hundreds of millions of people could face **one week per year** of deadly humid heat that they would not survive without access to cooling.

We need to provide equitable access to cooling to protect people and livelihoods against extreme heat, keep food fresh, vaccines stable, and economies productive. But the more we cool, the more we heat the planet. We need a rethink.

Cooling currently accounts for **one fifth of global electricity consumption** and is a driver of generation capacity additions needed to meet peak power demands. With the current pace of energy efficiency improvements, the world will need **more than double** global electricity consumption from cooling by 2050 (UNEP, 2023).

Emissions from cooling are predicted to increase to between 4.4 billion and 6.1 billion tons of carbon dioxide equivalent (CO<sub>2</sub>e) in 2050, accounting for more than 10 per cent of global projected emissions that year.

In response to the rapid rise in the scale, intensity, frequency and impacts of extreme heat, UN Secretary-General António Guterres recently **called** for an urgent and concerted effort to enhance international cooperation to address extreme heat. He called for “invest[ment] in the triple strategy of passive cooling (nature, climate sensitive urban design, reflective surfaces and smart buildings), improved energy efficiency of buildings and cooling equipment and phase-out of climate-warming gases used in cooling equipment—in line with the **Global Cooling Pledge at COP 28**”.

## Key messages

- Climate change, population, income growth, and urbanization are increasing cooling demand, yet around 1.2 billion people still **lack access to vital cooling services**, disproportionately affecting women;
- The capacity of cooling equipment is expected to **triple by 2050** and with the current slow pace of energy efficiency improvements, this would result in a more than doubling of electricity consumption;
- The **UNEP Global Cooling Watch report** charts a path on how we can expand cooling while slashing emissions. Action is needed in three areas: passive cooling, higher energy efficiency standards and a faster phase down of climate-warming refrigerants.
- Implementing this triple strategy could reduce projected 2050 emissions from business-as-usual cooling by **more than 60 per cent** or around 3.8 billion tons of CO<sub>2</sub>e, and reduce electricity bills for end users by US\$1 trillion in 2050.
- **Only 53 countries** (27 per cent) have established regulations or regulatory frameworks to enable action on minimum energy performance standards for cooling and refrigeration, mandatory building energy codes and ratification of the **Kigali Amendment**.

## Key recommendations by the UNEP-led Cool Coalition

- To deliver on the triple strategy of passive cooling, higher energy efficiency standards and a faster phase down of climate-warming refrigerants, countries need to enforce building energy codes that incorporate passive cooling and urban design, bring nature back to cities, and regularly update MEPS that establish minimum energy efficiency requirements for new products.
- Governments should strengthen regulatory development and enforcement, by incorporating cooling into legislative frameworks, developing National Cooling Action Plans and integrating cooling into climate strategies, net zero plans and other policy frameworks.
- A transition to sustainable cooling could generate life-cycle cost savings of **US\$22 trillion**. Existing business models need to be scaled to use these savings to reduce upfront costs and make the transition affordable for all.
- Finance is critical. It is essential that consumers in developing economies access the finance they need to adopt new technologies and practices. Doing so, could cut emerging economy consumers’ electricity bills by as much as **US\$5.6 trillion over the next 25 years** and reduce the amount of new investment needed in additional

## Further reading

[Cities | UNEP - UN Environment Programme](#)

[The Global Cooling Watch - Keeping it chill: How to meet cooling demands while cutting emissions](#)

[Global Cooling Pledge](#)

[Cooler Finance: Mobilizing Investment for the Developing World's Sustainable Cooling Needs](#)

[Indonesia's National Cooling Action Plan \(I-NCAP\)](#)

[Net Zero Roadmap: Agro-industry Morocco](#)

[Remarks by UN Secretary-General's Call to Action on Extreme Heat](#)

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power generation needed to meet peak electricity demands by US\$1.8 trillion.

- At COP28, the COP Presidency supported by the UNEP-led Cool Coalition, launched the [Global Cooling Pledge](#), now endorsed by 71 countries and more than 60 non-state actors. It is the first global collective action to reduce cooling related emissions by 68 per cent from today by 2050, aligning efforts with the [Kigali Amendment](#), Paris Agreement, and the UN Sustainable Development Goals.
- Cities play a pivotal role in bringing solutions to scale, and advancing sustainable cooling, and their active participation is essential. The Pledge includes specific commitments for national governments to create an enabling environment for subnational action including through the implementation of model building codes and public procurement guidelines that promote passive cooling measures such as nature-based solutions, reflective surfaces and climate sensitive buildings.

