

# CAST BRIEFING 47 - April 2026



## How to design climate policies that accelerate emission reductions

### Key messages:

- A new study drawing on the most comprehensive climate policy dataset ever assembled reveals the features of climate policy portfolios that deliver the greatest and fastest reductions in carbon emissions.
- Features of the most effective policy portfolios include: strict policies; consistent implementation; strategic targeting of the most polluting sectors; conscious use of the most effective policy instruments; alignment with national climate targets; focused leadership from dedicated climate/energy policy teams; and international cooperation beyond the United Nations (UN) process.
- Climate policies are essential to achieving emission reductions. By comparing the world today with a scenario in which no climate policies existed, the study finds that more than three billion tonnes of CO<sub>2</sub> – roughly equal to the EU's annual emissions – were avoided in 2022 alone due to climate policies.
- Current policies are not reducing emissions fast enough to meet global climate targets. Policymakers must consider not just the number of climate policies adopted, but also how they are designed and embedded in national systems of governance.



Centre for **Climate Change**  
and **Social Transformations**

CAST is a global hub for understanding the crucial role that people play in fighting climate change. The CAST team is based across five UK institutions, including the University of Bath (our centre hub), the University of Manchester, the University of East Anglia and Cardiff University, as well as the charity Climate Outreach.

# Background and context

This briefing is intended as a resource for national climate policymakers, international climate negotiators, and those analysing and evaluating national climate policies.

As the world races through what scientists call the “critical decade” for climate action (2020-30), governments are not short of climate policies. There are now thousands of climate-related laws and policies operating across almost two hundred countries.

However, current climate policies are not delivering emission reductions at the scale needed to keep global warming within the scientifically ‘stable limit’ of 1.5-2°C.

So, the big question is: how do policymakers design more efficient, more strategic policies that deliver meaningful emission reductions? A new large-scale analysis involving CAST researchers provides one of the clearest answers yet.

## Recommendations

Effective climate action is not just about setting ambitious targets or adopting ever more climate policies. It is about combining smart policy design with institutional capacity. Policy actors looking to create climate policies that quickly reduce emissions should consider the importance of the following:

### **1) Strict policies**

The analysis showed that countries with stricter climate policies cut carbon emissions faster in the period 2000-22. ‘Strictness’ is about the level of influence a policy has – the extent to which it incentivises or enables emission reductions. For example, increasing the level of a carbon tax would make that policy ‘stricter’.

### **2) Consistency**

Policy portfolios have significant, cumulative long-term effects. As the effect on emissions can take time to accumulate, policy stability is important to maintain – i.e. governments should be consistent in their implementation and communication of climate policies.

### **3) Targeting polluting sectors**

Countries that concentrate their policies on key, high-emitting sectors – such as power generation, industry or transport – see faster, more significant emission reductions. There is an important lesson here for countries that spread their policy efforts thinly across their economy.

### **4) Instrument specificity**

Policy portfolios that specialise in certain instrument types (e.g. regulations or carbon taxes), rather than mixing many different approaches, perform better. For countries that are still building their national policy portfolios, economic instruments like carbon pricing and financial incentives stand out as particularly powerful.

### **5) National climate targets**

The most effective national climate portfolios are embedded in broader systems of governance. Climate policies are more effective when anchored by and directed at long-term, legally-binding emission reduction targets, especially absolute targets tied to fixed reference years. Such targets provide greater clarity and credibility than relative targets, shaping expectations amongst business investors and policymakers alike.

### **6) Dedicated climate and energy teams**

Policymakers should actively consider which structures of government best support climate policies. Countries that have established dedicated energy and/or climate ministries appear to implement policies more effectively and achieve greater emission reductions. Few countries amongst our sample of 43 have established independent (i.e. non-governmental) advisory bodies, but experiences in countries (such as the UK) that have, affirm their importance in driving emission reductions.

### **7) International cooperation**

Working with other nations beyond the UN climate convention process is also beneficial. Membership of bodies such as the International Energy Agency and the Clean Energy Ministerial boosts policy effectiveness by facilitating learning and knowledge sharing.

## Methods

The study draws on the most comprehensive climate policy dataset ever assembled. Researchers analysed over 3,900 policies adopted since the year 2000 across 43 leading economies, together responsible for well over three-quarters of global emissions. The policies were analysed by sector (energy, industry, transport, buildings and agriculture/waste) and by type of policy instrument (regulatory, market-based and voluntary).

Researchers used robust econometric methods (panel regression models with country and year fixed effects) to assess how different national “policy portfolios” (combinations of policy instruments and policy targets) influence changes in fossil fuel emission intensity – i.e. emissions (CO<sub>2</sub>) per unit of economic output (GDP).

Data sources include the IEA Greenhouse Gas Emissions from Energy database and the IEA Policies and Measures Database. **Full details on the study methodology can be found in the published [academic paper](#) “Climate policy portfolios that accelerate emission reductions”.**

## Findings

This research supports the well-documented finding that countries with larger collections of climate policies reduce emissions faster. But it also shows us a new side of the story – that policy quantity isn't the only thing that matters.

Countries also reduce emissions faster when their climate policy portfolios:

- Are more stringent and accumulate strategically over time – i.e. when early, softer measures pave the way for increasingly strict ones.
- Target the most polluting sectors and specialise in certain instrument types (particularly economic ones).
- Are anchored by long-term emission reduction targets and supported by dedicated energy or climate ministries, as well as international cooperation.

In summary, this study indicates what works best in climate policy making. Effective climate action is not just about ambition, but about smart policy design, institutional capacity, and maintaining strategic focus.

The challenge now is scaling effective climate policy fast enough within and beyond the major emitting countries.

## Further reading

- Arvanitopoulos, T., Bulian, S., Wilson, C., Jordan, A., Tosun, J., and N. Vasilakos (2026) Climate Policy Portfolios that accelerate emission reductions. Nature Communications, 17, Article number:1989, 23 January 2026.
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We are a cross-institutional research centre with world-leading expertise in environmental psychology, behaviour change, public engagement, policy, governance, education, communications and more.

Underpinning CAST's research is a question of immense significance: how can we transform society in order to live better and address climate change?



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