

THE HARD TRUTHS OF CLIMATE CHANGE

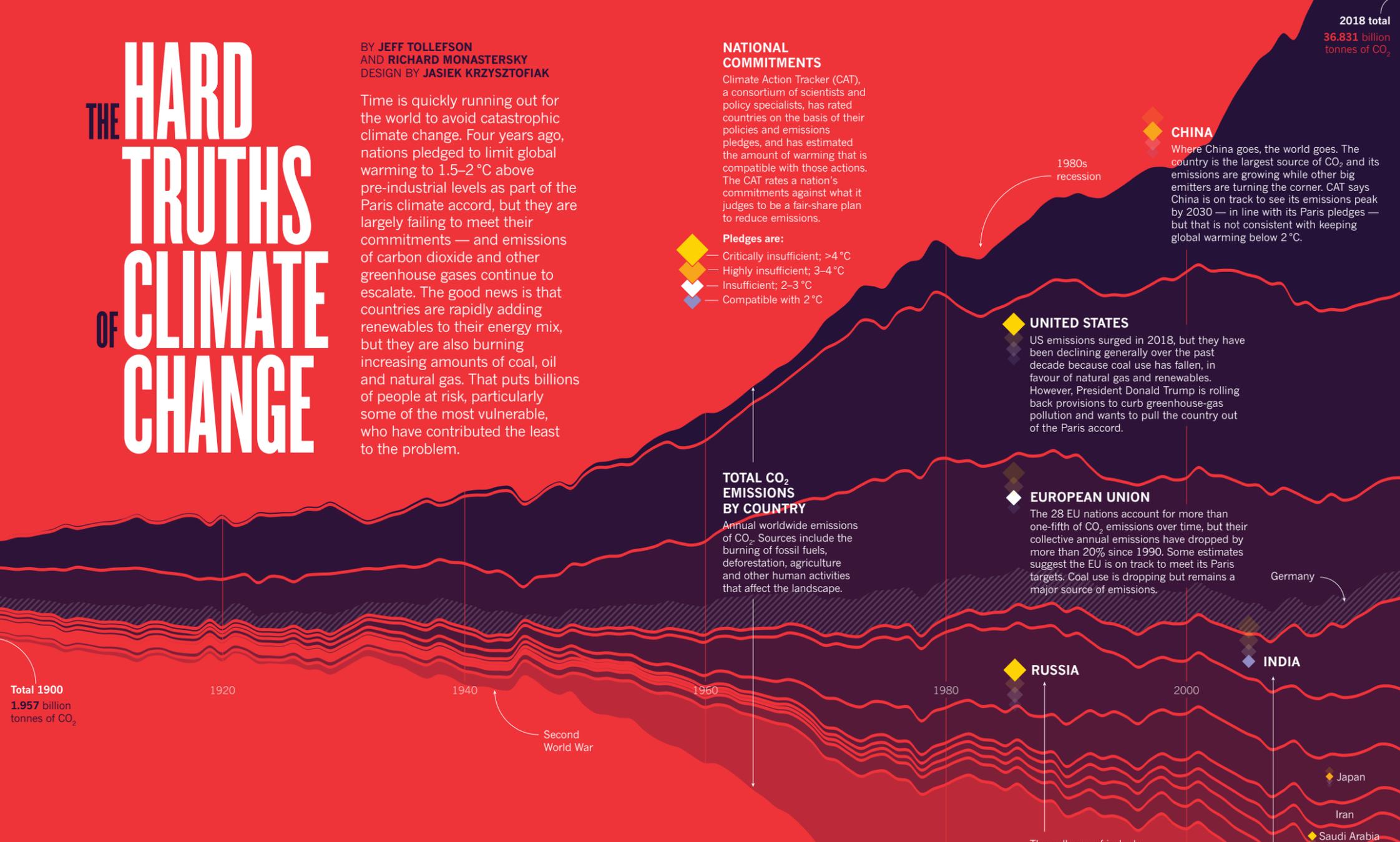
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Time is quickly running out for the world to avoid catastrophic climate change. Four years ago, nations pledged to limit global warming to 1.5–2 °C above pre-industrial levels as part of the Paris climate accord, but they are largely failing to meet their commitments — and emissions of carbon dioxide and other greenhouse gases continue to escalate. The good news is that countries are rapidly adding renewables to their energy mix, but they are also burning increasing amounts of coal, oil and natural gas. That puts billions of people at risk, particularly some of the most vulnerable, who have contributed the least to the problem.

NATIONAL COMMITMENTS

Climate Action Tracker (CAT), a consortium of scientists and policy specialists, has rated countries on the basis of their policies and emissions pledges, and has estimated the amount of warming that is compatible with those actions. The CAT rates a nation's commitments against what it judges to be a fair-share plan to reduce emissions.

- Pledges are:**
- ◆ Critically insufficient; >4 °C
 - ◆ Highly insufficient; 3–4 °C
 - ◆ Insufficient; 2–3 °C
 - ◆ Compatible with 2 °C



TOTAL CO₂ EMISSIONS BY COUNTRY

Annual worldwide emissions of CO₂. Sources include the burning of fossil fuels, deforestation, agriculture and other human activities that affect the landscape.

UNITED STATES

US emissions surged in 2018, but they have been declining generally over the past decade because coal use has fallen, in favour of natural gas and renewables. However, President Donald Trump is rolling back provisions to curb greenhouse-gas pollution and wants to pull the country out of the Paris accord.

EUROPEAN UNION

The 28 EU nations account for more than one-fifth of CO₂ emissions over time, but their collective annual emissions have dropped by more than 20% since 1990. Some estimates suggest the EU is on track to meet its Paris targets. Coal use is dropping but remains a major source of emissions.

RUSSIA

The collapse of industry after the break-up of the Soviet Union caused CO₂ emissions to plunge, but they have been rising since. Russia has invested little in renewables such as solar and wind and the CAT gives Russia its lowest rating.

CHINA

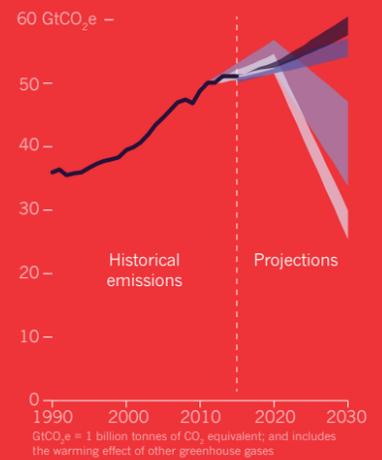
Where China goes, the world goes. The country is the largest source of CO₂ and its emissions are growing while other big emitters are turning the corner. CAT says China is on track to see its emissions peak by 2030 — in line with its Paris pledges — but that is not consistent with keeping global warming below 2 °C.

INDIA

India has contributed much less to global warming than have other large countries, on a per capita basis. Although its energy use and coal consumption are growing rapidly, the country is also emerging as a leader in renewable energy.

DO OR DIE

For the world to meet the Paris target of limiting global warming to 1.5 °C, nations would have to slash their CO₂ emissions to zero by 2050, according to the Intergovernmental Panel on Climate Change. Even staying below 2 °C of warming would require massive cuts. In reality, emissions are still rising under existing policies and environmental pledges.



FAIRNESS

Current emissions are only one way of looking at the problem. Although China is now the largest producer of CO₂, it is responsible for just 13% of all emissions over time. Its per capita emissions are rising quickly, but the US leads in per capita and total emissions.

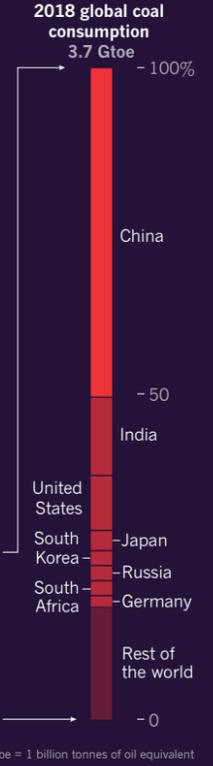
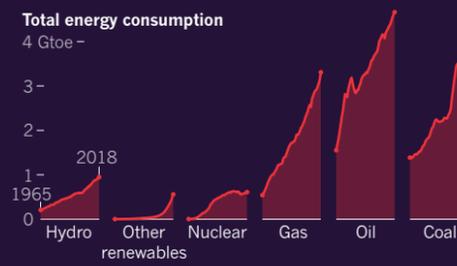
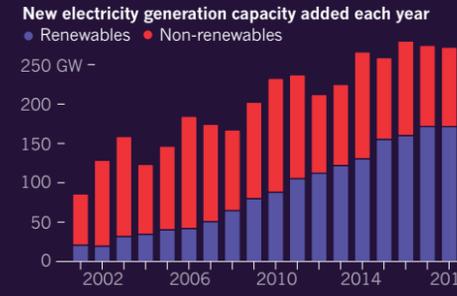
| Country | Per capita (tonnes CO ₂) |
|---------------|--------------------------------------|
| China | 7 |
| United States | 16.6 |
| EU28 | 6.7 |
| India | 2 |
| Russia | 11.6 |
| Japan | 9.1 |
| Iran | 8.7 |
| Saudi Arabia | 18.1 |
| South Korea | 12.4 |
| Canada | 15.3 |
| World average | 4.8 |

Cumulative emissions

| | |
|-------------------|-----|
| United States | 25% |
| EU28 | 22% |
| China | 13% |
| Russia | 7% |
| Japan | 4% |
| India | 3% |
| Rest of the world | 26% |

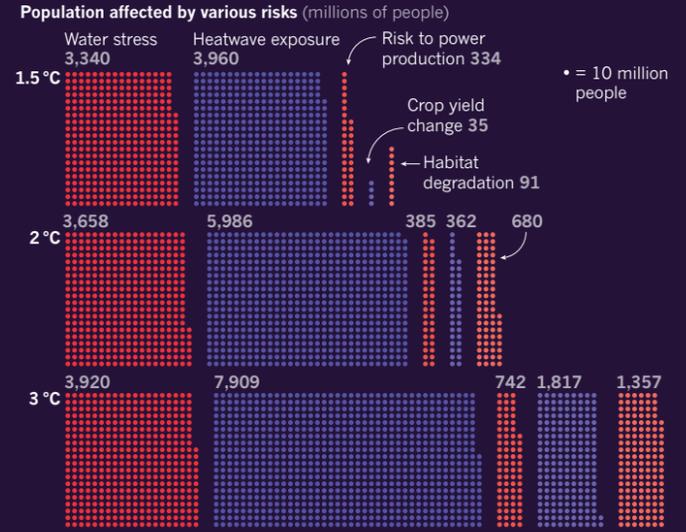
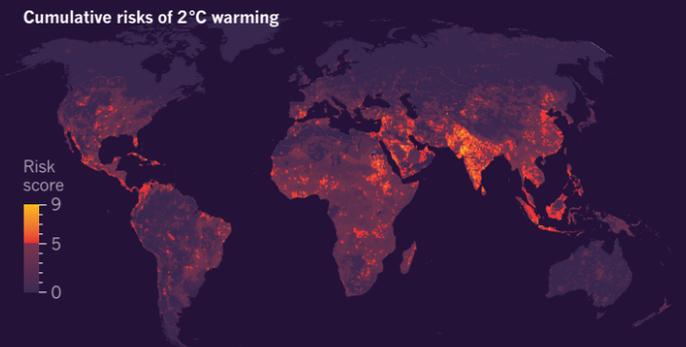
FUELLING THE WORLD

In the past decade, the world has added more renewable energy capacity for generating electricity than it has added from coal and gas. Most of the new renewable energy comes from solar and wind power — with China leading the way. But electricity is just one part of energy use, and consumption of fossil fuels continues to grow rapidly. China accounts for more than half of the global use of coal, the fuel that produces the most CO₂.



CLIMATE CHANGE'S HEAVY TOLL

As global temperatures rise, they put billions of people at risk of heatwaves, water shortages and a range of other problems. And these impacts fall hardest on the poorest and most vulnerable people. The map below shows the cumulative risks from major climate impacts with 2 °C of warming; the chart estimates how many people would be affected by a selection of those risks.



SOURCES: CO₂ EMISSIONS AND FAIRNESS: GLOBAL CARBON PROJECT; DO OR DIE AND COMMITMENTS: CLIMATE ACTION TRACKER; FUELLING THE WORLD: IRENA (NEW ELECTRICITY)/BP (PRIMARY ENERGY AND COAL); HEAVY TOLL: IPCC; BYERS ET AL. ENVIRON. RES. LETT. 13, 055012 (2018).