**Literature review**

**A Global Survey of Scientific Consensus and Controversy on Instruments of Climate Policy**

Stefan Drews, Ivan Savin, Jeroen van den Bergh

***Debate about effectiveness of climate policy***

* We survey researchers from diverse fields to examine views on climate policies
* There is continuing debate about which climate-policy instruments are most appropriate to reduce emissions
* global survey among scientists who published on climate policy, we provide a systematic overview of (dis)agreements about six main types of policy instruments
* on average, **all instruments are considered important**, with direct regulation receiving the highest rating and adoption subsidies and cap-and-trade the lowest
  + We explain disagreement through assessing… researchers' attitudes and background
* **it is contested which of these are best capable of reaching emission reduction targets**
* there is little systematic evidence on what scientists from a wide range of disciplines think about carbon pricing within a broader mix of climate mitigation policies

**Systematic review of the outcomes and trade-offs of ten types of decarbonization policy instruments**

C Peñasco, LD Anadón, E Verdolini

* **The literature evaluating the technical and socioeconomic outcomes of policy instruments used to support the transition to low-carbon economies is neither easily accessible nor comparable and often provides conflicting results**

**Designing an effective climate-policy mix: accounting for instrument synergy**

J van den Bergh, J Castro, S Drews, F Exadaktylos, J Foramitti, F Klein, T Konc, I Savin

* how interactions between instruments of climate policy affect overall emissions reduction

**A comprehensive socio-economic assessment of EU climate policy pathways**

Matthias Weitzel a, Toon Vandyck a, Luis Rey Los Santos a, Marie Tamba a, Umed Temursho b c, Krzysztof Wojtowicz

* In 2019, the European Commission announced the “European Green Deal”, with a core target of reaching climate neutrality by 2050 (European Commission, 2019). To make the near-term emission pathway compatible with this new long-term goal, the European Commission in 2020 proposed to strengthen the existing emission reduction target for 2030, and laid out various policy design options that would enable reaching the more stringent target. In late 2020, the European Council backed the proposal of the European Commission to reduce emissions in 2030 by 55% relative to 1990, also becoming Europe's updated Nationally Determined Contribution (NDC) under the Paris Agreement.
* For initiatives with significant economic, social or environmental consequences, the European Commission carries out impact assessments. For instance, an in-depth analysis on the European Union's (EU) long-term strategy “A clean planet for all” was carried out to support the EU's net zero target for 2050 (European Commission, 2018), as further documented by Weitzel et al. (2019a). To ensure a smooth transition towards this new long term target, the European Commission consequently revisited the interim target for 2030, as the original 2030 target of a 40% reduction of greenhouse gas emissions below 1990 levels had been set in 2014, aiming for a long-term target of reducing emissions by 80–95% in 2050.1 Further, current policy pathways indicated an overachievement of this 2030 target, particularly due to decarbonisation dynamics in the power sector and lower coal use, as well as the assumed achievement of the energy efficiency target (European Commission, 2020a). The combination of strong policies in place and a stricter long-term target called for a “ratcheting up” of the EU NDC, in line with the architecture set up in the Paris Agreement to revisit the NDC targets periodically. The proposed adjustment was announced as the “2030 Climate Target Plan” and was supported by a research-based impact assessment, including an analysis of socio-economic consequences arising from an increased EU climate ambition (European Commission, 2020a).

**EUROPEAN CLIMATE POLICY**

**Key policies**

* **European Green Deal** - Their goal is to make the EU climate neutral by 2050
  + Dec 2019 – European Council agreed
  + Also legislation on adaptation, biodiversity, agriculture, circular economy, waste, etc.
* Dec 2020 – 55% by 2030 agreed
* July 2021, the **European climate law** – a key element of the European Green Deal – entered into force, one month after the Council had adopted it. EU countries are now legally obliged to reach both the 2030 and 2050 climate goals
  + Under the European climate law, EU countries must cut greenhouse gas emissions by at least 55% by 2030
  + By adopting it, the EU and its member states committed to cutting net greenhouse gas emissions in the EU by **at least 55% by 2030**, compared to 1990 levels. This target is legally binding and based on an impact assessment carried out by the Commission.
* Fit for 55 – set of proposals to revise and update EU legislation
  + i.e. put the green deal into law (climate-, energy- and transport-related legislation)
* October 2023, the EU submitted an **updated NDC**. The target of reducing emissions by at least 55% below 1990 levels by 2030 (incl. LULUCF and international aviation) is the same as the previous EU NDC from December 2020.
* EU emissions trading system
  + **carbon market** based on a system of cap-and-trade of emission allowances for energy-intensive industries and the power generation sector. It is the EU's **main tool in addressing emissions reductions**.
  + Since its introduction in 2005, the EU's emissions have decreased by 41%
  + Aim to make this more ambitious under the Fit for 55 package
  + The Environment Council adopted a general approach on the revision of the EU ETS in June 2022. In December 2022, the Council reached a provisional deal with the European Parliament. This includes an increase in the overall ambition of emissions reductions by 2030 in the sectors covered by the EU ETS to 62%, compared to the 61% target proposed by the Commission.
* National binding targets for emissions reductions in sectors not included in the EU-ETS

**Effectiveness**

Climate Action Tracker (https://climateactiontracker.org/countries/eu/)

* The **EU is not yet on track to meet its 2030 target** to reduce emissions by at least 55% below 1990 (including LULUCF).
* Having the legislative framework in place to meet its 2030 NDC target is an important step, but rapid implementation of policies and measures at member state level is crucial for it to become a reality.
* We would recommend at least a 62% reduction (excluding LULUCF) by 2030 domestically with significant international finance or a far deeper cut of 93% to make a fair contribution to the 1.5°C limit.
* This latest evidence shows that the EU needs to cut emissions faster to align with 1.5°C. The change in our methodology for quantifying the lower range of the EU’s current policies and action also contributed to the change in rating.

**The European Union’s international climate leadership: towards a grand climate strategy?**

Sebastian OberthürORCID Icon &Claire Dupont

* Ever since climate change rose in international politics in the early 1990s, the EU and its member states (hereafter: the EU) have pursued international leadership

**The Covid-19 crisis: a critical juncture for EU climate policy development?**

Claire Dupont,Sebastian Oberthür &Ingmar von Homeyer

* Both its climate mitigation targets and the related legislative acquis have been at the forefront internationally and have served to underpin EU international climate leadership
* EU domestic climate policy has, however, remained insufficient for achieving the Paris Agreement’s temperature target of limiting the increase of global temperature to 1.5 or even 2 degrees Celsius

**Taking stock of national climate policies to evaluate implementation of the Paris Agreement**

Mark Roelfsema, Heleen L. van Soest, Mathijs Harmsen, Detlef P. van Vuuren, Christoph Bertram, Michel den Elzen, Niklas Höhne, Gabriela Iacobuta, Volker Krey, Elmar Kriegler, Gunnar Luderer, Keywan Riahi, Falko Ueckerdt, Jacques Després, Laurent Drouet, Johannes Emmerling, Stefan Frank, Oliver Fricko, Matthew Gidden, Florian Humpenöder, Daniel Huppmann, Shinichiro Fujimori, Kostas Fragkiadakis, Keii Gi, …Saritha Sudharmma Vishwanathan

* all countries would need to accelerate the implementation of policies for renewable technologies, while efficiency improvements are especially important in emerging countries and fossil-fuel-dependent countries
* Significant ambition gap for reducing emissions, renewable energy mix gap and energy efficiency gap

**Towards a European Green Deal: The evolution of EU climate and energy policy mixes**

Jon Birger Skjærseth

* **decarbonization cannot be achieved with single instruments** like carbon pricing alone
* Applying the policy mix literature to the European Union (EU), this article examines the development of climate and energy policies from separate and narrow initiatives to coordinated policy packages to achieve increasingly ambitious climate targets, culminating with the European Green Deal
* **EU policies will reflect the positions of the ‘least ambitious’ actors when unanimity is required**

**EU environmental policy in times of crisis**

Charlotte Burns,Peter Eckersley &Paul Tobin

* The EU has sought to cast itself as a global environmental leader but that leadership has in large part rested upon its ability to set ambitious policy goals at home. The **future environmental policy trajectory and leadership of the EU may be under threat as the Union struggles to emerge from the economic crisis**.
* The article finds evidence of **waning ambition over the period under analysis** but a range of explanatory variables emerges from the interviews, which suggests that the diminution in EU environmental policy ambition is driven by a mix of factors and maybe likely to persist over the longer term.
* 2004 to July 2014