What are the RCPs?

RCP stands for 'Representative Concentration Pathway'. To understand how our climate may change in future, we need to predict how we will behave.

For example, will we continue to burn fossil fuels at an ever-increasing rate, or will we shift towards renewable energy?

Current emissions are tracking close to the RCP8.5 pathway

The RCPs try to capture these future trends. They make predictions of how concentrations of greenhouse gases in the atmosphere will change in future as a result of human activities.

The four RCPs range from very high (RCP8.5) through to very low (RCP2.6) future concentrations. The numerical values of the RCPs (2.6, 4.5, 6.0 and 8.5) refer to the concentrations in 2100.

2 °C
increase in temperature
is recognised as the threshold at which climate change becomes **dangerous**.

Effort to curb emissions	Energy generation	New technology	Transport		Temperature 2081–2100 (average increase relative to 1986-2005)	Sea level 2081–2100 (average rise relative to 1986-2005)	Extreme weather 2081–2100	Adaptation required
Low	Coal-fired power		Cars, trucks	RCP 8.5	3.7 °C	0.63 m	**Large** increase	High level at high cost
Medium	Mix		Mix	RCP 6.0	2.2 °C	0.48 m	**Moderate** increase	Medium level at medium cost
Medium	Renewable		Mix	RCP 4.5	1.8 °C	0.47 m	**Moderate** increase	Medium level at medium cost
High	Renewable	Emissions capture	Bicycles, public transport	RCP 2.6	1.0 °C	0.4 m	**Small** increase	Low level at low cost

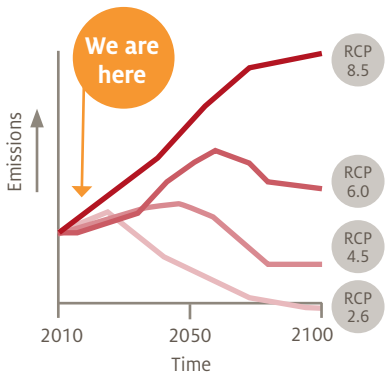
Where do the RCPs come from?

The RCPs were used in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) in 2014 as a basis for the report's findings.

Previous IPCC assessment reports used a set of scenarios known as SRES (Special Report on Emissions Scenarios), which start with socioeconomic circumstances from which emissions trajectories and climate impacts are projected. In contrast, RCPs fix the emissions trajectory and resultant radiative forcing rather than the socioeconomic circumstances.

We can use the RCPs to plan for the future

Scientists use the RCPs to model climate change and build scenarios about the impacts. You can use these scenarios to plan for the future.



If we follow the RCP 8.5 pathway, **more adaptation** will be needed.

If we follow the RCP 2.6 pathway, **less adaptation** is needed.

RCP 8.5 leads to much greater temperature increases, and this means greater impacts and greater costs. To adapt to these changes will also cost more. A balance must be struck between the cost of impacts and the cost of adaptation.

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