

Number of people who suffer from hunger

690 MILLION

Metric tons of e-waste generated globally in 2019

53.6 MILLION

Your *that renewables are expected to boost out coal to become the world's primary source of electricity generation*

2025



#### OPTIMISM

Matthew Slaboch

Visiting assistant professor of political science, Denison University (United States)

Almost universally, people think that their societies and the world are in bad shape. But the widespread belief that we aren't now making progress isn't necessarily a rejection of the idea of progress itself: the idea that humanity can make lasting advances still holds currency, even in a dispirited age.

Is our expectation that the future will be better than the past as helpful one? The dogmatic insistence on a "better" future led prior regimes (such as the Nazis and the Soviets) to inflict tremendous pain on millions of people. But if the idea of progress loses its way, we might also lose the spirit of innovation that makes problem-solving possible.



#### WELL-BEING

Farhana Sultana

Associate professor of geography, Syracuse University (United States)

Progress is often measured as economic growth only. But real progress would involve growth that doesn't externalize social or environmental costs.

Progress is often measured in incremental gains such as the US Civil Rights Act. But limiting the idea of progress to only that act would miss the widespread structural racism that remains unaddressed. Similarly, climate agreements are indeed progress, but there aren't enough concrete actions to halt the climate crisis, while marginalized groups pay the biggest price.

Progress must be measured by how well those at the bottom are doing, not only those at the top.



#### HUMILITY

Vera Keller

Associate professor of history, University of Oregon (United States)

**T**o me, behind progress lurks another word. Progress comes from a Latin word meaning "movement forward." It suggests a collective march into the future. But often, when we hear of progress, what's really discussed is a project.

"Project" comes from a word meaning "thrown forward." Those hurtled into the future have little say in its design, and nobody can assume success. When we present risky projects as assured progress, we use what technology studies scholar Sheila Jasanoff identified as modern "technologies of hubris"—that is, ways of presenting expertise that conceal doubts.

We need to rediscover "technologies of humility." At the end of my book, I included one such technology common in the 17th century: a list identifying everything I wish I knew about my subject. Transparency about our ignorance makes the knowledge we communicate more trustworthy and extends a hand to others.

JAMES HILL: DENISON UNIVERSITY; FIELE: ABOUL; COURTESY: FACTS; BELLAUNA; GONZALEZ; WANG; LI; FORTUNE; MURPHY; MADORE; KELLER

# 10 BIG IDEAS TO ACHIEVE REAL CLIMATE PROGRESS

By James Temple

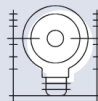
Despite decades of warnings and increasingly devastating disasters, we've still made little progress in slowing climate change.

Clean energy alternatives have secured just a fraction of the marketplace today, with renewables generating around 10% of global electricity and electric vehicles accounting for about 3% of new sales. Meanwhile, greenhouse-gas emissions have continued to climb year after year, aside from the occasional recession or pandemic.

Given the lack of momentum, how do we make faster, more significant progress? We asked 10 experts across a variety of disciplines, including climate scientists, economists, physicists, and policy experts, a single question:

"If you could invent, invest in, or implement one thing that you believe would do the most to reduce the risks of climate change, what would it be and why?"

Here's what they had to say.



Proportion of the world's coral reefs expected to perish if global temperatures increase by 1.5 °C from preindustrial levels

70%



#### BILL GATES

Cofounder of Microsoft and chairman of Breakthrough Energy (US)

**R**ight now, I'm investing a lot in nuclear fission. Our company [TerraPower]... just got a huge US government contract to develop that reactor, which we call Natrum.

A lot of people would say a storage miracle and some people would say super-cheap, clean hydrogen. The nice thing about super-cheap, clean hydrogen—forget cars; it probably doesn't—is it potentially solves a lot of problems (see "Green hydrogen," page 54).

It requires the cheapest electricity in the world and the cheapest capital cost in the world, if you're going to do it through electrolyzers cranking water.

That could work—we should try—but we can't count on it. You can't just focus on one thing, because you may hit a dead end, just like we may not get fusion or [next-generation] fission or the storage miracle.

#### QUALITY OF LIFE

Danny Dorling

Professor of geography, University of Oxford (United Kingdom)

Progress for me is about what actually matters most in life: health, job satisfaction, housing quality, living standards, and real education. Finland, for example, has one of the lowest rates of infant mortality in the world and the highest proportions of workers satisfied with their lives and the flexibility of their jobs. More workers can choose which hours they work in Finland than in any other country. Finland also has the world's lowest homelessness rate (the US has one of the highest) and is renowned for its education system. And Finland has greater income equality than the US, and a much lower carbon footprint. Not surprisingly, its people are happier.



WINHILLE