How to Cut Emissions

Scientists warn that current CO₂ emissions should be cut by at least half over the next 50 years to avert a future global warming disaster. Princeton researchers Robert Socolow and Stephen Pacala have described 15 “stabilization wedges” (far right) to realize that goal using existing technologies. Each carbon-cutting wedge would reduce emissions by a billion metric tons a year by 2057. Adopting any combination of these strategies that equals 12 wedges could lower emissions 50 percent.

In the past 50 years, rising carbon emissions.

Emissions in 2007:
- 16 billion metric tons of carbon

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Three possible paths for future carbon emissions:
- MAINTAIN current rate of increase
- HOLD emissions at today’s rate by cutting 8 wedges by 2057; then reduce further
- REDUCE emissions by half over the next 50 years by cutting 4 more wedges, then reduce further

Today: Global carbon emissions are estimated at 8 billion metric tons a year.

In 2057:
- Projected emissions of 16 billion metric tons of carbon a year

Consequences after 2057:
- Possible temperature rise and atmospheric CO₂ concentration in parts per million (ppm)

Sources: Robert V. Socolow and Stephen Pacala, Princeton University (updated report); Oak Ridge National Laboratory (global carbon emissions data); scores by Jonathan Andy (graphic by Juan Velasco). NGA Art

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