

An **Action Plan** for Solving Our Climate Crisis Now

What we need to do to get to **net zero** emissions—and how we can do it in time.

1 Electrify Transportation



2  Decarbonize The Grid

3 Fix Food



4  Protect Nature

5 Clean Up Industry



6 Remove Carbon



7 Win Politics And Policy



8  Turn Movements Into Action

9 Innovate!



10 Invest!



Get the book and take action to cut carbon emissions by visiting speedandscale.com.

Speed & Scale

An **Action Plan** for Solving Our Climate Crisis Now

10 objectives and 55 key results to get to **net zero** emissions by 2050.

- Code Red
- Off Course
- Limited Progress
- Strong Momentum
- Achieved

Solutions

1Electrify Transportation

Reduce 8 gigatons of transportation emissions to 2 gigatons by 2050.

- KR 1.1Price
EVs achieve price-performance parity with new combustion-engine vehicles in the U.S. by 2024 (\$35K), and in India and China by 2030 (\$11K).
- KR 1.2Cars
One of two new personal vehicles purchased worldwide are EVs by 2030, 95% by 2040.
- KR 1.3Buses and Trucks
All new buses are electric by 2025 and 30% of medium and heavy trucks purchased are zero-emission vehicles by 2030, 95% of trucks by 2045.
- KR 1.4Miles
50% of the miles driven (2-wheelers, 3-wheelers, cars, buses, and trucks) on the world’s roads are electric by 2040, 95% by 2050.
↓ 5 Gt
- KR 1.5Planes
20% of miles flown use low-carbon fuel by 2025; 40% of miles flown are carbon-neutral by 2040.
↓ 0.3 Gt
- KR 1.6Maritime
Shift all new construction to “zero-ready” ships by 2030.
↓ 0.6 Gt

2Decarbonize The Grid

Reduce 24 gigatons of global electricity and heating emissions to 3 gigatons by 2050.

- KR 2.1Zero Emissions
50% of electricity is from zero-emissions sources by 2025, 90% by 2035 (from 38% in 2020).*
↓ 16.5 Gt
- KR 2.2Solar and Wind
Solar and wind are cheaper to build and operate than emitting sources in 100% of countries by 2025 (up from 67% in 2020).
- KR 2.3Storage
Electricity storage is below \$50 per kWh for short duration (4–24 hours) by 2025, \$10 per kWh for long duration (14–30 days) by 2030.
- KR 2.4Coal and Gas
No new coal or gas plants after 2021; existing plants to retire or zero out emissions by 2025 for coal and by 2035 for gas.*
- KR 2.5Methane Emissions
Eliminate leaks, venting, and most flaring from coal, oil, and gas sites by 2025.
↓ 3 Gt
- KR 2.6Heating and Cooking
Cut gas and oil for heating and cooking in half by 2040.*
↓ 1.5 Gt
- KR 2.7Clean Economy
Reduce reliance on fossil fuels and increase energy efficiency to quadruple clean energy productivity rate (GDP ÷ fossil fuel consumption) by 2035.

*This is the timeline for developed countries. For developing countries, this key result is expected to take more time (5-10 years).

3Fix Food

Reduce agricultural emissions from 9 gigatons to 2 gigatons by 2050.

- KR 3.1Farm Soils
Improve soil health through practices that increase carbon content in topsoils to a minimum of 3%.
↓ 2 Gt
- KR 3.2Fertilizers
Stop the overuse of nitrogen-based fertilizers and develop greener alternatives to cut emissions in half by 2050.
↓ 0.5 Gt
- KR 3.3Consumption
Promote lower-emissions proteins, cutting annual consumption of beef and dairy 25% by 2030, 50% by 2050.
↓ 3 Gt
- KR 3.4Rice
Reduce methane and nitrous oxide from rice farming by 50% by 2050.
↓ 0.5 Gt
- KR 3.5Food Waste
Lower the food waste ratio from 33% of all food produced to 10%.
↓ 1 G

4Protect Nature

Go from 6 gigatons of emissions to -1 gigatons by 2050.

- KR 4.1Forests
Achieve net-zero deforestation by 2030; end destructive practices and logging in primary forests.
↓ 6 Gt
- KR 4.2Oceans
Eliminate deep-sea bottom trawling and protect at least 30% of oceans by 2030, 50% by 2050.
↓ 1 Gt
- KR 4.3Lands
Expand protected land from 15% today to 30% by 2030, 50% by 2050.

5Clean Up Industry

Reduce 12 gigatons of industrial emissions to 4 gigatons by 2050.

- KR 5.1Steel
Reduce total carbon intensity of steel production 50% by 2030, 90% by 2040.
↓ 3 Gt
- KR 5.2Cement
Reduce total carbon intensity of cement production 25% by 2030, 90% by 2040.
↓ 2 Gt
- KR 5.3Other Industries
Reduce emissions from other industrial sources (i.e., plastics, chemicals, paper, aluminum, glass, apparel) 80% by 2050.
↓ 2 Gt

6Remove Carbon

Remove 10 gigatons of carbon dioxide per year.

- KR 6.1Nature-Based Removal
Remove at least 1 gigaton per year by 2025, 3 gigatons by 2030, and 5 gigatons by 2040.
↓ 5 Gt
- KR 6.2Engineered Removal
Remove at least 1 gigaton per year by 2030, 3 gigatons by 2040, and 5 gigatons by 2050.
↓ 5 Gt

Accelerants

7Win Politics and Policy

- KR 7.1Commitments
Each country enacts a national commitment to reach net-zero emissions by 2050, and gets at least halfway there by 2030*.
- KR 7.1.1Power
Set an electricity sector requirement to cut emissions 50% by 2025, 80% by 2030, 90% by 2035, and 100% by 2040.
- KR 7.1.2Transportation
Decarbonize all new cars, buses, and trucks by 2035; freight ships by 2030; semi trucks by 2045; and make 40% of flights carbon neutral by 2040.
- KR 7.1.3Buildings
Enforce zero-emissions buildings standards for new residential by 2025, commercial by 2030, and prohibit sales of nonelectric equipment by 2030.
- KR 7.1.4Industry
Phase out fossil fuel use for industrial processes at least halfway by 2040, and completely by 2050.
- KR 7.1.5Carbon Labeling
Require emissions-footprint labels on all goods.
- KR 7.1.6Leaks
Control flaring, prohibit venting, and mandate prompt capping of methane leaks.
- KR 7.2Subsidies
End direct and indirect subsidies to fossil fuel companies and for harmful agricultural practices.
- KR 7.3Price on Carbon
Set national prices on greenhouse gases at a minimum of \$55 per ton, rising 5% annually.*
- KR 7.4Global Bans
Prohibit HFCs as refrigerants and ban single-use plastics for all nonmedical purposes.
- KR 7.5Government R&D
Double (at minimum) public investment into research and development; increase it fivefold in the United States.

*This is the timeline for developed countries. For developing countries, this key result is expected to take more time (5-10 years).

8Turn Movements Into Action

- KR 8.1Voters
The climate crisis is a top-two voting issue in the twenty top-emitting countries by 2025.
- KR 8.2Government
A majority of government officials—elected or appointed—will support the drive to net zero.
- KR 8.3Business
100% of Fortune Global 500 companies commit immediately to reach net zero by 2040.
- KR 8.3.1Transparency
100% of these companies publish transparency reports of their emissions by 2022.
- KR 8.3.2Operations
100% of these companies achieve net zero in their operations (electricity, vehicles, and buildings) by 2030.
- KR 8.4Education Equity
The world achieves universal primary and secondary education by 2040.
- KR 8.5Health Equity
Eliminate the gaps among racial and socio-economic groups in greenhouse gas-related mortality rates by 2040.
- KR 8.6Economic Equity
The global clean energy transition creates 65 million new jobs, equitably distributed and outpacing the loss of fossil-fuel jobs

9Innovate!

- KR 9.1Batteries
Produce 10,000 GWh of batteries yearly at less than \$80 per kWh by 2035.
- KR 9.2Electricity
Cost of zero-emission baseload power reaches \$0.02 per kWh, with peak-demand power reaching \$0.08 per kWh by 2030.
- KR 9.3Green Hydrogen
Cost of producing hydrogen from zero-emissions sources drops to \$2.0 per kg by 2030, \$1.0 per kg by 2040.
- KR 9.4Carbon Removal
Cost of engineered carbon dioxide removal falls to \$100 per ton by 2030, \$50 per ton by 2040.
- KR 9.5Carbon-Neutral Fuels
Cost of synthetic fuel drops to \$2.50 per gallon for jet fuel and \$3.50 for gasoline by 2035.

10Invest!

- KR 10.1Financial Incentives
Increase global government subsidies and support for clean energy from \$128 billion to \$600 billion.
- KR 10.2Government R&D
Increase public-sector funding of energy R&D from \$7.8 billion to \$40 billion a year in the U.S.; other countries should aim to triple current funding.
- KR 10.3Venture Capital
Expand investment of capital into private companies from \$13.6 billion to \$50 billion per year.
- KR 10.4Project Financing
Increase zero-emissions project financing from \$300 billion to \$1 trillion per year.
- KR 10.5Philanthropic Investing
Increase philanthropic dollars from \$10 billion to \$30 billion per year.