

Climate change in 2023: what the evidence says

A research brief built from the Summary for Policymakers of the IPCC Sixth Assessment Synthesis Report. Every figure below comes from that document.

1.1°C

WARMING IN 2011-2020 VS
1850-1900

3.3-3.6 bn

PEOPLE IN HIGHLY VULNERABLE
CONTEXTS

500 GtCO₂

BUDGET LEFT FROM 2020 FOR
1.5°C (50%)

42-PAGE SPM

Cause

Human activity, mainly greenhouse gas emissions, unequivocally caused the warming.

Trend

Global emissions have kept rising, with unequal contributions.

Impact

Roughly half the world faces severe water scarcity for part of the year.

Path

Deep, rapid and sustained cuts limit further change.



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TABLE SPM.1

How fast emissions must fall

Median reductions from 2019 levels in pathways that limit warming. Brackets in the source give 5-95 percentile ranges.

Primary Responsive Acceleration

PATHWAY	2030	2035	2050
1.5°C, GHG	-43%	-60%	-84%
1.5°C, CO2	-48%	-65%	-99%
2°C, GHG	-21%	-35%	-64%
2°C, CO2	-22%	-37%	-73%

The 1.5°C path needs roughly twice the 2030 cut of the 2°C path.

Required GHG cuts over time

Median GHG reduction from 2019, 1.5°C (> 50%)

Table SPM.1



Most of the cut has to happen this decade. By 2030 the median pathway removes 43% of 2019 emissions.

Front-loaded

Half of the 2050 effort lands by 2030.

Budget pressure

At 2019 rates, 2020-2030 emissions would almost exhaust the 1.5°C budget.

Current policy

Policies in place by end of 2020 point to about 3.2°C of warming.



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Implemented policies lead to 3.2°C, range 2.2°C to 3.5°C (medium confidence).



MITIGATION OPTIONS

Where cheap cuts come from

The SPM says large contributions to emission reductions costing under USD 20 per tonne of CO₂-eq come from a short list of options in energy.

Solar

Among the largest low-cost contributors.

Wind

Paired with solar in the under USD 20 group.

Efficiency

Energy efficiency improvements across the system.

Methane

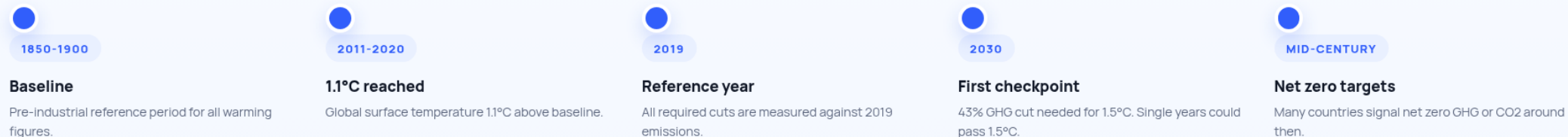
Cuts from coal mining, oil and gas, and waste



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Milestones named in the report

Dates and periods the SPM uses to frame the problem and the response.



Four findings to cite



Source

IPCC, 2023: AR6 Synthesis Report, Summary for Policymakers.