

Governance, law and economics of climate change and energy transition

*Research Symposium by Cambridge Zero and the
Cambridge Centre for Environment, Energy and
Natural Resource Governance*

In this symposium researchers will talk about the governance, policy, and economics of climate change and energy transitions with a specific (but not exclusive) focus on recent developments in these areas in light of the upcoming COP28 Climate Summit. We investigate how global influences and voices shape these developments as the world deals with the challenges of climate change.

Date and time: 21st November 2023, 13:00-18:00

Venue: David Attenborough Building, Main Seminar Room

Keynote presentations will be 15mins followed by 5mins of Q&A. Early Career Researchers will have a joint Q&A at the end of each session.

13:00 **LUNCH**

SESSION 1

Chair: Dr Nik Petek-Sargeant

13:30 **Keynote: Fostering just energy transitions**

Prof Laura Diaz Anadon, Professor of Climate Change Policy, Director of the Centre for Environment, Energy and Natural Resource Governance (CEENRG), Department of Land Economy

Innovation in clean-energy technologies is central to achieving a net-zero energy system. While the pace of innovation in some key energy technologies has exceeded expectations, faster progress in these and a wider range of technologies is necessary to meet climate goals. It has long been argued that, among other actions, governments should increase support for clean energy research and development and support early markets. There is, however, a

more limited understanding of how to design these policies and institutions or what else may be needed. There is also growing recognition of that fostering a just transition is essential and not a given and an interest in the role of green industrial policy in many parts of the world. In this talk Prof Anadon shares key insights regarding what we have learnt over the past decade regarding how to foster a just energy transition, covering experiences from industrialized countries and emerging economies, as well as analysis of policies and institutions from R&D to deployment and finance.

13:50 **Keynote: Consensus decision-making: The “Achilles Heel” of the UN climate change regime?**

Dr Joanna Depledge, CEENRG Fellow, Department of Land Economy

Decisions in the UN climate change negotiations are almost always taken by consensus. This is because draft majority voting rules that are standard elsewhere in the intergovernmental arena remain disputed and have never been adopted. There is also no formal definition of “consensus”, although it is generally taken to mean that there are no stated objections to a decision, and also to be distinct from unanimity. This rather vague understanding is open to challenge, and has indeed triggered occasional moments of great drama in the negotiations. Indisputably, however, consensus is a much more onerous bar to decision-making than a three-quarters or two-thirds majority vote would be. Because of this and other more complex reasons, the prevailing consensus decision-making practice has profoundly shaped the course of intergovernmental efforts to tackle climate change over the decades. Many argue that it has led to a weaker response than if a majority vote were in place. Every now and again, proposals emerge to try to break the deadlock, and finally introduce majority voting in the climate negotiations. As part of my wider research on the history of the climate negotiations, I explore in some depth the impacts of the consensus decision-making practice on the regime over time, and the difference that majority voting might make.

14:10 **The effects of psychological characteristics and socioeconomic status on carbon footprint**

Malte Dewies, Research Associate, El-Erian Institute of Behavioural Economics and Policy

Little is known about how psychological characteristics (attitudes, norms, etc.) and socioeconomic status (income, profession, etc.) interact with each other to jointly influence people's carbon footprint. Using a representative sample (N = 6,000) from six Western countries, we investigate and model the underlying structural relations. The resulting model can be used to explore the long-term effects of potential policy interventions (behavioural interventions, carbon taxes, income redistribution, etc.) to reduce carbon emissions.

14:20 Using Complexity and Distance to identify economic diversification opportunities

Thomas David, Postdoctoral Researcher, Department of Land Economy

Employment and business diversification can help improve a region’s economic prospects, but is dependent on the population’s skills-base and available opportunities. It is also increasingly important for industrial diversification to consider long-term environmental impacts. Economic Complexity theory, and associated indices such as ‘Distance’, can identify opportunities that are closely related to a region’s current specialisms or echo diversification attempts by regions with similar industrial activities. Using these indices in conjunction with data on greenhouse gas emissions and water footprint, can highlight diversification opportunities that are theoretically easier to transition into and are more environmentally responsible and sustainable.

14:30 What scale of negative emissions can we rely on?

Jennifer Hawkin, PhD Researcher, Department of Engineering

Climate change mitigation strategies increasingly rely on negative emissions technologies (NETs) without considering the physical and political feasibility of their deployment. The resulting scale of expected deployment has been described by Minx et al. (2018) as “staggeringly hubristic”. Although there are estimates of global storage potential, plausible deployment rates have not been quantified. Without these, it is impossible to make an accurate judgement of future NETs availability, leading to high-risk mitigation plans. The work presented here is a summary of future enablers, barriers and challenges for NETs deployment, used to produce a bottom-up estimate of plausible negative emissions in 2050.

14.40 Evaluating the alignment of National and Energy Security Policies and Energy Transition Goals in an Era of Geopolitical Conflict: A fuzzy-set qualitative comparative analysis of the policies of the United States, Japan and Germany

Louise Bennetts, Master of Studies CISL/Centre for Interdisciplinary Energy Studies

Energy transition goals face a precarious path to implementation if not aligned with national and energy security policies. This paper measures how aligned the current energy transition goals are with the national and energy security policies in three large economies - United States, Japan and Germany, using fsQCA methodology. The findings suggest the United States and Germany evidence a low degree of alignment, with Japan demonstrating more alignment. None of the reference countries have resolved the conflicts that arise with respect to the concentration and scarcity of critical minerals or the dependence of renewable supply chains on China.

14:50 Q&A

15:05 **BREAK**

SESSION 2

Chair: Dr Sergey Kolesnikov

15:25 Keynote: Voluntary carbon credits: can they be reformed or are they doomed to become a ‘lemons market’?

Prof Andreas Kontoleon, Professor of Environmental Economics and Public Policy, Department of Land Economy

Voluntary carbon credit markets are playing a rapidly expanding role in meeting net zero climate change objectives. Conservative projections are calling for a 100-fold increase in its market value by 2050. A significant segment of this market concerns carbon credits generated by preserving standing forests, often in the tropics. Despite this surge of interest there are mounting concerns over the quality of carbon offsets, particularly from forest conservation projects. The type of asymmetric information over credit quality has affinities with the classic 'markets for lemons' problem studied in micro-economics. In this talk we will consider if these asymmetries of information can be overcome or whether there are inherent perverse incentives in the market for voluntary credits that condemns them to end up as 'lemons'.

15:45 Keynote: Anti-Fossil Fuel Litigation

Prof Harro van Asselt, Hatton Professor of Climate Law, Department of Land Economy

Climate litigation is on the rise across the world, with courts starting to play a role in shaping global climate governance. One subset of climate litigation is anti-fossil fuel litigation, which is defined here as litigation aimed at restricting fossil fuel production with a view to achieving climate goals. Anti-fossil fuel litigation can contribute to closing the fossil fuel production gap, and ensure that a fair and effective transition away from fossil fuel production is achieved in line with the Paris Agreement's temperature goal. This presentation will discuss key legal questions emerging in the context of anti-fossil fuel litigation, including on the attribution of emissions and climate impacts to fossil fuel producers, and on the human rights dimensions of fossil fuel production in the age of climate emergency.

16:05 Implementation Communities: International Lawyers and the Rio Treaties

Tejas Rao, PhD Researcher, CEENRG, Department of Land Economy

In a New World Order, Anne-Marie Slaughter argued the need to pull back the veil on international negotiations and re-examine our assumption of States as unitary actors in the international law-making process. In years past, the academic community has advanced this thesis, studying the role of networks and network actors in shaping multilevel governance both theoretically and empirically. For existential risks such as climate change, Conferences of the Parties (CoPs) have occupied a significant touchpoint for State actors to take

stock of and update the agenda for the years to come. Alongside these formalized structures, the international environmental order has seen the emergence and embedding of informal networks in these CoP processes, working around the year and the intervening gap between CoPs to advance responses to the challenge & exert influence on where the agenda goes next. The role of international lawyers, participating from both within and/or outside of the academy, has become increasingly evident. Despite this, owing to conflicting value-sets and belief systems, they are frequently excluded from studies about networks and communities of practice and epistemic communities. This paper will query that thesis.

Part I of this paper will examine traditional understandings of the CoP process. Part II will examine international lawyers' role in the post-treaty rule-formation process at CoPs. Part III will then suggest a recasting of the theoretical construction of CoPs to include this role played by key actors. Part IV will rely on observations and work from the UNFCCC CoP26 and the UNFCCC CoP27 to suggest tentative conclusions and open questions for UNFCCC CoP28.

16:15 **Harnessing the "duty of care" in climate litigation**

Jessica Crow, PhD Researcher, CEENRG, Department of Land Economy

This presentation will discuss how the duty of care concept and international law are interacting in climate litigation to strengthen the obligation to mitigate GHGs. In climate litigation, plaintiffs who typically lack standing in international law are successfully invoking climate treaty obligations, global soft law standards and the reports of the IPCC against both governments and corporates. To secure standing, these cases are being brought on a range of domestic theories, including human and constitutional rights and the tort of negligence. What unites them is that they are based on a duty of care – an open-textured legal concept which requires due diligence in the face of a foreseeable risk of harm.

16:25 **Analysing the emergence of ecocide law as a tool for corporate environmental accountability**

Léa Weimann, PhD Researcher, Faculty of Law

This presentation addresses the widening gap between the growing influence of transnational corporations (TNCs) and the lack of existing international legal structures to regulate them with regards to their role in the ecological and climate crisis. The prominence and influential power of TNCs necessitates enhanced accountability measures to address climate change. However, current legal mechanisms, primarily soft law instruments such as the UN Guiding Principles on Business and Human Rights, are insufficient. This research examines ecocide law as an innovative international legal framework and explores its potential to enhance corporate environmental accountability at international and national levels.

16:35 Q&A

16:50 LIGHTNING ROUND – 2 MINUTE TALKS

The Legal Body in Ecology – Environmental Personhood as a Legislative Messiah

Tan Jin Yong, MPhil in Social Anthropology, Department of Social Anthropology

Environmental personhood is a recent, but intriguing direction in conservatory efforts. By reclassifying pieces of land as legal entities, the land is thereby given rights and privileges afforded to all entities within a given state. Correspondingly, various theorists and media have lauded Environmental Personhood as something of a messiah to conservative efforts; repatriation and salvation in one fell swoop.

In my presentation, I will conduct a literature review of these epistemologies, and critically assess the efficacy of Environmental Personhood on a functional and substantive level.

Whose energy transition? CBDR-RC and just transitions for Latin America and the Caribbean

Lucía Salazar-Gómez, MPhil in Environmental Policy, Department of Land Economy

The energy transition is the cornerstone to tackle climate change. In principle it is everyone's responsibility, however, it must be problematized as an approach situated among geopolitical conditions of inequality and historical responsibility. Based on the principle of common but differentiated responsibilities and respective capabilities, this paper critically analyses the discourses and interpretations of the energy transition made by countries that are currently implementing it in Latin America and the Caribbean. To evaluate and provide insights towards a just energy transition.

Identifying Hard-to-Decarbonize houses from multisource data in Cambridge, UK

Maoran Sun, PhD Researcher, Department of Architecture

As the urban population continues to expand and is expected to comprise 80% of the total population in 2050, it is crucial to ensure the sustainability and energy efficiency of cities. Among all the homes globally, Hard-to-Decarbonize (HtD) buildings are estimated to be a quarter of them. Identifying the HtD houses and proposing strategies for these houses is important to reach the global net zero target. However, the study of HtD houses has historically been neglected. Previous studies mainly focus on simulating, predicting and understanding attributes that are directly related to energy usage and

efficiency. In this research, a methodology for identifying HtD buildings with publicly available data is proposed and tested in Cambridge, UK.

How Targeted Revenue Recycling Initiatives Can Contribute to a 'Just Transition'

Tijn Croon, Visiting PhD Researcher, Department of Architecture

This study compares and evaluates the design and potential impact of the EU's Social Climate Fund with that of the California Climate Investments fund. Both funds aim to address climate goals and social equity by allocating a significant portion of generated revenues from cap-and-trade programmes to environmentally and socially responsible initiatives. The analysis focuses on coverage, allocation mechanisms, transparency, and their impact on disadvantaged communities and low-income areas. Extracting insights from this comparative study is crucial for informing and enhancing future policy strategies across the EU.

Impacts of the Inflation Reduction Act on long-duration energy storage deployment and substitution for other resources

Aneesha Manocha, MPhil in Public Policy, Department of Politics and International Studies

With the passage of the Inflation Reduction Act and available tax credits for renewable energy and storage resources in the United States, we assess the value that short- and long-duration batteries can provide to the grid with varying strategies for siting and sizing these resources in 2030 using GenX (a least-cost optimization, power system capacity expansion tool). We find that there are early market opportunities for short- and long-duration batteries with up to 16 hours of discharge capacity (such as lithium-ion, iron-flow, zinc-air, and sodium-ion) in the Western Interconnection in 2030 and analyze their siting mechanisms.

17:05 Q&A

17:15 RECEPTION

18:00 END