university of groningen / faculty of law

11th European Environmental Law Forum Conference

Sustainable Energy: Still United in Diversity? Integrating Energy, Climate and Environmental Law in Times of Geopolitical Instability

28 - 30 August 2024

Academy Building
Broerstraat 5
9712 CP Groningen

Contents

1 Conference themes

Building upon the developments of the European Environmental Law Forum (EELF) in the past 10 years, the Groningen Centre of Energy Law and Sustainability (GCELS) organizes the 11th EELF Conference. This offers an opportunity to reflect upon the progress (or lack thereof) made in the development of Sustainable Energy in Europe, which was the focus of the 1st EELF conference in Groningen back in 2013.

Rebecca Harms stated in the foreword of the first EELF book, "Given the recent Russia-Ukraine crisis and the subsequent focus on European supply security and energy dependence - as well as the ever-growing urgency of halting climate change, this book's publication comes at a very timely moment. If we want to cap average global warming at 2° C and reduce our substantial dependency on fossil fuels, the significance of progressing towards a sustainable European energy policy becomes more obvious." [Rebecca Harms, Sustainable Energy United in Diversity, 2014]. Regrettably, not only has the Russia-Ukraine war worsened, but the negative effects of climate change are also intensifying and becoming increasingly evident. On the legal side of things, the Paris Agreement aims not merely to cap the increase in global average temperature at 2° C, but to keep it well below that limit.

To (also) implement Paris, the European Green Deal provides a basis for the development of a more sustainable way of life in Europe, but to what extent and at what costs?

Accordingly, the 11th EELF Conference will focus on the role that law, both independently and in collaboration with other disciplines, can play in stimulating the move towards sustainable energy. Particular attention will be given to the following themes:

A. Defining sustainability, thus the general aims and principles of sustainable energy;

B. Enabling sustainable energy transition especially towards renewable energy and energy saving and energy efficiency. This entails legal approaches and instruments to: planning and permitting of energy infrastructures and installations; managing environmental conflicts e.g. with regard to nature and water protection; managing social conflicts; energy market regulation, subsidies and financial incentives, coping with technological developments and interlinkages with other transitions (e.g.

circular economy and urban development);

C. Incentivising sustainable energy transition, thus balancing state control and open markets in the development and management of sustainable energy sources and related infrastructures.

Each theme should be seen in a multi-level governance perspective. We can indeed observe a great variety of activities at international, EU and Member State levels and on all three themes. However, approaches differ considerably from state to state and are not always smoothly coordinated. The regulatory arrangements are continuously under construction, and much is still in an experimental or incremental stage.

Against this backdrop, the need for professional debate becomes clear, especially for comparative discussions about different national and regional approaches and experiences, as well as the overarching (European) framework. Contributions from environmental and energy lawyers, environmental scientists as well as scholars with a background in law and economics are more than welcome.

2 Conference schedule

WEDNESDAY, 28 August 2024

Time	Event	Location
10:00 - 10:30	Welcome & Introduction: Wilbert Kolkman, Lorenzo Squintani	Academiegebouw, Geertsemazaal
10:30 - 11:15	Plenary Keynote I: Heleen de Coninck, Eindhoven University of Technology, and Radboud University Nijmegen	Academiegebouw, Geertsemazaal
11:15 - 11:30	Break	
11:30 - 12:15	Plenary Keynote II: Damjan Kukovec, General Court of the Court of Justice of the European Union	Academiegebouw, Geertsemazaal
12:30 - 14:00	Group Photo and Lunch	Academiegebouw, Canteen
14:00 - 15:45	Parallel Sessions I	See Table Below
15:45 - 16:00	Coffee Break	
16:00 - 17:45	Parallel Sessions II	See Table Below
19:00	Conference Dinner	Academiegebouw, Canteen

THURSDAY, 29 August 2024

Time	Event	Location
10:30 - 12:15	Parallel Sessions III	See Table Below
12:30 - 14:00	Lunch	Academiegebouw, Canteen
14:00 - 15:45	Parallel Sessions IV	See Table Below
15:45 - 16:00	Break	
16:00 - 17:45	Parallel Sessions V	See Table Below
18:00	Drinks Reception	Academiegebouw, Canteen

FRIDAY, 30 August 2024

Time	Event	Location
10:00 - 11:45	Parallel Sessions VI	See Table Below
11:45 - 12:00	Break	
12:00 - 13:00	Closing Plenary Panel / Announcement 12th EELF Conference	Academiegebouw, Aula
13:00 - 18:00	Excursion	Eemshaven, Seaport

Parallel Sessions I

Wednesday, 28 August 2024: 14:00 – 15:45

Room	Session	Chair	Presentations
A2	A1: Energy Justice and a Rights-Based Approach to Energy	José Grabiel Luis Cordova	1. Biodiversity, Climate, and Human Rights (Felix Ekardt) 2. Hiding in vagueness? The concept of "just transition" at the intersection of environmental and energy law (Outi Penttilä) 3. Examining Accountability for Energy Activities in the EU: An energy justice perspective (Chioma Vivian Basil) 4. Energy and sustainability. Integrating a rights perspective in EU Energy Law & Policy (José Grabiel Luis Cordova)
A3	B1: Biodiversity and Renewable Energy Development	Lea Diestelmeier	1. Balancing Sustainable Energy Needs with Biodiversity, Nature, and Landscape Protec-tion in the Czech Republic: A Legal Perspec-tive (Milan Damohorský) 2. Effective spatial planning as a tool for accelerating renewables' roll-out without sacrific-ing participatory governance and biodiversi-ty conservation (Ilze Tralmaka, Ioannis Agapakis and Maja Pravuljac) 3. Reconciling Natura 2000 and the Energy Transition: Lessons from the Dutch Nitro-gen-Crisis (Lolke Braaksma) 4. Bioenergy and Biodiversity (Carola Glinski)
A7	B2: Energy Communities and Energy Sharing	Björn Hoops	1. The Over-Regulation of the Energy Commons (Björn Hoops) 2. Energy sharing and energy communities in the EU (Flaminia Stârc-Meclejan) 3. Renewable Energy Communities in Practice: Role Model Austria (Florian Stangl) 4. An effective safeguard of environmental participatory rights? The non-compliance mechanism of the Aarhus Convention in the context of sustainable energy transition (Kristina Dierkes)

A12	C1: International and Comparative Perspectives on Climate Law and Policy	Kars de Graaf	1. Governance Innovation or Imagination? Navigating the EU's Leading Role towards a Climate Club of Green Hydrogen in a Polarized World (Meng Zhang) 2. Exploring the Multi-Facets of the EU Carbon Border Adjustment Mechanism (CBAM) (Hitoshi Ushijima) 3. Environmental counterclaims in support of global environmental protection (Stanislava Nedeva) 4. Litigating the climate transition in the EU: mapping climate-relevant litigation before the Court of Justice of the European Union (Nina Koistinen) 5. Sustainable energy transition: is China on the right track? (Yuhong Zhao)

Parallel Sessions II

Wednesday, 28 August 2024: 16:00 – 17:45

Room	Session	Chair	Presentations
A2	A2: Public Participation and Governance in Energy Transitions	Lorenzo Squintani	1. Between social benefits, energy democracy and franchising: energy communities as a new business model? (Endrius Cocciolo and Jordi Jaria-Manzano) 2. Developing the Efficiency Energy First Principle: The Local Dimension of the Energy Transition (Susana Galera Rodrigo) 3. Citizens' willingness to participate in energy governance: unravelling participatory capital for energy sufficiency in France and the Netherlands (Adrien Chanteloup, Goda Perlaviciute, and Lea Diestelmeier) 4. Perceptions of Nigerian Public Authorities on the 4D Theoretical Framework for Public Participation in Energy Development (Otelemate Ibim Dokubo and Lorenzo Squintani)
A3	B3: Social Justice Dimensions of Sustainable Energy Transition	Matteo Fermeglia	1. Attaining a just energy transition in the European Union: A matter of solidarity? (Matteo Fermeglia) 2. Translating a political promise to law: Just transition in EU climate law (Vilja Johansson) 3. Investigating the relationship between energy and data justice to study social justice implications of energy data in and for the energy sector (Natalia Lisowska) 4. 'Greenwashing' in energy transition policy and law (Hana Müllerová)

A7	B4: Circular Economy and Sustainability in the Energy Sector	Tilak Ginige	1. Dismantling, disassembly and recycling of wind turbines (in Germany): analysis of the status quo and existing potential for improvement (Carolin von Hagen) 2. From innovation to regulation: the development of bio-based batteries in the context of the EU energy law (Giorgia Carratta and Jens Leker) 3. No Quick (Regulatory) Fixes: Solving the EU's biomass conundrum in a circular bioenergy system (Feja Lesniewska)
A12	C2: Carbon Markets and Emissions Trading Schemes	Irakli Samkharadze	1. EU ETS and Maritime Emissions: Navigating New Frontiers in European Climate Legislation and International Law (Kunjie (Jacqueline) Wang) 2. Unleashing Regional Carbon Markets: Advancing Sustainable Energy Transition via Innovative Carbon Pricing Scheme in the Energy Community (Irakli Samkharadze) 3. Opportunities of Emissions Trading Schemes: A New Perspective (Felix Ekardt) 4. Carbon, Courts, and Compliance: Analyzing the Legal Challenges of the European Union Emissions Trading Scheme (Raj K. Lahoti) 5. Ideal Criminal Enforcement Designs for Greenhouse Gas Emission Trading Schemes: Assessing China's Emission Trading Enforcement Strategies (Ying Xie)

Parallel Sessions III

Thursday, 29 August 2024: 10:30 – 12:15

Room	Session	Chair	Presentations
A2	A3: Balancing Renewable Energy Development with Environmental Protection	Lorenzo Squintani	1. Unsustainable Legislation for Renewable Energy in light of the Protection of Insects (Siemen Kalders) 2. Decarbonisation and hydropower in EU law (Niko Soininen, Kaisa Huhta, and Seita Vesa) 3. Climate laws: testing inclusive sustainability in the energy transition (Heloísa Oliveira and Ana Ruiz)
A3	B5: Hydrogen, Energy Communities, and Procedural Justice	Romain Mauger	1. Intertwining Energy Communities and Hydrogen: A Collective Solution to Procedural Energy (in)Justice? (Alba Forns Gómez) 2. Public Participation in the decision-chain of hydrogen: An inflexible affair (Ruben Rehage) 3. Legal developments on energy storage and flexibility services by energy communities in Spain: intertwined complexities (Romain Mauger) 4. Impact of Municipal Administrative Frameworks on Energy Communities in the Clean Hydrogen Sector: A Case Study of the Randstad Region (Zia-Melchior Hoseini)

A7	B6: Legal Aspects of Sustainable Transportation and Mobility	Endrius Cocciolo	1. The energy transition, sustainable biofuels and indirect carbon emissions: dealing with imperfect science (Birgit Hollaus) 2. Sustainable Urban Mobility Plans: a game-changer for sustainable urban mobility? – a German and Spanish comparative legal analysis (Vincent-Carlos Barduhn) 3. Emissions Impossible? Legal Approaches to Sustainable Transport in the EU (Jiri Vodicka) 4. Fueling Tomorrow: Shedding light on key angles for enhancing the EU's legal framework on hydrogen fuels for sustainable mobility (Kelsey Pailman)
A12	C3: Investment and Regulation in the Energy Transition	Edwin Woerdman	1. Power Purchase Agreements and the Clean Energy Transition (Florian Seitz) 2. An Investment by Nature: How to develop a new investment regime that facilitates a just and sustainable energy transition? (Daniela Muth) 3. The tension between the right to regulate and protection of investments in (offshore wind) energy disputes (Berfu Beysülen Angın)

Parallel Sessions IV

Thursday, 29 August 2024: 14:00 – 15:45

Room	Session	Chair	Presentations
A2	A4: Theoretical Frameworks for Sustainable Energy Transitions	Volker Mauerhofer	1. Exploring the Concept of Sustainable Development - A Documentary Analysis (Roberto Talenti) 2. Sustainable energy law and 3-D Sustainability: capital, capacity and their interrelations (Volker Mauerhofer) 3. Sustainable energy and post-growth (Myele Rouxel)
A3	B7: Sustainable Hydrogen Production and Use	Ruven Fleming	1. Regulating Sustainable Hydrogen Production - The issue of ´green´(?) electricity for renewable hydrogen under EU Law (Ruven Fleming) 2. Critical analysis of the ecological impacts and legal regulation of hydrogen extraction from saltwater (Natalie Harris, Tilak Ginige, Betty Queffelec, Rick Stafford, and Iain Green) 3. Regulation for a diversified Renewable Hydrogen production (Álvaro Martín Morán) 4. Co-location of Electricity Storage and Hydrogen Production with Offshore Wind Farms in the Dutch North Sea: Legal and Governance Perspectives (Liv Malin Andreasson and Juul Kusters)
A7	B8: Legal Innovations for Sustainable Energy Transition	Lolke Braaksma	1. Legal issues of developing local electricity markets: Old wine in new bottles? (Ting Chen and Frederik Vandendriessche) 2. Enabling the Energy Transition in Urban Areas: The Case for Positive Energy Districts (Ceciel Nieuwenhout) 3. Unlocking the lock-ins: applying path dependence theory to law in the quest for sustainable energy (Marina Dutra Trindade)

A12	C4: Legal Frameworks for Sustainable Energy Technologies and Transition	Lorenzo Squintani	1. Developing and Operating Microgrids under EU Law: An Empirical-Legal Study of Trans-action Costs (Jamie Behrendt) 2. Hydrogen certification schemes in international trade: A Deep Dive into operational and technical design elements (Francisca Gallegos Aguirre) 3. Learning from the European Union's (EU) Regulatory Frameworks on Energy Transi-tion and the Indonesia's Omnibus Law Num-ber 11/20: Their Impacts on the Energy Transition Plan 2050 in the EU and Indonesia (Satya Arinanto and Dian Parluhutan) 4. Obligations to renovate buildings and proportionality (Nora Bouzoraa)

Parallel Sessions V

Thursday, 29 August 2024: 16:00 – 17:45

Room	Session	Chair	Presentations
A2	A5: EU Energy Law, Policy, and Sustainable Finance	Kleoniki Pouikli	1. Incentivizing the Development of More Sustainable Energy Storage Technologies: The Case of the Battery Industry (Karsten Mause) 2. "Do not significant harm" principle and environmental impact assessment as enabling instruments of a sustainable energy transition - legal interplay and de lege ferenda remarks (Mateusz Muchel) 3. Unravelling the Threads of the Polluter Pays Principle in the Context of the Clean Energy Transition (Kleoniki Pouikli and Theodoros Iliopoulos)
A3	B9: Streamlining Permitting and Impact Assessment for Renewable Energy	Moritz Reese	1. Promoting green investments? Strategic Projects as means to streamline environmental permitting (Tellervo Ala-Lahti and Topi Turunen) 2. Accelerating renewable energy projects through EU planning and permitting rules: Adapting renewables development legislation in the times of crisis (Markus Sairanen) 3. Soft law as a tool for accelerating a sustainable energy transition. Role of guidelines and codes of good practices in renewable energy sources (RES) permitting procedures in the EU (Dariusz Mańka) 4. From environmental impact assessment to permitting decision: Unraveling the impact of the mitigation hierarchy in renewable energy projects in Flanders (Edo Schoone and Sharleen Quarem)

A7	B10: Navigating Conflicts in EU Sustainability Transitions	Ceciel Nieuwenhout	1. Operationalising precaution in the case of critical material harvesting in the deep seabed (Elisa Cavallin) 2. Land-Use Competition: A Common Roadblock to Integrating EU Energy and Protein Transitions (Vojtěch Vomáčka and Lucie Zdráhalová) 3. Boosting renewable energy without compromising environmental protection: The challenges for implementation of Directive (EU) 2023/2413 (Renewable Energy Directive III) (Justyna Goździewicz-Biechońska and Anna Brzezińska-Rawa)

Parallel Sessions VI

Friday, 30 August 2024: 10:00 – 11:45

Room	Session	Chair	Presentations
A2	B10: Nature Restoration and Renewable Energy	Hendrik Schoukens	1. Offshore windfarm parks as unexpected safe havens for endangered species: opening up new legal avenues for reconciling renewable energy goals and nature restoration? (Hendrik Schoukens) 2. Nature restoration and renewable energy: friend or foe? (An Cliquet) 3. Taking a value chain approach in legal research: revealing EU climate, energy and biodiversity law interactions with one CCU value chain (Susanna Kaavi and Tiina Paloniitty) 4. Towards sustainable hydropower in EU law? A systemic approach needed (Antti Belinskij and Suvi-Tuuli Puharinen)
A3	A6: Frameworks for Sustainable Energy and Climate Resilience	Liv Malin Andreasson	1. Climate Adaptation and Resilience as Aims of Sustainable Energy (Tim Heidler) 2. Agrovoltaics as an example of sustainable energy transition in the European Union: Comparative legal analysis (Laura Anna Ruszel) 3. Conceptualising "Sustainable Energy" for a Holistic Transition (Denise Cheong and Nivedita S.) 4. A Coherent Approach for EU Environmental Law and Intellectual Property Law to deliver Sustainability and the European Green Deal (Monirul Azam)

3 Session Details

Session A1

Energy Justice and a Rights-Based Approach to Energy
[Chair: José Grabiel Luis Cordova, University of Groningen]

1. Biodiversity, Climate, and Human Rights (Felix Ekardt)

Beyond climate change and related issues of sustainable energy, the planet faces several other environmental challenges that are at least as threatening, such as the loss of biodiversity. In each case, the problems are driven by similar factors, such as fossil fuels and intensive livestock farming. This talk presents a legal analysis concerning the binding nature of the Convention on Biological Diversity's (CBD) overarching objective to halt biodiversity loss, within the framework of international environmental and human rights law. Using the established legal techniques encompassing grammatical, systematic, teleological, and historical interpretations, the article demonstrates that the CBD's objective to halt biodiversity loss is indeed legally binding and justiciable. This conclusion is directly drawn from interpreting Article 1 CBD. Furthermore, a comparable obligation emerges indirectly from international climate law. The imperative to curtail biodiversity loss also finds grounding in human rights law, albeit necessitating a re-evaluation of certain aspects of freedom, similar to what has been explored in the context of climate protection. It is crucial to note that these regulations, including the Kunming-Montreal Framework, do not modify the obligation mandate to halt biodiversity loss, which was established at the latest when the CBD entered into force in 1993. Because this obligation has been violated since then, states can be subject to legal action before international or domestic courts for their actions or inactions contributing to global biodiversity loss. The speech will also present the first example of such a lawsuit on worldwide scale.

Opening statements:

- The ecological situation regarding the destruction of nature and the extinction of species is even more dramatic than climate change. According to unanimous scientific opinion, the planetary boundaries have been exceeded even more drastically.
- This threatens the physical foundations of all human freedom and therefore human rights, especially those to life and health. Without

intact ecosystems, soil regeneration, functioning pollination and functioning freshwater cycles, human existence is threatened in the long term.

- A lawsuit at a constitutional court with the aim of obliging the legislator to draw up a comprehensive biodiversity protection concept including an immediate halt to the loss of biodiversity and steps to restore biodiversity may be successful.

2. Hiding in vagueness? The concept of "just transition" at the intersection of environmental and energy law (Outi Penttilä)

In recent years, lawmakers both on international, transnational, and national levels have begun to utilise the concept of "just transition" to mark the need to "green[...] the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind".1 Yet, no consensus over the legal definition and meaning of the concept exists to date. This paper thus seeks to trace this concept's meaning, thereby shedding light on how sustainability in energy transformation can and should be conceptualised. Concentrating on the Finnish government proposals concerning peat production as a form of energy source, this paper demonstrates the concept's open- endedness and indeterminacy, that is, that the concept may be used both to support and question same legislative initiatives and argue for and against the proposal. The paper then juxtaposes this finding concerning the "just transition" as a term with that of "sustainable development" and suggests that the open-endedness of a concept may pave the way for the initial adoption of a concept and assist in masking the conflicting views and perceptions concerning its content. The paper concludes that over time, the conceptual ambiguity becomes increasingly difficult to handle, which often results in developing a novel term to replace the older and ambiguous initiative. As such, this paper sheds light on the difficulties that relate to using legal concepts in furthering sustainability of energy transformation. Given that law operates through such devices, it is crucial to better understand their operation – and the related problems.

Opening statements:

- Legal analyses of the concept of "just transformation" are still scarce even though the term is increasingly used both in relation to energy law and environmental law.

- This paper proposes that a more comprehensive understanding

of the concept is required for understanding how it may be operationalised as a paradigm for sustainability.

- Zooming in on a particular Finnish example of peat production, this paper also demonstrates the open-endedness of the concept, that is, the fact that the vagueness of the concept allows it to be used both to support and argue against certain legislative initiatives.

3. Examining Accountability for Energy Activities in the EU: An energy justice perspective (Chioma Vivian Basil)

This paper examines the multifaceted landscape of accountability concerning energy activities within the European Union (EU) through the lens of energy justice. The discourse on energy justice underscores the importance of fairness, equity, and inclusivity in energy decision- making processes and outcomes. Thus, the energy justice theory investigates the potential implications of accountability failures on the global society, the rights of marginalized communities and the environment. By exploring various dimensions of energy justice, including cosmopolitan and restorative justice, this study aims to dissect the mechanisms through which accountability can be assessed and enhanced in energy activities within and outside the EU. Drawing on theoretical frameworks, the paper examines the roles and responsibilities of key stakeholders, such as governments, regulatory bodies, energy companies, and civil society, in promoting accountability within the EU's energy sector. Emphasizing the need for remedial actions grounded in principles of restorative justice, which prioritizes repairing harm; and advocating for global fairness and inclusivity in line with cosmopolitan justice. To achieve this, this research will apply doctrinal and socio-legal methods through an interdisciplinary analysis from law and sociology. The major aim is to contribute to a deeper understanding of the evolving dynamic of energy governance and justice in the European context. Ultimately, this paper seeks to contribute to the ongoing discussions on energy justice by providing pathways into how accountability can be strengthened to foster a just and sustainable energy transition in the EU and by extension, the global community.

Opening statements:

- If accountability means an obligation to accept responsibility and account for consequential actions resulting from the exploration and use of energy. What are the mechanisms in place to hold stakeholders and energy companies responsible?

- Should the question of accountability apply to energy companies and its subsidiaries irrespective of geographical location?
- Does accountability extend to all energy stakeholders including energy consumers and the general public?

4. Energy and sustainability. Integrating a rights perspective in EU Energy Law & Policy (José Grabiel Luis Cordova)

Linking sustainable energy transition to environmental protection is a task that must also consider social foundations and energy justice. By integrating a human and fundamental rights perspective, EU Energy Law and Policy (EU-EL&P) can potentially undergo significant transformation. The EU-EL&P should shift from a consumer-centric approach to a more humanized approach, which could bring about positive changes. The EU energy landscape is in constant transformation and evolution. Strengthening the promotion of energy democracy, increasing the participation of renewable energy sources (RES) within the EU energy mix, and projecting policies towards a green energy system transition are pointless achievements if human individuals and communities are not prioritised and empowered. Therefore, the recognition, protection, and guarantee of the universal right to energy is not just a necessity but an urgent imperative for a just transition. This urgent imperative underscores the need for immediate action. Rising energy costs threaten the ability to meet energy needs while financing energy and digital transitions. While an accelerated transition to a sustainable energy system is needed to guarantee energy security, protecting the energy-vulnerable and energy-poor sectors is crucial. This research will provide the foundations for integrating a human and fundamental rights perspective within the EU-EL&P to fulfil human dignity. It will present the essential foundations of the right to energy within the EU and propose a structure for reforming the EU-EL&P, strongly emphasising protecting those most at risk.

Opening statements:

- How can we balance the urgent need for a sustainable energy transition with the imperative to protect vulnerable communities and ensure energy justice?
- What strategies can the EU implement to protect low-income households from the financial burden of rising energy costs during the energy and digital transitions?
- Why is it crucial to shift EU Energy Law and Policy from a consumer-

centric to a human rights-based approach, and how could this enhance both social justice and environmental sustainability?

Session A2

Public Participation and Governance in Energy Transitions
[Chair: Lorenzo Squintani, University of Groningen]

1. ***Between social benefits, energy democracy and franchising: energy communities as a new business model? (Endrius Cocciolo and Jordi Jaria-Manzano)***

   The energy system is shifting away from the hierarchical and centralized fossil fuel-based model. Beyond the technological changes to the energy mix necessary for the economy to decarbonize, this shift also is an opportunity for a socio-political transformation towards a fairer model marked by enhancing (energy) democracy, promoting decentralization, and integrating new system actors. Against this backdrop, Energy Communities (ECs) have emerged as organizational structures designed to promote a participatory and just energy transition. As a legal form, although the ambiguity of its actual regulation, the EC is inspired by the notions of consumer empowerment and energy citizenship from the Clean Energy for All European Package. The Fit for 55 package's legislation reaffirms the relevance and transformative role of the ECs within the EU energy system. ECs are part of a wide range of participatory and community-based experiences that have a long history in some member States and are now driven by the emergence of technologies that enable decentralised energy models and, thus, the emergence of new business models, allowing to frame energy transition into inclusive and fair terms. However, not always EC design responds to a higher level of energy citizenship or provide social benefits to the community. In some national markets, for example, EC franchises are emerging, promoted by subsidiaries of traditional energy companies. This may raise questions about whether the spirit of the Directives is being undermined or whether these new business models should benefit from the favourable legal framework granted to ECs.

   Opening statements:

   - Entities open to citizen participation promoted by subsidiaries of incumbent energy companies should not fully benefit from the enabling framework that member states must ensure for energy communities.
   - Energy sharing is a new activity that (also) serves a social purpose (i.e. fighting energy poverty).

- The possible mismatch (in terms of economic efficiency) between the benefits generated by Energy Communities for their members and the energy system as a whole (the other consumers outside the communities) is justified because the evaluation of Energy Communities should cover other beneficial effects (i.e. social and environmental, citizen empowerment).

2. Developing the Efficiency Energy First Principle: The Local Dimension of the Energy Transition (Susana Galera Rodrigo)

The current proposal is based on the understanding of the Energy Transition as a process which was originally set up in 2011, and which addressed two different aims: Decarbonization and the New Energy Model. The decarbonization process is currently in fast development, while the implementation of the New Energy Model -clean and local energy, digitally managed- is still pending to be developed in a general manner. The current difference in speed of both processes risks the very possibility of the New model, and the consequent collective participation in the benefits which have risen in the previous decades from the technological progress. To overcome these risks, it is urgent to implement the Efficiency Energy First Principle -EE1- in a systematic and accurate way; EE1 is besides the renewable energy preference, a principle legally recognized for the Energy Transition process. The EE1 Principle echoes some well stated Energy and Environmental principles as prevention, precautionary, sustainable development and rational use of natural resources, or energy justice. Far beyond the limited understanding, which identifies EE1 with buildings or urbanization actions, there is a more relevant use for such principle: it is the main tool to identify local energy to be produced and managed locally with preference to the development of new renewable generation and transportation facilities. Even if the New Energy Model can be basically recognized in the Energy Market legal provisions, it is in the new Directive of Efficiency Energy where the fundamental requirements for the takeoff of the New Energy Model are stated. Through a detailed set of tools and methodologies -both Hard and Soft Law provisions- the Directive provides a systematic assessment of available local energy; this assessment is compulsory and prior in the processes of public and private decisions concerning new energy infrastructures.

Opening statements:

- Applying Environmental and Energy Law Principles: the Efficiency Energy First (EE1) Principle as the key stone for local energy systems and services.

- Is the New Energy Model, clean and local, dangerously threatened

by the current decarbonization process?

- Identifying Available Local Energy: Hard and Soft European Law Provisions.

3. Citizens' willingness to participate in energy governance: unravelling participatory capital for energy sufficiency in France and the Netherlands (Adrien Chanteloup, Goda Perlaviciute, and Lea Diestelmeier)

Energy governance, the processes through which rules are set and enforced regarding the ways energy is produced, distributed and consumed, is extensively controlled by States and (trans)national energy corporations. Hence, current democracies are ill-equipped to incorporate citizen's perspectives in decision-making effectively. Indeed, increasing citizens' influence over major stakeholders in energy governance through public participation is relevant to bringing democratic answers to interrelated energy and democracy crises. Conversely, people feeling excluded from the decision-making are more likely to resist energy policies (e.g. energy mix reform). However, while public involvement in energy governance has been advocated, little is known about whether and when people want to engage. This article explores this momentous question from the perspective of citizens' preferences for and perceptions of their role regarding the production, distribution and consumption of energy. We developed the "Participatory Capital Framework" to illustrate the willingness and ability of citizens to participate in energy decision-making, enhancing energy sufficiency. We conducted semi-structured interviews involving 39 participants (21 in France and 18 in the Netherlands) living distant from their national central governments. By recruiting participants door-to-door, we reached citizens living distant from central decision-making on energy. Following a thematic analysis with Atlas.ti, we identified three categories of factors (individual, collective and contextual). Sub-components explaining citizens' (dis)engagement in energy governance are unfolded in each main category, including e.g. egoistic and biospheric values (individual factor), collective efficacy (collective factor) and trust in governments and leading energy institutions (contextual factor). The complexity of factors explaining citizen (un)motivation to engage in energy governance remains opaque. Nonetheless, the Participatory Capital Framework aims to bridge the fundamental gap by unravelling the complexity of factors that scientists, policy-makers and energy providers should integrate into their reasoning to engage the public in energy governance effectively.

Opening statements:

- The current decision-making processes defining how energy is produced, distributed and consumed do not leave much space for citizens to express their opinions on these nonetheless essential matters.
- Climate change necessitates a drastic change in energy governance and to have this change implemented, support and more involvement of the public are required.
- However, neither existing research nor policy-makers understand whether and how citizens are willing to engage in energy governance.

4. *Perceptions of Nigerian Public Authorities on the 4D Theoretical Framework for Public Participation in Energy Development (Otelemate Ibim Dokubo and Lorenzo Squintani)*

This paper explores the experiences and perceptions of public authorities in Nigeria regarding main elements (dialogue, deliberation, decision-making power, diversity) of the 4D theoretical approach to public participation in energy development and its integration within the Nigerian legal framework. Public participation is crucial for fostering acceptance of renewable energy projects, yet its effectiveness relies on the understanding of, endorsement and implementation by key stakeholders, particularly public authorities. Through qualitative research employing semi-structured interviews, this study examines the perceptions of public authorities at federal and state levels involved in the development of energy projects. The research thus aims to elucidate their views on the 4Ds in public participation processes, as well as the extent to which these elements are reflected by the regulatory framework. By highlighting elements like awareness and sensitization about the laws, the advantages and disadvantages of each of the 4D elements, and areas for law improvement, the study aims to establish a connection between the roles, attitudes, and perceptions of public officials toward public participation laws and practices in Nigeria and the success or failure of public participation processes. The findings will contribute to assessing the current public participation practices and laws in energy projects and factors that would be necessary to enhance the acceptance of renewable energy initiatives through public participation in Nigeria. This paper aligns with the theme of " Defining sustainability: General aims and principles of sustainable energy "by examining the legal aspects of integrating public participation into renewable energy projects.

Opening statements:

- Awareness and sensitization of public participation laws within the relevant agencies and the public is crucial for compliance and proper implementation. How aware is your neighbour of their right to participate?
- Do public officials favour dialogue, deliberation, diversity, and decision-making power in public participation processes?
- Public officials are the bridge between the public and the project developers.
- Public participation creates a sense of ownership of the project.

Session A3

Balancing Renewable Energy Development with Environmental Protection
[Chair: Lorenzo Squintani, University of Groningen]

1. ***Unsustainable Legislation for Renewable Energy in light of the Protection of Insects (Siemen Kalders)***

   Renewable Energy Directive (EU) 2023/2413 (hereinafter: RED-III) aims to accelerate and ease the deployment of renewable energy projects, notably by exempting Member States, or allowing them to exempt, certain renewable energy projects from an appropriate assessment under the Habitats Directive. However, this assessment is a cornerstone of EU environmental law since it allows competent authorities to make scientifically informed decisions about the biodiversity implications of projects in and around Natura-2000 sites. Consequently, removing the appropriate assessment may have serious negative consequences on biodiversity, including insect conservation. The Habitats Directive lists 100 insect species in Annex II, including beetles, butterflies and dragonflies. As I will clarify, this is only a fraction of the insect world. The benefits of a flourishing insect population are plentiful, whereby ecosystems, animal and plant species, and humans are the beneficiaries of several key ecosystem services, e.g., pollination of wild plants and agricultural crops. However, recent studies corroborate the decline of insect populations at an unprecedented rate, leading to a possible collapse of insect populations. Therefore, by removing the protection of Natura-2000 sites, the exemption in the RED-III may severely weaken insect biodiversity and hamper the ecosystem services provided by insects. In view of the lack of scientific knowledge on insect biodiversity, the precautionary principle applies and requires protective measures to be taken. Consequently, additional questions might be raised about the legality of the RED-III exemption in light of the precautionary principle.

   Opening statements:

   - The case study of insects, as developed in the presentation, demonstrates the disproportionate effects of exempting renewable energy projects from the performance of an appropriate assessment.
   - Combined with the limited protection of insects in the Habitats Directive, RED-III illustrates the lack of science-based knowledge of insect biodiversity by policymakers.

- The lack of science-based knowledge of insect biodiversity raises the need for a more prominent place of the precautionary principle in RED-III in particular and in European energy policy in general.

2. ***Decarbonisation and hydropower in EU law (Niko Soininen, Kaisa Huhta, and Seita Vesa)***

This presentation explores the trade-offs in the decarbonisation of the energy sector by analysing the legal arguments in favour of and against hydropower in EU law. Hydropower offers an illustrative example of the multitude of trade-offs that go hand and hand with the production and consumption of energy, because it is a renewable, low-carbon source of energy and the most significant and most relied-upon source of renewable energy globally. The presentation contends that the EU regimes in climate, energy and environmental law each value the advantages and disadvantages of energy production in different ways. The analysis reveals, however, a promising opportunity to reconcile the friction among climate, energy and environmental law while improving the ecological sustainability of hydropower production. Namely, EU law does not provide a hierarchy making it possible to prioritise the objectives and drivers within the three legal domains examined here. A systemic analysis of the objectives and obligations arising from the disciplines suggests that while large-scale hydropower is necessary for achieving the objectives and fulfilling the obligations of EU climate and energy law, these areas of law are ambivalent with regard to small-scale hydropower, which has limited positive effects for climate change mitigation and energy security. This ambivalence reveals a promising opportunity to fully pursue the objectives of EU environmental law and the Water Framework Directive through the gradual phaseout of small-scale hydropower installations.

Opening statements:

a. EU law aspires to both increasing renewables production and improving biodiversity.

b. EU climate, energy and environmental law can be seen to conflict in their goals to the extent that renewables generation produces biodiversity trade-offs.

c. In the context of hydropower, the key requirements of climate, energy and environmental law can be satisfied by maintaining large hydropower in operation for the time being and phasing out small hydropower operations.

3. *Climate laws: testing inclusive sustainability in the energy transition (Heloísa Oliveira and Ana Ruiz)*

The Paris Agreement and the European Union Climate Law impose the reduction of GHG emissions. One of the core instruments of climate policies is sustainability in the energy sector. However, sustainability must be addressed in the broader context of environmental protection goals, namely concerning biodiversity restauration, zero pollution and circular economy. The goal of this paper is to compare how domestic climate laws are integrating environmental and energy policies taking into environmental sustainability requirements. For this purpose, we will present an overview of the topics addressed by a chosen set of national climate laws, and analyze how these legal systems have or have not recognized the multifaceted nature of environmental problems in the energy transition. In particular, we will demonstrate that certain States have used climate laws as a starting point for a review of other environmental and non-environmental policies and laws, enhancing inclusive sustainability in the energy transition. We will start by showcasing the French Energy Transition for Green Growth Act of 2015 with a focus on the relation between energy, climate, and circular economy policies, by contrast with the Swedish Climate Act of 2017 and the German Federal Climate Protection Act of 2019, which have a narrower approach focused on specific reduction targets and instruments for achieving them. Finally, we will demonstrate how the Spanish Climate Change and Energy Transition Law of 2021 and the Portuguese Climate Law, both of 2021, extensively regulate governance and integration in the energy transition.

Opening statements:

Sustainability goals require integration of all environmental policies in the energy transition, namely in what concerns biodiversity restauration, zero pollution and circular economy. Many EU Member States have approved climate laws, many of which regulate a diversified set of environmental topics. These domestic laws might be an effective way of dealing with the multifaceted nature of environmental problems in the energy transition.

Session A4

Theoretical Frameworks for Sustainable Energy Transitions
[Chair: Volker Mauerhofer, Mid Sweden University]

1. ***Exploring the Concept of Sustainable Development - A Documentary Analysis (Roberto Talenti)***

References to sustainable development as an objective, goal, principle, or narrative are pervasive in policy documents at domestic, regional, and international levels. Nevertheless, the concept of sustainable development remains elusive due to, inter alia, the lack of any clear definition for effective implementation, and the ongoing challenge of assessing its inherent sustainability. Therefore, this study aims to critically analyse the concept of sustainable development, along with its two components: sustainability and development. Through documentary analysis, it traces the origins of these concepts, reflects upon the ontological dimension that the concept of sustainable development establishes, and explores the interests that it serves. The findings reveal that while sustainability emerged from scholarly works, development and sustainable development largely originated from politically driven documents, reflecting the interests of political actors. The study concludes that the reliance on the currently mainstream, politically biased, and theoretically weak conceptualization of sustainable development in environmental law might be inherently unsustainable. Meanwhile, the features of an alternative 'pure sustainability' paradigm continue sprouting in the scholarly literature, and this opens some room for hope for a possible change.

Opening statements:

The concept of sustainable development, despite being theoretically flawed, constitutes the ontological underpinning of nowadays international environmental law. While the political and economic interests that it serves and the historical process leading to its creation have already been discussed, no research has so far tried to deeply dive into the (legal, policy, and scholarly) documents which contributed to its establishment. This work provides a documentary analysis of the concept of sustainable development, it reflects upon the consequences of relying on its theoretically weak foundations, and it looks for possible substitutes of the sustainable development concepts in environmental law and policy fora.

2. *Sustainable energy law and 3-D Sustainability: capital, capacity and their interrelations (Volker Mauerhofer)*

The overall goal of the presentation is to contribute to the discussion about foundations and perspectives for sustainable energy law by connecting it to and applying it within latest conceptual work related to sustainability theory and conflicting measures. First the presentation will shortly present the concept of 3-D Sustainability to identify general aims and principles of sustainable energy law and related interdisciplinary research questions. When applying this concept of 3-Sustainability, a global scope will be first applied as energy sources and energy produced therefrom are flexible in space and time. Thereby, it will be presented in how far sustainable energy law is related to which planetary boundaries in the sense of environmental carrying capacities in the frame of 3-D Sustainability. The presentation also indicates the interrelation between sustainable energy law and the other features of 3-D Sustainability. Afterwards, it will conceptualize - based on 16 different cases - how legal measures protecting the environment can interrelate with legal measures aiming at fossil-free energy provision with conflicting and non-conflicting measures. Finally, these overall conceptual frameworks will be exemplified with several real-world case-studies where the presentation will enter questions of un-/sustainable national and sub-national implementation, also of EU-law. The topical relevance of this contribution to the conference topic is manifold. It aims to interconnect the conceptual and the practical views on sustainable energy law from a wider sustainability angle.

Opening statements:

- Sustainable energy law can an absolute or a relative whereas latter do not prevent again rebound effects.
- Sustainable energy law has positive as well as negative relations with other feature of sustainability law and prioritization is key.
- Sustainable energy law contributes a more anthropocentric perspective to broader sustainability law and governance while it is embedded therein.

3. *Sustainable energy and post-growth (Myele Rouxel)*

Energy scholars have long established that energy sustainability requires energy efficiency improvements and transitioning from fossil fuels to renewable energy. Yet, discussions on technical transitions to renewables tend to overshadow other crucially important questions: how much energy is it reasonable to use? For what uses? This paper

sheds light on the role of energy demand reduction in the sustainability transformation, using insights from post-growth theories. Post-growth scholars have demonstrated that mere technical transitions are unlikely to be sufficient to reach the current environmental targets that seek to protect planetary boundaries. Instead of pursuing economic growth on a finite planet, they propose to aim to secure enough for human wellbeing within ecological limits regardless of economic growth. To do so, they suggest defining a space of sufficiency between a floor of meeting basic needs and a ceiling of ungeneralizable excess informed by planetary boundaries. This means reducing energy demand from high income households to facilitate needs satisfaction for those whose needs are not already met. Post-growth theory thus offers a different perspective on energy law and policy and suggests new aims and principles for sustainable energy informed by planetary boundaries and social justice.

Opening statements:

- Given the swift action needed to return within a safe operating space for humanity, efficiency measures need to be complemented with sufficiency measures addressing the overuse of resources, notably energy.
- Mere technical transitions are unlikely to be sufficient to reach the current environmental targets that seek to protect planetary boundaries.
- Energy demand reduction from high income households is called for to facilitate needs satisfaction for those whose needs are not already met.

Session A5

EU Energy Law, Policy, and Sustainable Finance
[Chair: Kleoniki Pouikli, Utrecht University]

1. ***Incentivizing the Development of More Sustainable Energy Storage Technologies: The Case of the Battery Industry (Karsten Mause)***

   In the course of the political, scientific, and public discussion about the socio-ecological transformation of Western industrial societies, there is a renewed interest in industrial policy as a classic policy instrument to "steer" certain sectors of the economy. While the classic or "old" industrial policy was dedicated to economic sectors such as coal and steel, the new industrial policy focuses on the promotion of sustainable energy and green technologies. Many policymakers and experts consider industrial policy as the governance instrument to incentivize sustainable energy transition. Using the case of the battery industry in general and the development of so-called bio-based batteries in particular, this presentation examines from a politico-economic perspective which instruments (e.g. subsidies) China, the USA, and the European Union – as the most important "players" on the global market for batteries – currently use to promote their domestic industries. Are there differences and similarities with respect to industrial policy making between these competing economic "blocs"? What explains the differences between these "rivals"? Is the EU really pursuing a common industrial policy in this area or do some of the 27 Member States play their own game? Which approach to industrial policy is better in terms of environmental and climate protection? And how does the current geopolitical instability affect industrial policy in the global battery industry?

   Opening statements:

   - What do you think about industrial policy measures such as subsidies to incentivize a sustainable energy transition? Do you see any problems?
   - Do you think your country's government is doing enough to promote your domestic battery industry?
   - Are we (i.e. the EU and its Member States) too dependent on China for battery research and battery production?

2. "Do not significant harm" principle and environmental impact assessment as enabling instruments of a sustainable energy transition - legal interplay and de lege ferenda remarks (Mateusz Muchel)

The European Union's Green Deal strategy is a comprehensive and multidisciplinary package of political and regulatory priorities aimed to achieve the paramount goal of climate neutrality in 2050. The vital component of the Green Deal is an energy-related agenda with primary role of emission reduction targets, as well as deployment of low- and zero-emission energy sources, esp. renewables as key enablers of a sustainable energy transition. One of the leverages set to drive implementation of a sustainable energy transition goals is the EU scheme of sustainable finance established to reflow the financing towards sustainable investments and growth. In this context, the EU taxonomy stipulates range of criteria to assess alignment of projects with EU sustainability objectives. One of them is the "do not significant harm" principle (hereinafter: "DNSH"). Investment subject to EU taxonomy-based scrutiny could not be deemed as compliant with the DNSH, if it adversely affects one the EU environmental aims pointed out in EU taxonomy regulation. DNSH is also an environmental-related requirement integrated with the EU founds framework dedicated to, inter alia, a sustainable energy transition activity, notably under the Recovery and Resilience Facility Regulation. Nevertheless, investments contributing to a sustainable energy transition are subject within a permitting process to environmental impact assessment (hereinafter: "EIA") as well. Thus, it is crucial to ponder legal interplay between DNSH and EIA in a sustainable energy transition domain. Based on that, there is also a need to stress out de lege ferenda findings in terms of the appropriate design of the EU provisions related to EIA procedure to accelerate a sustainable energy transition delivering.

Opening statements:

- A legal interplay between DNSH and EIA should be perceived as "imperfect" coherence, as the European Union EIA-related provision has not been amended along with DNSH adoption in EU law.
- The EU legal framework on EIA should be aligned with the EU Green Deal objectives by new mandatory environmental impact assessment criteria in terms of compliance of an energy project with EU a sustainable energy transition goals – in formal coherence with DNSH.
- The existing EU provisions on EIA are insufficient as regards to a sustainable energy transition delivering and it should be re-designed as a legal instrument to facilitate the EU-wide sustainable energy transition. It refers to environmental impact assessment in a transboundary context too, considering e.g. large-scale projects such as offshore investments in shared environmental resources.

3. Unravelling the Threads of the Polluter Pays Principle in the Context of the Clean Energy Transition (Kleoniki Pouikli and Theodoros Iliopoulos)

The Polluter Pays Principle (PPP) is primarily an economic principle dictating that polluters should 'internalise their externalities' and fully undertake the costs for the environmental hazards they create. This includes a preventive aspect with obligations on potential polluters before the damage materialises. Beyond the full internalisation of environmental costs, the PPP is also associated with duties to compensate victims for damage caused, linked to corrective and distributive justice and the fair allocation of environmental costs. The aim of this paper is to map to what extent the PPP is being operationalized across different climate-related instruments adopted or revised under the EU Green Deal. In the context of the energy transition, the PPP requires that those responsible for greenhouse gas emissions should bear the social costs of their pollution. This revenue could then be utilized to fund investments in green energy technologies, facilitate the transfer of these technologies to developing nations at reasonable rates, and provide financing for adaptation measures and compensation for loss and damage. Against that backdrop, the analysis will be focused on instruments such as the EU ETS, the Just Transition Mechanism and the CBAM discussing to what extent these mechanisms and the use and implementation of carbon pricing instruments fight both inequality and the climate crisis. In addition, the paper will investigate the relevance and operationalisation of the PPP in the area of renewable energy policy, placing the emphasis on the design of support schemes for renewables (mostly competitive bidding) and on the allocation of the costs that the implementation of such schemes entails.

Opening statements:

- To what extent can the continued use of free allocations and inadequate carbon prices within the EU ETS, along with the misuse of EU funds in Territorial Just Transition Plans (TJTPs), be considered consistent with the polluter pays principle (PPP)?
- The promotion of renewables typically involves granting support through bidding, where the most competitive offer wins the contract. While economic criteria are prioritized, a strict application of the PPP would necessitate consideration of non-economic criteria such as landscape protection, biodiversity protection, or emissions reductions. Using such criteria means that costlier projects may be selected. Would this be a legitimate and politically acceptable outcome?
- Typically it is electricity consumers who bear the costs of promoting renewables through surcharges on their bills. National authorities often exempt energy-intensive users from these surcharges to safeguard the competitiveness of their industries and prevent relocation. The question for discussion raised here concerns the compliance of such a practice with the PPP, and the possibility that alternative solutions be implemented.

Session A6

Sustainable energy and Adaptability
[Chair: Liv Malin Andreasson, University of Groningen]

1. Climate Adaptation and Resilience as Aims of Sustainable Energy (Tim Heidler)

Sustainable energy goes hand in hand with climate protection. This connection is useful, but it restricts the view of the increasingly important issue of climate change adaptation. Even if the 2°C target is met, noticeable consequences of climate change will occur. These consequences will challenge the energy market, renewable energy sources and security of energy supply. For example, offshore wind turbines will be exposed to increased flood events or extreme weather conditions will affect supply lines. Therefore, adaptation is essential to achieve sustainability in the energy sector. Instead of being reactive, adaptation must become preventive for sustainable energy. This thinking enables synergy potentials, prevents damages and decreases costs. In a more general sense, apart from implementing specific adaptation measures, it is possible to implement adaptation and resilience on an abstract level as aims of sustainable energy. In view of above the lecture shows that the principle of sustainable energy also means adapted and climate-resilient energy. It will not elaborate a final definition of sustainable energy but rather focus on reasons and content of adaptation and resilience as aims of this principle and definition. The lecture understands adaptation holistically and integratively with the objectives of strengthening, resilience, and benefit utilization. They are not fixed goals, but an iterative process. The lecture will show the potentials of adaptation: First, the cross-sectional breadth, which integrates harmoniously into environmental energy law. Secondly, adaptation has a socio-economic dimension and promotes social concerns in sustainable energy. Thirdly, adaptation is an indicator to rank energy sources.

Opening statements:

- Sustainable energy is sustainable only with climate adaptation and resilience.
- Climate adaptation fits to all aspects of sustainable energy.
- Climate adaptation means rather a processual effect than a material.

2. *Agrovoltaics as an example of sustainable energy transition in the European Union: Comparative legal analysis (Laura Anna Ruszel)*

The subject of this presentation concerns the legal aspects of the development of agrovoltaics (APV) on agricultural land and their impact on the energy transition in the European Union. The term APV refers to the concept of the simultaneous use of a given land for agricultural activities and the production of electricity in photovoltaic installations, which is expected to allow for a more sustainable and efficient use of agricultural real estate, as well as the accelerated implementation of EU climate and environmental goals (including the European Green Deal, Fit for 55, the EU Strategy for Solar Energy under the REPowerEU plan). Photovoltaics is currently the fastest growing RES technology in the EU, however, the implementation of large-scale investments in this area often leads to the exclusion of agricultural land from agricultural production and thus reduces food security in the EU. This calls into question the principle of sustainability, and thus the possibility of realizing a sustainable energy transition in the EU. Thus, it is essential to develop a regulatory framework for new PV segments, including APV, to achieve EU goals. The presentation is intended to serve as a prelude to a discussion on increasing synergies between PV power generation activities and agricultural generation activities in the context of a sustainable energy transition.

Opening statements:

- Agrovoltaics is poised to play a significant role in the EU's energy transition.
- In order to achieve the EU's targets for increasing installed PV capacity, it is necessary to develop and enhance the application of new segments of PV technologies, such as APV, PV integrated with hydrogen technologies, PV integrated with buildings, among others.
- In order to conduct a sustainable energy transition in the EU, including reversing the trend of taking over agricultural land for electricity production at the detriment of agricultural activities, thereby increasing legal protection for agricultural land and enhancing food security in the EU, it is necessary to create a legal framework for APV.

3. *Conceptualising "Sustainable Energy" for a Holistic Transition (Denise Cheong and Nivedita S.)*

The term "sustainable energy" lacks clarity as to its essential attributes. Rather than defining the term, renewable and other low-emission energy sources are often specifically listed. The premise of this presentation is that "sustainable energy" must be understood within the context of sustainable

development, with it being one of the key enablers for achieving the sustainable development goals (SDGs). This presentation argues that a common understanding of the essential attributes of "sustainable energy" is fundamental to an energy transition that is holistic in its approach towards sustainable development.

In conceptualising "sustainable energy," the presentation draws on principles in the 1992 Rio Declaration on the Environment and Development for its holistic approach to planning and development, balancing environmental, economic, and social goals. As part of this process, it is also guided by the 2005 Energy Indicators for Sustainable Development which were designed to help evaluate the progress of energy systems in supporting SDGs. Through this framework, the presentation seeks to identify attributes intrinsic to the conceptualisation of "sustainable energy",while considering the extent to which normative support for these attributes may be found in the Rio Declaration.

It contends that, in applying these indicators and principles, "sustainable energy" should embody substantive attributes such as sustainable resource use and avoidance or mitigation of environmental impacts across the entire energy life cycle and procedural attributes such as the precautionary approach, public participation (including women, youth and indigenous people) and EIAs where appropriate.

Opening statements:

- The term "sustainable energy" lacks clarity as to its essential attributes.
- A common understanding of what is "sustainable energy" is fundamental to a holistic energy transition.
- With use of energy indicators, environmental law principles can help to identify some of the essential attributes of "sustainable energy".

4. A Coherent Approach for EU Environmental Law and Intellectual Property Law to deliver Sustainability and the European Green Deal (Monirul Azam)

The European Green Deal (EGD) is a roadmap to facilitate the transition of the European Union (EU) to become climate-neutral by 2050. Although the green deal has a strong legal basis out of the article 192 of the TFEU, the success of the EGD is subject to a complex legal process as soft law policy instruments need to be transformed into binding secondary legislation. Even this legal arrangement is dependent on varied legal competences such as exclusive, shared and supporting while allowing the member states procedural autonomy. This presentation investigates to what extent EU environmental law ready to deliver EGD particularly to reduce resource

consumption and accelerate circular economy by promoting sustainable product design, reuse, re-sale and recycling. EU intellectual property (IP) law promote investment and innovation in new technologies, which are necessary for the sustainability transitions. However, EU environmental law and IP law have different justifications such as sustainability transitions is a core objectives of the EU environmental law whereas sustainability dimension has a little or no relevance in granting IP protection as it makes no distinction between polluted technology and sustainable technology.

This topic is relevant for the upcoming conference as the issue here is in one way EU environmental law promotes reuse, re-sale and recycling while IP law could become a hindrance to such reuse, re-sale and recycling without the permission of the original IP holder. This presentation intended to contribute by way of identifying possible means and ways to take a coherent approach between EU environmental law and IP law to facilitate sustainability transitions and deliver EGD with special reference to the sectors of vital importance such as energy sector.

Opening statements:

- European Green deal intends to accelerate circular economy and sustainable energy transitions.
- EU environmental law intends to reduce resource consumptions therefore promotes re-sale, re-use and recycling while Intellectual property law has no such directions.
- A coherent approach is necessary between EU environmental law and IP law to deliver sustainability and accelerate circular economy.

Session B1

Biodiversity and Renewable Energy Development
[Chair: Lea Diestelmeier, University of Groningen]

1. ***Balancing Sustainable Energy Needs with Biodiversity, Nature, and Landscape Protection in the Czech Republic: A Legal Perspective (Milan Damohorský)***

   The occupation of Ukraine by Russia has introduced significant challenges to both energy security and nature conservation in Central Europe. The Czech Republic, directly impacted by this conflict, represents a crucial case study in balancing energy needs with environmental protection. This study examines how the Czech Republic integrates EU Directives on biodiversity protection and assesses if the current regulations provide adequate safeguards for nature amidst geopolitical tensions and energy crisis.

   European countries increasingly adopt renewable energy sources like wind and solar power. Yet there are persistent challenges. New energy infrastructures, such as wind farms and solar panels, have the potential to disrupt natural habitats. Specifically, the location of new wind farms in protected areas can lead to conflicts with bird migration routes, while solar farms situated on prime arable land pose a risk to food security. Additionally, the construction of hydro power plants risk interference with the natural migration of fishes and other aquatic organisms, highlighting the need for careful planning and impact assessment.

   This study explores how efficiently the Czech Republic is managing these environmental challenges by aligning its national laws with EU guidelines on nature and climate protection. The research emphasizes the difficulties and conflicts faced by various stakeholders during this urgent transition.

   The presentation aims to initiate a public discussion on enhancing coordination between energy and environmental policies in the Czech Republic and across Central Europe. It delves into strategies for ensuring a more integrated and sustainable environmental assessment system to prevent energy transition from harming nature.

   Opening statements:

   - The placement of new wind farms in protected areas presents

significant challenges, particularly when these areas intersect with bird migration paths. The question of how to balance our energy needs with the need to preserve these vital natural corridors worth discussion.

- The choice to locate solar farms on our best arable land poses a dilemma between maximizing energy production and preserving fertile soil for agriculture. There is an urgent need for a careful reassessment at legal level of land use priorities.

- The construction of new small hydro power plants can disrupt the natural migration routes of fish and other aquatic organisms. Consideration of these environmental concerns in assessments concerning power plants are imperative to allow for ecological continuity in rivers and streams.

2. Effective spatial planning as a tool for accelerating renewables' roll-out without sacrificing participatory governance and biodiversity conservation (Ilze Tralmaka, Ioannis Agapakis, and Maja Pravuljac)

The ramp-up of renewable energy, through the implementation of the revised Renewable Energy Directive (RED), is a cornerstone of the EU's energy transition. However, this acceleration must occur within the limitations set by the applicable international and EU legal framework. Our presentation explores how Member States can comply with the RED while upholding other critical legal obligations and relies on the following core assumptions:

Regulatory Integration: The RED will not be implemented in a silo. While it equips Member States with a series of exemptions from individual obligations established under other relevant legislations (most notably the Birds & Habitats Directives, the Strategic Environmental Assessment (SEA) & Environmental Impact Assessments Directives (EIA) and so on), still its implementation must be harmonized with those instruments and not lead to the undermining of their objectives.

Biodiversity Mainstreaming: Protecting biodiversity is not an option but a legal mandate under Article 11 of the Treaty on the Functioning of the EU, while simultaneously playing a vital role in achieving climate goals, in the form of nature-based solutions.

Participatory Governance: Achieving a swift transition cannot compromise public engagement. Member States must ensure early and effective participation as enshrined in the Aarhus Convention and relevant case law.

By adopting a synergistic approach that considers all relevant legal instruments, Member States can achieve the RED's objectives while safeguarding the environment and upholding public participation rights. Conversely, misinterpreting the RED could lead to violations of other EU laws, resulting in legal challenges, delays, and unnecessary burdens.

As an objective, we will highlight some legal complexities of accelerating renewable energy vis-a-vis i) the Aarhus Convention and ii) the Birds & Habitats Directives, and the SEA/EIA Directives, in all three stages prescribed in the RED, namely mapping of available areas, designation of renewable acceleration areas and permitting of individual renewable technologies projects, and – when relevant – propose solutions on how to address them.

Opening statements:

- Healthy ecosystems, in the form of nature-based solutions, are an integral component of any climate change mitigation and climate-related disaster risk resilience strategy, so using the RED to destroy our own defence system against climate change is counter-intuitive.
- Some of the provisions included in the revised RED seem to ignore the fact that environmental protection constitutes a Union objective (TFEU Art 191(1) that cannot be a priori considered as inferior to the pursuit of the Union's objective in developing and accelerating its renewable energy transition (TFEU Art 194(1)(c).
- Energy transition will only be successful if it involves people and takes their needs and views into account. Cutting corners with meaningful public participation will prolong permitting procedures with public resistance and avoidable legal challenges.

3. Reconciling Natura 2000 and the Energy Transition: Lessons from the Dutch Nitrogen-Crisis (Lolke Braaksma)

Since the introduction of the Habitats Directive in 1992, the Natura 2000-network was established. The main aim of this network is to assure the long-term survival of the EU's most valuable and threatened species and natural habitats by maintaining and restoring the natural habitats and species of wild fauna and flora – including both bird species as well as habitat species – at a 'favourable conservation status'. Over the years, more ambitious climate objectives were also set by the EU – for example the EU's Paris Agreement commitments for reducing GHG emissions, which ultimately should lead to achieving carbon neutrality (net-zero emissions) by 2050. A significant part of realizing these

objectives are to transit towards 'clean' energy. Although the objectives to protect biodiversity through the Natura 2000 network, the climate obligations and the transition towards 'clean' energy overlap, they may also be in conflict with one another.

During my presentation, I want to highlight several specific conflicts that arise from the Dutch nitrogen-crisis and lessons how to reconcile these objectives with each other by focussing on this case. For example: how to legally define the existing market to buy/sell nitrogen-'rights'? This market essentially requires project developers to purchase nitrogen 'rights' of other parties to obtain a permit. Another conflict arose regarding the additional N-deposition of the Porthos-project – a carbon capture and storage project – that is essential to meet the climate objectives. What is the Dutch approach to reconcile these conflicts (in the future) and will this be sufficient?

Opening statements:

- The ruling of the Dutch Council of State in Porthos adds to the complexity of Dutch nature conservation law.
- A market to exchange nitrogen-'rights' has several (unforeseen) consequences.
- The future Dutch approach to reconcile these conflicts is to be recommended in theory.

4. Bioenergy and Biodiversity (Carola Glinski)

The promotion of bioenergy is posing particular challenges to sustainability concerns such as nature and biodiversity protection or food security. This applies the more to biofuels, bioliquids and biomass fuels, the raw material for which is often grown outside the EU. Thus, already RED I had codified a broad range of sustainability criteria for biofuels and set up an elaborate compliance system throughout the whole supply chain based on Commission recognized 'voluntary schemes' and independent third party verification. However, the system did not prove reliable. Neither were the sustainability criteria able to manage land use conflicts satisfyingly nor was there a guarantee that voluntary systems apply proper standards with a view to substance, procedures and verification. As a consequence, the RED has been amended several times, problematic raw material has been phased out, the applicability of the sustainability criteria has been broadened and the compliance system strengthened, with the latest version now codified in RED III.

The paper gives a systematic overview over the regulatory challenges that (the promotion of) sustainable and biodiversity sensitive bioenergy poses and discusses the latest developments now enshrined in RED III

Opening statements:

- Sustainability criteria that focus on supply chains are not sufficiently able to manage land use conflicts and protect biodiversity.
- The inclusion of private actors such as standardization and certification systems into the compliance system requires an elaborate legal framework.
- The focus on residues and advanced biofuels is a step into the right direction but still has to ensure that problems are not just pushed 'to a higher level'.

Session B2

Energy Communities and Energy Sharing
[Chair: Björn Hoops, University of Groningen]

1. The Over-Regulation of the Energy Commons (Björn Hoops)

Citizens that join hands to produce renewable energy can make a crucial contribution to the energy transition; they are the Energy Commons. Two EU Directives recognise these Energy Commons as energy communities if their internal governance meets certain conditions. As a reward for adapting to the Directives, the Energy Commons gain privileged access to the energy market and the right to share their energy.

Drawing on empirical research on Energy Commons in Germany and Italy, this paper shows in what respects the conditions under the Directives conflict with established practices among the Energy Commons and gives possible explanations for these conflicts.

It argues that normative narratives of the ideal Energy Commons, proposed in scholarly work on the Commons and Energy Democracy, and entrenched by the Directives, can, if unbridled, threaten the flourishing of the Energy Commons. As an explanation for this mismatch between scholarly expectations and the empirical reality, this paper points to the complexity of the energy sector and develops key pillars of a theory of complexity.

The paper recommends that national transpositions of the Directives and Commons theory leave space for established practices or reduce the complexity facing the Energy Commons so much that the Energy Commons can actually realise the normative goals pursued by scholarly work and legislation.

Opening statements:

- The regulation of Energy Commons should respect the diversity of Energy Commons as they naturally evolved;
- The regulation of Energy Commons is constant balancing act between the ideal of a local, participatory, and inclusive Energy Commons and the rough reality of complexity and segregation;
- Regulatory private law that prohibits renewable energy communities from admitting energy companies and large enterprises needs to

answer the question of where Energy Commons are supposed to acquire the necessary expertise and skills.

2. ***Energy sharing and energy communities in the EU (Flaminia Stârc-Meclejan)***

A way to 'organize' collective energy actions around open, democratic participation and governance and the provision of benefits for the members or the local community are, theoretically, energy communities (EC) (Roberts et al., 2019). Indeed, in our paper we will analyse EC as means of transition from the centralized governance of the electrical network to alternative forms of solidarity, sharing and practice. We will thus first look at the legal characters and legal nature of EC, then to the drivers motivating participation in the EC, to the organizational forms and supposed activities of the EC, and to their possible legal structures. We will further analyse the contribution of EC to renewable energy expansion, their socio-economic benefits and we will make a legal characterisation of energy communities. Based on the analyses of these factors we will conclude if and how the emergence of the EC actually create conditions for questioning the centralized electricity governance and propose adaptations of the network. We will also grant attention to the fact if EC lay the groundwork for a better dialogue between citizens, associations and cooperatives, on the one hand, and the authorities and companies, both public and private, on the other hand.

3. ***Renewable Energy Communities in Practice: Role Model Austria (Florian Stangl)***

The RED II obliges member states to establish the legal framework for Renewable Energy Communities (RECs). The basic idea of REC is that citizens, public institutions, and businesses collectively produce and consume electricity, thereby generating economic, ecological, and socio-community value. REC is seen as a central instrument to decentralize and democratize energy supply.

The Austrian legislature has already established the legal framework for RECs in 2021, making Austria one of the first member states to implement Article 21 of the RED II. What's particularly noteworthy is how the directive requirements were implemented: The legislature did not limit itself to minimum harmonization but, in a conscious departure from the wording of the RED II, granted expanded participation opportunities. Unlike what the RED II envisages, the REC does not have to be the owner of the generation plant, and independent producers can also participate in the energy community.

Through this progressive design of the REC, Austria has become a model

example of energy sharing. Within three years, over 1,000 RECs have been formed in Austria. The legal framework of RECs in Austria thus serves as a role model for other member states and has also influenced the design of the EMD Directive. Article 15a of the directive introduces new possibilities for energy sharing for active customers, reflecting the "Austrian system."

In my presentation, I would shed light on the implementation of REC in Austria from both legal and practical perspectives and illustrate why this form of energy sharing has become a successful model that could be adopted by other member states.

Opening statements:

- Sharing of electricity via renewable energy communities can contribute to combating energy poverty.
- The EU legal framework for energy communities has been too narrow thus far, preventing innovative concepts of energy sharing.
- Local and regional production and sharing of electricity is an effective strategy to leverage existing flexibility and relieve the public electricity grids. What is needed for this are digital solutions and the visualization of supply and demand.

4. An effective safeguard of environmental participatory rights? The non-compliance mechanism of the Aarhus Convention in the context of sustainable energy transition (Kristina Dierkes)

Many governments are under pressure to accelerate decision-making processes, especially in the context of the sustainable energy transition. In light of this, Germany has recently enacted legislation for the authorisation of energy infrastructure projects that restricts the exercise of environmental participation rights. This includes waiving hearings, restricting participation procedures, for example by reducing deadlines, and shortening the appeal procedures. However, involving the public in decision-making processes is essential to ensure that social and environmental concerns are adequately addressed. In states that are Parties to the Aarhus Convention, the public may invoke the non-compliance mechanism of the Convention in order to challenge these restrictions, as was recently done by the ENGO Green Legal Impact e.V. regarding the German LNG Acceleration Act.

If the 'Aarhus rights' are not adequately guaranteed at the national level, the Parties to the Convention, the Secretariat or the public may trigger the non-compliance mechanism of the Convention. A Compliance Committee (ACCC) then examines whether the Party concerned is in

non-compliance with the Convention. Considering the ACCC's findings, the Meeting of the Parties (MoP) makes a decision on the measures to be taken. In a follow-up procedure, the ACCC assists the Parties in implementing these measures.

The research project examines the effectiveness of the non-compliance mechanism by systematically analysing and evaluating the implementation behaviour of the Parties in the follow-up procedure. The aim is to identify the factors that influence the implementation process, trends in the Parties' implementation behaviour, challenges to a timely implementation and potential solutions to overcome these challenges. The research results could, in turn, be used to assess the potential success of communications submitted by the public on the restriction of environmental participatory rights in the context of the sustainable energy transition.

Opening statements:

- An analysis of the cases brought before the ACCC in recent years could confirm an increasing trend among the Parties to the Convention to restrict environmental participatory rights in favour of the sustainable energy transition.
- The lengthy duration of the non-compliance mechanism represents a significant obstacle to its effectiveness as the Party concerned continues to prevent the public from exercising their environmental participatory rights. The mechanism is unable to fully compensate for the restriction of rights and thus the lack of consideration of environmental and biodiversity concerns.
- The implementation behaviour of the Parties involved in the follow-up procedure varies depending on a number of factors, including the type of measure adopted, the effort required to implement the measure, the financial and personnel capacities and the legal culture of the Party in question.

Session B3

Social Justice Dimensions of Sustainable Energy Transition
[Chair: Matteo Fermeglia, University of Amsterdam]

1. ***Attaining a just energy transition in the European Union: A matter of solidarity? (Matteo Fermeglia)***

   The efforts to achieve the far-reaching climate change goals adopted, among others, in the European Climate Law requires coordinated and fairly distributed efforts among Member States. However, with regard to both Member States' sovereign choices over energy production mixes and, prospectively, the use of climate change mitigation technologies (e.g., Carbon Capture Utilization and Storage), the European Union is still facing major coordination challenges due to the existing overarching governance architecture framed, foremost, under Article 194 TFEU.

   Against this background, the principle of solidarity in energy matters has been recently spelt out by the Court of Justice of the European Union in the OPAL case (C-848/19). The recognition of energy solidarity in both its vertical and horizontal dimension is a watershed moment for the future implementation of the EU's climate change objectives insofar as it entails a specific set of legal obligations upon both the European Union institution and the Member States. More specifically, the application of energy solidarity entails a more accurate and pervasive appreciation, on a case-by-case basis, of the interests pursued by the European Union and its Member States when adopting specific measures or decisions.

   The main tenets of energy solidarity shall therefore be analysed also through the framework of energy justice to better appraise its full economic, social and legal dimension also as a driver of the energy transition in the European Union.

   Opening statements:

   - Solidarity is one of the funding principles and values of the European Union. To what extent this principle entails specific obligations for EU institutions and Member States in their energy policy is however still unclear and requires further discussion in light of the CJEU's case law.
   - It is my contention that the principle of energy solidarity under Article 194(1) TFEU applies beyond the traditional scope of energy

policy thus encompassing, among others, policies related to key infrastructure planning for decarbonization of the energy sector.

- The key principles of EU's energy policy, foremost the principle of energy solidarity, shall be understood, interpreted and applied in the context of the European Green Deal, the European Climate Law and the EU's climate change policy as intrinsically related to EU's energy policy's objectives.

2. Translating a political promise to law: Just transition in EU climate law (Vilja Johansson)

The justness of climate policies is increasingly recognised as key for the success of net-zero transitions. Within effort to ensure the justness of climate policies, the concept of a just transition has gained prominence. In addition to policy attention, the concept has also gained legal traction, not least within the EU. EU's most apparent legislative efforts to advance a just transition have been the establishment of the Just Transition Fund and the Social Climate Fund. These funding mechanisms strive to rectify some of the distributive socioeconomic and regional injustices arising from the planned and implemented climate measures. Existing research on the EU's just transition policies have focused on these two funding mechanisms and raised concerns that the policies are not fit for purpose to ensure a just transition. There is, however, no comprehensive assessment of how the idea of a just transition is advanced within EU's climate law frameworks beyond these funding instruments. This study therefore undertakes an analysis of the ways in which just transition is included in and advanced through the European Climate Law, the Governance Regulation and the adopted legislation under the Fit for 55 legislative package. By assessing the nature and implications of EU's legislative practice on just transition – or the potential lack thereof – the article contributes with comprehensive knowledge on the legal mechanisms applied by the EU for the implementation of just transitions. This provides a basis for assessing the overall effects of the chosen mechanisms and potential shortcomings of the governance approach.

Opening statements:

- Just transition has been introduced as a concept for ensuring the social justness and political acceptability of climate and energy policies. However, there is no comprehensive understanding of how the political idea of a just transition is translated into legal obligations.

- Different actors have different views on what a just transition

means or requires. It is thus essential to study how law is used to conceptualise and implement the concept. This is necessary for understanding which concerns these laws focus on or set out to address and the possible shortcomings of the existing legal measures.

- Without a proper understanding of EU's existing just transition policies, it is not possible to address their sufficiency or to understand how they could be enhanced.

3. Investigating the relationship between energy and data justice to study social justice implications of energy data in and for the energy sector (Natalia Lisowska)

Over the years, due to the digitalization and decentralization of energy systems, energy data has become crucial for the operation of energy systems and market participation. Despite this fact, the legal and social implications of energy data processing activities in the energy sector for example in the context of data sharing and its technical infrastructure (energy data spaces) have not been extensively analyzed by legal scholarship. This development is concerning because energy data can reveal sensitive information about energy actors and its wider availability can have negative implications on both natural and legal persons in terms of potential surveillance, low degree of privacy or data-driven discrimination.

The foregoing creates a need for the investigation of social justice aspects concerning different data-related processes and infrastructures in the energy sector. In order to do so, one needs to have a normative framework that would enable this evaluation. This article argues that such a framework could be created by combining energy justice and data justice to be able to assess different forms of energy and data injustices. It proposes a joint framework of energy and data justice in terms of recognitional, procedural and distributive justice that could be used for the examination of different (social and legal) implications of energy data, different energy data processing activities and data infrastructures in the context of the energy sector.

Opening statements:

- The consideration of energy and data justice aspects in the energy sector is necessary to acknowledge the positive and negative (legal and social) implications of energy data processing activities across the energy sector.

- Data and energy justice are intertwined and should be considered/

combined due to their origins in social justice and the importance of energy data for the twin (green and digital) transition of the energy sector.

- Data justice should be considered in the context of the energy sector to achieve fairness in the treatment, representation and visibility of energy actors that produce energy data.

4. 'Greenwashing' in energy transition policy and law (Hana Müllerová)

If a company is presenting its goods or services in a way to make people believe that the company is doing more to protect the environment or climate than it really is, we call it greenwashing. I think that greenwashing is a phenomenon that must not necessarily be connected only with the private or corporate sphere. We may find similar activities or practices in government documents. It doesn't seem that a generally accepted label for such public agencies' behaviour has already existed. I have come across the term 'government washing' or 'public policy washing', or there is a related concept of 'public policy credibility gap', which could better express also other nuances that these tendencies may have than only claiming better environmental or climate performance.

In my presentation, I want to focus on the phenomenon of masking, improving or not fully revealing the truth in public policies, in preparation of laws or their application when it comes to climate and energy transition. Since this issue is not much described, I will offer some preliminary ideas and add examples from my country. I will try to reveal such practices in the areas of setting climate and transition goals, formulating objectives in strategic government or ministerial documents, and even in drafting laws, which I will illustrate with the debate on the Czech draft Act on the coal phase-out.

Opening statements:

- Even in the government documents we can encounter phenomena that we would call greenwashing if at private companies.
- When setting climate targets and writing policies, there may be various side-thoughts behind the formulations, such as very easy achievability for low targets or, conversely, the inherent knowledge that the targets will not be met anyway for high targets.
- The legislative provision that coal must be phased out "not later than" 2033 may also mean that coal companies will be guaranteed to operate "until" 2033.

Session B4

Circular Economy and Sustainability in the Energy Sector
[Chair: Tilak Ginige, Bournemouth University]

1. **Dismantling, disassembly and recycling of wind turbines (in Germany): analysis of the status quo and existing potential for improvement (Carolin von Hagen)**

   To mitigate the impact of the climate crisis, renewable energies play an essential role. Its extended use must be accelerated timely. The Federal Government of Germany is therefore taking a particular interest in expanding the use of wind energy. While this is undeniably a step in the right direction to fight the climate crisis, it is yet to be determined how to make use of the wind turbines after they have reached their life span. This, though, is crucial to declare wind energy 100 % sustainable.

   There are currently many challenges in Germany when it comes to the end of life of a wind turbine. To start with there are no (legally binding) standards on how to dismantle wind turbines. As a result, this leads to a lack of information which is needed for the dismantling process and for a proper preparation for recycling. Moreover, wind energy faces a recycling problem: rotor blades of wind turbines, which are made of glass fiber reinforced plastic (GFRP) or carbon fiber reinforced plastic (CFRP), can only be recycled with great difficulty. Although the other components of a wind turbine (e.g. the concrete foundation or the tubular steel tower) can already be recycled easily today, it is estimated that by 2025 nearly 25,000 tons of rotor blade waste will be generated annually in Germany.

   This lecture is going to analyze the status quo of the dismantling and recycling process of wind turbines in Germany from a legal perspective while outlining existing potential for improvement.

   Opening statements:

   - While the expansion of wind energy is important, it must be taken into account what happens when wind turbines have reached their lifespan.
   - Standards should be introduced for an orderly and secure dismantling of existing and future wind turbines.
   - Regulations within the framework of extended producer

responsibility could improve recycling issues of future wind turbines.

2. ***From innovation to regulation: the development of bio-based batteries in the context of the EU energy law (Giorgia Carratta and Jens Leker)***

In the global pursuit of renewable energy, the need for sustainable energy storage solutions has become paramount. Considering the environmental, social, and geopolitical implications of traditional batteries, their bio-based counterparts present a transformative opportunity today. This abstract explores the role of technological innovation, with a focus on the battery sector, within the framework of European Union (EU) energy legislation.
The life cycle of traditional batteries, predominantly lithium-ion, is marked by its energy-intensive nature, dependence on the mining of critical raw materials, and environmental impacts such as water and soil degradation, biodiversity loss, and hazardous waste generation. The extraction and manufacturing processes of substances like lithium, cobalt, and nickel are not only environmentally harmful but also linked to human rights violations. Additionally, geopolitical considerations underscore the need for the EU to secure its battery supply chain. Through the substitution of unsustainable and/or toxic components with bio-based alternatives, bio-based batteries have the potential to mitigate those risks.

While still in the research phase, the advancement of bio-based batteries is intricately intertwined with the EU environmental and energy legislation. In particular, under the umbrella of the European Green Deal and the Circular Economy Action Plan, the Regulation on Batteries and Waste Batteries appears to encourage the integration of technological innovation with sustainability goals. Navigating the legal landscape relevant to bio-based batteries presents challenges and opportunities. Collaborative efforts among scientists, policymakers, and industry stakeholders are crucial to ensure compliance with environmental standards, promote eco-design principles, but also realize the hoped-for environmental and socio-economic benefits.

Opening statements:

a. As countries worldwide strive to meet ambitious renewable energy targets, the question of energy storage becomes increasingly crucial. But are our current storage solutions truly sustainable?

b. Within the context of EU energy law, technological innovation serves as both a catalyst for and a response to evolving energy challenges. By fostering innovation-friendly regulatory environments, the EU aims to accelerate the transition to a low-carbon, resilient energy system.

c. What other measures or strategies are necessary to further enhance the sustainability of bio-based batteries, beyond the substitution of unsustainable and/or toxic components?

3. No Quick (Regulatory) Fixes: Solving the EU's biomass conundrum in a circular bioenergy system (Feja Lesniewska)

The European Commission's 2020 'EU Strategy for Energy System Integration' set out an ambition to create 'a more circular energy system' aligning with other long term goals to transition to net zero and a circular (bio)economy. Based on Commission modelling for the Fit for 55 package it is estimated that 'energy crops by 2050 [would] occupy 22 million hectares in Europe, roughly a fifth of Europe's cropland' including forest biomass from plantations. Given the EU's long standing reliance on biomass for (renewable) energy generation, including electricity, it faces a conundrum of how a transition to a circular bioenergy system can be achieved sustainably. To address the problem, in 2023 the 2018 Renewable Energy Directive (RED III) was amended to end the practice of subsidising the burning of 'primary woody biomass' for energy and implement a 'cap and phase down' on the amount of wood burned by 2030. With its numerous derogations and disputed sustainability classifications the amendment has received criticism including from those advocating for a circular bioeconomy in which forest material values are maximised throughout an their entire lifecycle according to the cascading principle.

It is clear there are there are no quick regulatory fixes to the EU biomass circular energy conundrum. To take steps to solve the conundrum this paper disentangles different regulatory domains including agriculture, forestry, energy, climate change, biodiversity and sustainable finance to reveal conflicts, as well as possible synergises, that inhibit effective solutions being developed by the EU.

Opening statements:

- Laws to establish a circular bioenergy system in the EU must be developed in alignment with regulations to advance a circular forest bioeconomy in which standing forests and other high value products such as timber are prioritised over biomass.
- The EU needs to abandon its commitment to the net emission technology policy bioenergy carbon capture and storage as part of its circular bioenergy strategy as it will lead to a reduction in forest carbon sequestration capacity and an increase greenhouse gas emissions because of the scale undermining efforts to meet climate change targets under the European Climate Law (2021).

- A systems approach that identifies the interconnections between different legal domains and regulations is necessary to gain an understanding of conflicts preventing achieving a circular forest bioeconomy in the EU.

Session B5

Hydrogen, Energy Communities, and Procedural Justice
[Chair: Romain Mauger, Iberian Centre for Research in Energy Storage]

1. ***Intertwining Energy Communities and Hydrogen: A Collective Solution to Procedural Energy (in)Justice? (Alba Forns Gómez)***

   The energy transition in the EU is led by three overarching policy goals, namely: decarbonisation, decentralisation, democratisation. Those 3Ds are covered by the purposes of energy communities (ECs), collectively organised non-commercial entities, that facilitate, for example, local ownership energy production on the basis of renewable sources and participation in decisions about energy production and use. However, ECs are mainly established in the context of collective electricity production while other energy carriers such as green hydrogen are underexplored from a legal perspective. With green hydrogen being on the rise as one of the corner stones for decarbonising hard-to-electrify sectors, it is relevant to ensure that also this part of the transition is governed democratically by means of public participation procedures. ECs could, potentially, become relevant actors for enhancing public participation in the decision-making process for hydrogen infrastructure and use. This research identifies the legal options and obstacles for ECs to facilitate inclusive public participation in the development of hydrogen production/infrastructure. First, it explores whether and which role ECs (could) have in the transition to hydrogen. In particular, this research focuses on the democratic dimension of ECs. Whether and how can ECs facilitate collective public participation offering its members a stake in the decision-making of the hydrogen value-chains in the EU? Results will form the basis for further research on the level of inclusiveness of opinions from members of ECs in the decision-making of hydrogen projects located in Spain, Germany and potentially the Netherlands.

   Opening statements:

   - Energy communities engage their members to take part in the decision-making chain of energy initiatives either by direct (public participation) or indirect (internal governance) means.
   - While no mention is made to energy communities in the EU's Hydrogen and Decarbonised Gas Markets Package, a just hydrogen transition shall include and involve all actors in the process.

- Green hydrogen could fall within the definitions of RED III of renewable energy, thus allowing this energy source to be potentially incorporated in renewable energy community activities.

2. Public Participation in the decision-chain of hydrogen: An inflexible affair (Ruben Rehage)

Research indicates that citizens may oppose local energy projects and hinder the overall energy transition if they feel excluded from decision-making or perceive the public participation process as unfair, especially when there is no room left at the local level to deviate from decisions made at the macro-level of the decision-chain.

This individual research project intends to legally analyse and compare the level of rigidity/flexibility of the regulatory framework for public participation in the decision-chain of the hydrogen economy in Spain and Germany. The paper's methodology employs a multifaceted approach, combining the legal comparison method with doctrinal constructivism. The corresponding research question is: To what extent can more leeway be provided in the law to deviate from the macro-level decision on a hydrogen core network during the public participation of a concrete hydrogen project?

In Germany, for example, a reform of the Energy Industry Act has established the procedure for creating the hydrogen core network, declaring all projects within this network as "in the overriding public interest." This declaration limits public participation, as it practically always outweighs other concerns. potentially leading to more resistance and legal proceedings instead of accelerating the authorization process.

Opening statements:

- It is naïve to believe that there will be no (or even only little) resistance against the development of hydrogen projects.
- Fast project approval procedures and public participation do not go together (well).
- Public resistance has the potential to hinder the achievement of the hydrogen objectives.

3. Legal developments on energy storage and flexibility services by energy communities in Spain: intertwined complexities (Romain Mauger)

Spain is a potential future renewable energy powerhouse in Europe, with prospects for abundant cheap energy from wind and solar sources.

Yet, the accomplishment of this transition to a renewable energy mix is slowed down by various factors, including a still incomplete legal framework for energy storage, notably batteries, and flexibility services. In addition, the massive ongoing roll out of wind turbines and solar panels is facing opposition in some areas, hence the need for citizen involvement, such as through energy communities.

Since 2020, Spain is legislating to transpose the EU legal regime on energy communities, on energy storage and on flexibility markets and actors. This concomitant legal effort is welcome as it may allow for a coherent regime. Yet, its erratic progress, in a piecemeal fashion actually so far results in intertwined complexities.

This presentation dives into the recent legal developments on energy storage to be used by energy communities and their potential provision of flexibility services in Spain. Unlocking this significant renewable capacity as well as flexibility resource would boost the energy transition, but organising a sound framework for community-owned and organised aggregated storage has proven difficult so far. Finally, the presentation will highlight some options to move forward.

Opening statements:

- How is the regime for small-scale, aggregated, community-owned storage in other European countries?
- Are flexibility markets set up and open to direct or indirect flexibility services provisions by energy communities in other countries?
- Is deploying significant amounts of individual storage options to be aggregated actually a sustainable idea in terms of natural resources consumption, costs and lead time, when compared to fewer, medium to large-scale, storage solutions where citizens have a reduced/inexistent involvement?

4. Impact of Municipal Administrative Frameworks on Energy Communities in the Clean Hydrogen Sector: A Case Study of the Randstad Region (Zia-Melchior Hoseini)

The transition to sustainable energy systems is a complex endeavor requiring the integration of environmental, social, and economic considerations within legal and administrative frameworks. This study investigates the impact of municipal administrative frameworks on energy communities within the clean hydrogen sector in the Randstad region of the Netherlands. Specifically, it examines how resource allocation efficiency, policy responsiveness, and community engagement influence the effectiveness of Public-Private-Community

Partnerships (PPCPs) in fostering energy community initiatives.

Utilizing a mixed-methods approach, the research gathers data through surveys, interviews, and document analysis to assess the efficiency of resource distribution, the speed and relevance of municipal responses to community feedback, and the level of active community involvement in decision-making processes. Preliminary findings indicate that well-defined and responsive administrative frameworks significantly enhance community participation and project success. However, challenges such as demographic changes and higher-level legislative shifts can impede these efforts.

The study's insights contribute to the broader discourse on sustainable energy governance, emphasizing the necessity of adaptive and inclusive administrative practices to support energy communities effectively. The research aligns with the EU's mission to achieve CO2-neutral cities by 2030 and offers practical recommendations for policymakers to enhance the integration of environmental protection within deregulation and flexibility processes. By addressing these governance dynamics, the study aims to provide a roadmap for municipalities to foster a more inclusive and sustainable energy transition.

Opening statements:

- How can municipalities in the Randstad region optimize resource allocation to better support energy communities within the clean hydrogen sector?
- What measures can local governments implement to enhance policy responsiveness and ensure timely and relevant feedback to energy community needs?
- In what ways can community engagement be improved to increase the active participation of local communities in the planning and decision-making processes for clean hydrogen projects?

Session B6

Legal Aspects of Sustainable Transportation and Mobility
[Chair: Endrius Cocciolo, Universitat Rovira i Virgili]

1. The energy transition, sustainable biofuels and indirect carbon emissions: dealing with imperfect science (Birgit Hollaus)

To ensure a sustainable future for all, energy systems need to be transformed. In this spirit, the Parties to the Paris Agreement recently committed to a transition away from fossil fuels. However, alternatives such as crop-based biofuels made from rapeseed or palm have their own negative environmental and even social impacts. While these impacts must be considered in any sustainable solution, the scientific evidence may not be readily available, either because of the evolving nature of the impacts or because of a lack of appropriate methodology. Whether and how decision-makers can act in such situations also depends on the scientific evidence requirements embedded in the relevant regulatory framework. For the European Union (EU), this relevant framework extends beyond EU law to include international law and, specifically, as recently highlighted in Malaysia v European Union, trade law.

The proposed paper aims to explore the multi-level legal framework for the treatment of scientific evidence in EU legislation. For this purpose, it uses the EU's attempt to address indirect land use change (ILUC) emissions associated with crop-based biofuels as an illustrative case. It first outlines the requirements of EU law for dealing with the scientific evidence and uncertainties that remain in relation to ILUC emissions. Then, considering the possible trade implications of the EU legislation, it examines WTO law for any relevant, in particular additional and/or conflicting, requirements regarding scientific evidence. In doing so, the paper ultimately shows how different legal regimes, and their interactions create different rooms for manoeuvre for EU policymakers.

Opening statements:

- EU law allows for EU law and policy, also in relation to the energy transition, to be based on imperfect science.
- The EU is not free in setting legal requirements for how to deal with scientific evidence and any related uncertainties.
- Procedural rules regarding the handling of scientific evidence within law-making procedures allow for the judicial review of decision-

making based on imperfect scientific evidence.

2. ***Sustainable Urban Mobility Plans: a game-changer for sustainable urban mobility? – a German and Spanish comparative legal analysis (Vincent-Carlos Barduhn)***

Cities have an important role to play in achieving Europe's sustainability goals. "The battle for sustainable development will almost certainly be decided in cities [...]". Accordingly, urban mobility must become sustainable. Sustainable Urban Mobility Plans (SUMPs) can be a powerful tool for achieving urban sustainability. A SUMP is a strategic plan designed to meet the mobility needs of individuals and businesses in urban areas and their surroundings, with the aim of improving their quality of life. It contains a series of measures aimed at implementing more sustainable transport options within a city. SUMPs act as a cornerstone of European urban mobility policy: It is expected that every Member State will implement SUMPs in all major cities. In Spain, SUMPs have become increasingly relevant. Since last year, any city with a population exceeding 50,000 is required to implement one. The SUMP must incorporate measures to mitigate emissions from mobility. This includes, at a minimum, the establishment of a low emission zone. More than 150 cities are currently affected, resulting in a nationwide introduction. In Spain, SUMPs have become strategic documents with nearly "unlimited possibilities". They act as "all-rounders" with the purpose of implementing innovative solutions for effectively reducing the environmental impact of mobility. The SUMPs potential is yet to be discovered in Germany. They have only been implemented in nearly 15 cities. Furthermore, Germany's current legal framework is deficient: it lacks binding legislation to introduce SUMPs.

Opening statements:

- SUMPs need to be introduced all across Europe to achieve sustainable urban mobility.
- There are no alternative legal instruments which are more suitable to achieve sustainable urban mobility.
- SUMPs must be interlinked to other planning instruments (such as air quality plans) to work effectively.

3. ***Emissions Impossible? Legal Approaches to Sustainable Transport in the EU (Jiri Vodicka)***

The transport sector remains a significant contributor to Europe's greenhouse gas emissions, despite ongoing efforts to transition to sustainable energy sources. This abstract proposes a critical

examination of the European Union's legal and policy frameworks that govern sustainable transport. It aims to identify effective strategies and potential legal innovations to accelerate sustainability in transport, aligned with the European Green Deal and Fit-for-55 package.

Current EU directives and regulations, such as the Clean Vehicles Directive, "ban" on combustion engines or ETS 2 offer a foundation for reducing transport emissions. However, gaps remain in these frameworks that can hinder comprehensive integration with EU climate goals. Furthermore, one can say that The EU has not yet successfully implemented a comprehensive policy that would internalise negative externalities in transport sector.

Additionally, this paper discusses novel legal instruments that could be deployed to enhance the uptake of sustainable transport practices. These include expanded use of emissions trading within the transport sector, integration of renewable energy targets specifically for transport applications, paradigm shift in competition policy and innovative urban planning laws that reduce dependency on traditional vehicular travel.

Conclusively, this paper underscores the necessity for a cohesive legal approach that encompasses EU-wide incentives and supports local policy innovations. Recommendations will focus on refining legal definitions, enhancing policy coherence, and introducing flexible, scalable legal instruments to ensure the EU meets its sustainability objectives.

Opening statements:

- The impact of vehicle electrification and alternative fuels on achieving EU climate goals.
- The effectiveness of EU-wide incentives versus local incentives in different member states.
- The integration of sustainable transport policies with other EU policy areas like energy and urban development.

4. Fueling Tomorrow: Shedding light on key angles for enhancing the EU's legal framework on hydrogen fuels for sustainable mobility (Kelsey Pailman)

The transport industry accounts for a quarter of the European Union's greenhouse gas (GHG) emissions and is the central cause of air pollution within cities. To reach climate neutrality by 2050, a 90% reduction in transport emissions across road, rail, maritime and aviation transport is required. The heavy-duty transportation sector has been identified

in the EU as an early adopter of hydrogen where electrification is not feasible. Renewable and low-carbon hydrogen has therefore been hailed as a 'fuel of the future', being a novel application within an industry dominated by fossil fuels. In terms of novelty, hydrogen, as an energy carrier, cannot be considered a 'new technology'. However the use of renewable and low-carbon hydrogen fuels can be considered as an 'emerging technology', being an existing technology with a new heavy-duty transport applications. Emerging technologies can give rise to the 'pacing problem', in that regulation can often lag behind innovation. The question arises as to the type and extent of regulation of regulation required to facilitate the early adoption of renewable and low-carbon hydrogen fuels in the heavy-duty transportation sector. Three key issues are highlighted in this regard: 1) the need for cohesiveness in legal and policy frameworks across the hydrogen value chain; 2) designing legislation to mitigate safety risks using hydrogen as a fuel; and 3) finding a balance between ease and stringency of compliance. These issues will be analysed through the lens of legal certainty on one hand, and legal adaptability on the other.

Opening statements:

- A cohesive policy and legal framework is required to accelerate the adoption of renewable and low-carbon hydrogen fuels in the heavy-duty transportation sector.
- Legal lacunas and fragmentation regarding safety standards can hamper the wide-scale adoption of hydrogen fuels; and
- A balance needs to be found between ease of compliance and stringency, so as to facilitate a transition from fossil fuels to renewable and low-carbon hydrogen in the heavy-duty transportation sector.

Session B7

Sustainable Hydrogen Production and Use
[Chair: Ruven Fleming, University of Groningen/Technical University Freiberg]

1. ***Regulating Sustainable Hydrogen Production - The issue of ´green´(?) electricity for renewable hydrogen under EU Law (Ruven Fleming)***

   Hydrogen is a key-enabler of decarbonization in energy systems - but only if it is produced in sustainable ways. The future of sustainable hydrogen production for most parts of the world is electrolysis. This chemical process requires electricity to work and to produce so called renewable hydrogen. This production method is incentivized in EU Law via RED II/REDIII and in particular the two EU Delegated Acts on RFNBOs and GHG-emission savings, both from 2023. So far, so good, but the key question is: does all of this make hydrogen sustainable?

   This presentation will discuss the existing EU system for incentivizing renewable hydrogen and illustrate, with the help of concrete examples, what a conceptual sustainability critique of the EU criteria for renewable hydrogen production can look like. The example is of broader relevance, as the sustainability criteria will also apply to the import of hydrogen into the EU and, thus , be the key make-or break point for the future of an EU hydrogen economy. The presentation will finish with some ideas and recommendations on how the system could be improved and why Member States should think carefully about the ways in which the EU criteria are transposed into national law. Broader lessons for the sustainable regulation of energy transitions can be learned from the examples provided.

   Opening statements:

   - Renewable Hydrogen is not sustainable.
   - The EU is using semantic tricks to brush over the factual compromises that have been made.
   - Should renewable electricity for hydrogen production be allowed to come from all existing RES facilities (wind, solar etc.) or only from those that have been specifically build for the purpose of producing renewable electricity for the production of hydrogen?

2. *Critical analysis of the ecological impacts and legal regulation of hydrogen extraction from saltwater (Natalie Harris, Tilak Ginige, Betty Queffelec, Rick Stafford, and Iain Green)*

Fossil fuel combustion is exacerbating climate change, resulting in devastating impacts for wildlife and humans. Globally, efforts are being made to prevent further environmental damage through the increased use of renewable energy. Due to intermittency of renewable energy, hydrogen is being promoted as a clean energy carrier/ storage medium to balance energy supply and demand needs. Hydrogen production through water electrolysis powered by renewable energy sources will provide reliable green energy. The use of saltwater as an electrolyte reduces the current use of freshwater, alleviating pressure on this finite resource.

However, as saltwater electrolysis technology is still in the research and development phase, questions remain about the most ecologically safe way to conduct this on a commercial scale. Possibilities exist to achieve saltwater electrolysis through offshore co-location of wind turbines and electrolysers or transportation of renewable energy to onshore electrolysers. Analysis of the current laws regulating hydrogen will be vital to determine their effectiveness at protecting the environment from overexploitation and will allow recommendations to be made for future regulation of commercial scale saltwater electrolysis. It is important to combine law and science disciplines to safely accelerate the change to sustainable energy. With the North Sea highlighted as a location for increased hydrogen production, evidenced through the adoption of the EU Hydrogen Strategy and multiple EU countries having national hydrogen strategies (including the United Kingdom, France, Belgium, Netherlands, Germany, Denmark and Norway), results of this study will be paramount in guiding international, European and national legislation, to protect the marine environment.

Opening statements:

- Due to added complications of saltwater's chemistry, saltwater electrolysis technology remains in its infancy and is yet to occur on a commercial scale. As questions remain over the least environmentally damaging way to conduct commercial scale electrolysis (in-situ with offshore wind turbines or through the transportation of renewable energy to onshore electrolysers) and as national and European policy targets and laws are set to support increased hydrogen production, a critical evaluation of the current regulations will be required to see if they are adequate to support future hydrogen extraction methods and demands rates.

- Green hydrogen production through water electrolysis is being presented as a crucial solution for difficult to decarbonise sectors, but before the use of saltwater as an electrolyte occurs on a commercial scale, we must understand the negative ecological impacts. Understanding this will allow effective international, European, and national legal regulation to be recommended.

- The combination of law and science disciplines through employing a Bayesian Belief Network (BBN) and Delphi study method allows an evidence-based approach from advising policy makers. The BBN is able to clearly communicate the interplay between science and law.

3. Regulation for a diversified Renewable Hydrogen production (Álvaro Martín Morán)

The deployment of hydrogen as an energy vector represents an opportunity to reduce the dependence on fossil fuels and advance towards net-zero. But to ensure a fair and just transition the hydrogen production and usage should aim to optimise the utilisation of resources. The EU currently focus on promoting the production of clean hydrogen trough electrolysis, especially with the Hydrogen Strategy, and the Renewable Energy Directive and its delegated acts. Other forms of production such as biological hydrogen face a lack of promotion and fall under the more constraining rules applied to biofuels. While more innovative forms of production allowing to repurpose waste materials and to valorise byproducts face a lack of appropriate regulation. A partial approach from the legislator has the potential to risk the hydrogen transition and to lock in the development of alternative production routes. Effectively producing a path dependency. While most of the burden for the green transition is left for the technical advancements to cover, regulation must follow suit to facilitate the adoption of a hydrogen economy, fostering the transition without preventing the deployment of alternative technologies, as legal uncertainty represents one of the main drawbacks for innovation and investment.

Opening statements:

- The EU is confusing green (Renewable energy powered electrolysis) hydrogen and renewable hydrogen.

- There are other possibilities to produce renewable hydrogen that are not trough electrolysis and that will allow for an optimized use of resources.

- Renewable Hydrogen production plans and targets will clash with the availability of water.

4. *Co-location of Electricity Storage and Hydrogen Production with Offshore Wind Farms in the Dutch North Sea: Legal and Governance Perspectives (Liv Malin Andreasson and Juul Kusters)*

To address climate change and ensure energy security, the Dutch government is aiming to develop 72 GW of offshore wind capacity by 2050 as part of its energy transition strategy. However, this poses considerable challenges in transporting the generated electricity to shore and managing intermittency issues. Therefore, the integration of offshore electricity storage and/or hydrogen production facilities is emerging as a solution to address these challenges. These complementary technologies not only increase the operational efficiency of the energy system, but may also improve its economic and environmental performance.

The Dutch North Sea, which is already used for various activities, is already facing constraints due to the planned large-scale development of offshore wind energy. In this context, co-locating electricity storage and/or hydrogen production facilities within offshore wind farm areas emerges as a strategic approach to optimise the use of offshore space. Such co-use of space is positioned by both academics and Dutch policy makers as an ideal way to maximise the use of offshore space and minimise spatial conflicts. In this presentation, we will explain the Dutch approach to co-use of offshore wind farm areas, assess the authorisation procedure for the co-location of electricity storage and/or hydrogen production facilities within offshore wind farm areas, and explore its implications from a governance perspective. Overall, we emphasise the importance of timely regulatory and institutional developments to incentivise technical progress and enable an economically viable offshore energy system as part of the energy transition.

Opening statements:

- The current approach to the development of offshore energy production and storage in the Dutch North Sea lacks a holistic approach to offshore energy systems.
- Barriers and gaps in governance and regulatory frameworks hinder the co-location of electricity storage and/or hydrogen production facilities in offshore wind farm areas.
- Co-location of electricity storage and/or hydrogen production facilities in offshore wind farm areas is the optimal solution to maximise the use of space offshore and is the missing link in the offshore energy transition.

Session B8

Legal Innovations for Sustainable Energy Transition
[Chair: Lolke Braaksma, University of Groningen]

1. Legal issues of developing local electricity markets: Old wine in new bottles? (Ting Chen and Frederik Vandendriessche)

The 'local electricity market' (LEM) adopting a decentralised way of organising energy transactions is considered a promising way of further engaging consumers in the low-carbon energy transition. Yet, so far, few studies have delved into legal issues of applying this new market setting. In this article, we explore to what extent developing LEMs create new legal issues for the existing EU regulatory framework. The legal analysis is built around five market design controversies summarised from a review of the economic, technical and policy literature on LEM market frameworks and pilot projects across the EU. It demonstrates that indeed several novel legal challenges arise when introducing this new market layer. First, the commonly used concept 'LEM' is ill-defined and by no means suitable for being converted into a legal definition. Second, legal issues also stem from the fact that the literature and LEM projects barely align their proposals with EU electricity law. We give concrete examples to illustrate when market design proposals can compromise the implementation of rights and principles set out by the EU legislation relating to the internal electricity market. Third, with the ongoing trials of some LEM projects within the EU, discrimination concerns related to the DSO's involvement in LEMs are no longer purely theoretical. Based on the identified potential risks, disadvantages and complexity of supporting the introduction of LEMs, legislators and regulators within the EU can further assess whether it is worth doing so. We also present recommendations for both the design of LEMs and the legislation governing local market activities.

Opening statements:

- Dilemma of conceptualising LEMs in law: So far, there has not been a commonly accepted definition of LEMs. Central to the divergence is how to define the 'local' nature of this market setup. The literature and practice proceed with varying criteria in this regard, divided into the geographic (e.g. neighborhoods, communities, towns, and small cities) and grid perspective (e.g. mid and low-voltage network areas). These standards, however, create a series of problems when it comes to converting the LEM into a legal definition.

- Is a more proactive DSO lawful? What kinds of tasks can be assigned to the DSO are in active discussion in the general literature on LEMs. Multiple roles assigned to the DSO include the network operator, the flexibility request party and the local market operator who can aggregate local offers and bid on upper-level markets on behalf of consumers and prosumers. However, the potential conflicts of simultaneously performing these roles with the EU law principles of regulating DSOs are largely neglected.
- Increased discrimination risks coming with LEMs: With the ongoing trials of some LEM projects within the EU, discrimination concerns related to the DSO's involvement in LEMs are no longer purely theoretical. Legal consequences of impairing free market access and fair market clearing are also detected in the case of operating markets within energy communities.

2. ***Enabling the Energy Transition in Urban Areas: The Case for Positive Energy Districts (Ceciel Nieuwenhout)***

The urban environment is responsible for roughly 70% of the worldwide GHG emissions, mainly from energy use in buildings and mobility. Yet, reducing this energy use and introducing renewable energy production in urban areas is notoriously difficult: lack of space, weak building constructions, old or even monumental buildings, and grid capacity issues all form challenges. Some buildings in a district may be more suitable than others for hosting renewable energy production (for example in rooftop and façade PV panels). Cutting back energy demand, for example by renovation or retrofitting will also be easier in some buildings than in others. A collective approach whereby buildings that generate more energy than they use (energy positive buildings) share with buildings that will not be able to reach net energy positivity, or between buildings with a different consumption pattern, can be a good solution. The Positive Energy District (PED) approach does exactly that, while integrating electric mobility and other improvements for citizens in their living environment. In the H2020-funded POCITYF project, several cities implemented PED-solutions.

Although PED is not a legally defined concept, there are many legal instruments hampering or facilitating PED development. This contribution presents the legal barriers and solutions in PED implementation, based on findings from the POCITYF project. Both the relevant parts of EU law as well as the national perspective from the POCITYF-cities, Alkmaar and Evora are presented.

Opening statements:

- The PED approach can play an important role in the energy transition in urban areas.
- Transposition of EU law related to PEDs is not sufficient in the latest proposal for the Netherlands' new Energy Act.
- Local planning and permitting needs to be more adapted to PEDs.

3. *Unlocking the lock-ins: applying path dependence theory to law in the quest for sustainable energy (Marina Dutra Trindade)*

The presentation analyses path dependence applied to energy law and the energy transition. Path dependence refers to a continuum, to the gradual process of societal change manifest in legal systems, their rationale and their effects in time, influenced by history, ideologies, existing legal traditions and formalistic and instrumental discourses of law. The phenomenon is present in the crafting, legalisation and perpetuation of concepts and processes—which create expectations—and in the deliberately slow pace of legal development. The path dependent character of legal systems puts sustainability goals and law at odds: while the former call for legal disruption, the latter has been traditionally oriented against change. From this overarching dichotomy ensues the need to understand path dependence in law and how it interacts with legal systems and the energy sector. Bringing path dependence theory to assessments guiding norm development can help identify the potential lock-ins, legal and factual, that a given range of possibilities entail for the energy sector. This presentation suggests that if path dependence analysis is part of the criteria informing law- and policy-making, it is possible to minimise the tradeoffs involved in the cross-sectoral and multilevel decision-making processes of the energy transition, and effectively integrate energy and climate law. For example, legal norms related to certainty and the protection of rights of energy investors can be understood according to the needs of the energy transition. In this way, legal certainty, predictability and the coherence of the legal system can be enhanced to advance the sustainable energy transition.

Opening statements:

- The historical development of energy law and climate law through fragmentation and spatial and bilateral contractual approaches has produced a limited understanding of the role of law in the energy transition and hindered the pursuit of sustainability goals.
- Law and legal processes are inevitably path dependent and, as a complex societal institution that creates permanence, stability and predictability, law insulates legal systems from the legal disruption required by the energy transition.
- Understanding path dependence in energy law could provide opportunities and creative constructions for truly reconciling the legal interests, fundamental rights frameworks and societal demands influencing the energy transition, and thereby advance the sustainability goals.

Session B9

Streamlining Permitting and Impact Assessment for Renewable Energy
[Chair: Moritz Reese, Helmholtz Centre for Environmental Research]

1. ***Promoting green investments? Strategic Projects as means to streamline environmental permitting (Tellervo Ala-Lahti and Topi Turunen)***

   Streamlining of environmental permitting is frequently cited as a means to remove regulatory burden hindering innovations and investments. This emphasis rarely underscores investments that contribute to the industry's green and digital transition. Instead, it primarily addresses the obstacles for economic competitiveness of industrial activities. It has also been complicated to pinpoint the unnecessary parts of the permitting, leading efforts towards streamlining to yield unintended outcomes.

   In the EU, investments in green industrial transition are seen as solution to break out of current fossil-based path dependencies. To promote green investments, Commission has proposed new legislation on streamlined permitting processes for strategically important projects under the proposed Critical Raw Materials Regulation and Net Zero Industry Act. Both lay down provisions for strategic projects to facilitate their streamlined permitting, thereby affecting permit procedures within Member States, e.g., maximum duration and a single authority to coordinate and facilitate the procedure.

   This presentation delves into the new streamlining mechanisms created for strategic projects in the proposed regulations. It also examines how to integrate protected interests of the permitting process within the scope of new provisions. There interests include e.g. environmental protection, legal certainty and access to justice. The presentation delineates how streamlining permitting of strategic projects is impacting the focal points, which Member States must take into consideration when permitting these projects. This analysis considers the necessary trade-offs required to achieve the EU's climate goals, acknowledging their potential negative implications on the protection of the local environment for which the permit procedures are specifically designed.

   Opening statements:

   - Streamlining of permitting processes can function as a instrument to promote new green industrial practices.

- The potential for streamlining environmental permitting is limited taking into account the interest that need to be protected within the permitting system.
- Critical Raw Materials Regulation and Net Zero Industry Regulation use old tools in an effort to shift the balance between global and local environmental protection.

2. Accelerating renewable energy projects through EU planning and permitting rules: Adapting renewables development legislation in the times of crisis (Markus Sairanen)

The EU has adopted legislative measures to streamline the planning and permitting of renewable energy projects. While provisions to streamline project permitting have been present in EU energy law for decades, the energy transition and recent geopolitical changes have prompted the EU to strengthen these rules and extend their scope. This presentation explores the underlying logic of the legal provisions that aim to streamline the planning and permitting of energy projects in EU law. It focuses on three legislative techniques used in the Council Emergency Regulation 2022/2577 and the 2023 amendment to the Renewable Energy Directive. First, these acts specify how certain provisions of EU environmental law should be interpreted in the context of renewable energy project development. Second, they make mandatory the practice of identifying areas suitable for renewable energy development and carrying out the necessary environmental assessments during the designation process. Third, the legislation regulates the length and organisation of the permitting process. The presentation argues that the proliferation of these legislative techniques reflects two legal developments. The recent economic and geopolitical crises, as well as the looming climate emergency, have altered the balance of values underlying the planning and permitting of energy projects, favouring rapid project development over competing objectives. However, the concrete legislative measures build on the incorporation of national best practices and the codification of existing interpretations of EU law. This shows that the relationship between renewable energy and development legislation has matured, allowing the adoption of specific standards for renewable energy development.

Opening statements:

- Provisions to streamline the planning and permitting of renewable energy projects aim to resolve the tension between the promotion of fast project development and the need to ensure the achievement of competing objectives.

- The recent geopolitical and economic developments have prompted the EU legislature to resolve this tension in a way that benefits the fast development of energy projects.
- The legislative means of resolving these tensions are based on the codification of existing interpretations and practices.

3. Soft law as a tool for accelerating a sustainable energy transition. Role of guidelines and codes of good practices in renewable energy sources (RES) permitting procedures in the EU (Dariusz Mańka)

The paper aims at assessment if soft law may be considered as a useful tool for accelerating a sustainable energy transition in the European Union. Reflection will focus on few case studies of "guidelines" or "codes of good practices" issued by business organizations, NGOs or even by public administration in cooperation with various stakeholders. Such documents regulate standards that shall be followed in the development processes of renewable energy sources.

From the perspective of legal theory, soft rules play a key role in the globalization of law and global economy being implemented and followed by international corporations and business organizations. Furthermore, a vast variety of soft forms of governance are used within EU's multi-level framework. Such "loosely" binding regulations are often considered as more flexible and adaptable to rapid changes of economic reality and scientific achievements than typical legislation.

As a result, in quest of sustainability in green transition of the European economy, soft law tools may not be neglected. Obviously, it is hard to imagine that such measures would completely replace hard law, however they have a great potential to facilitate energy transition with other challenges such as the move towards circular economy, nature conservation, economic and urban development, or corporate social responsibility. Moreover, regarding still unharmonized permitting processes across the Europe, introduction of such standards by public administration might importantly improve investment climate and social acceptance for renewables.

Opening statements:

- Multicentric soft law are more flexible and efficient tool for integration of nature conservation and other challenges with rapid RES development than vertically imposed national or European legislation.
- Soft law regulations in permitting procedures of the RES increase social acceptance for the "green transition" through broader

participation of local stakeholders to rulemaking processes and dialogue with investors and public administration.

- Soft law documents may be useful to enhance cross-border (both within the EU and with other jurisdictions) cooperation in the implementation of green transition.

4. From environmental impact assessment to permitting decision: Unraveling the impact of the mitigation hierarchy in renewable energy projects in Flanders (Edo Schoone and Sharleen Quarem)

In the balancing exercise between the speeding up of the energy transition and the necessity to protect biodiversity, Environmental Impact Assessments (EIA's) gained increased attention. Even though the EIA plays an important role in the sustainable energy transition by providing indispensable knowledge on environmental impacts, scientific literature has identified several shortcomings in the way that biodiversity damages are assessed. As the EIA lays the foundation of a science-based decision-making process, there is a risk that these shortcomings carry over to the subsequent permitting decision. In this problem, the mitigation hierarchy takes the front seat, which focuses on avoidance at first, followed by mitigation, and considers offsetting (compensation) as a last resort.

To this day, literature that focuses on the application of the mitigation hierarchy in the EIA and the permitting decision of renewable energy projects is limited, even more so in Flanders. Therefore, we start with a clear analysis of the mitigation hierarchy as applied in conservation biology-literature. We then perform a content analysis on the application of this hierarchy in Flemish EIA's biodiversity assessments concerning renewable energy projects, identifying discrepancies between theory and practice. Next, we will look at the different ways the valuation of biodiversity is translated in the subsequent permitting decision, identifying whether the identified discrepancies are carried over to the final decision. More concretely, we focus on the environmental impacts typically assessed across renewable energy projects and the mitigation and compensation solutions proposed, and how this information is reflected in the final permitting decision.

Opening statements:

- EIA's are not only a procedural instrument, but have a substantial impact on the final permitting decision.

- A better understanding of the application of the mitigation hierarchy in EIA's and permitting decisions is key to a sustainable energy

transition.

- The use of the latest scientific insights should be better incorporated in environmental decision making processes.

Session B10

Navigating Conflicts in EU Sustainability Transitions
[Chair: Ceciel Nieuwenhout, University of Groningen]

1. Operationalising precaution in the case of critical material harvesting in the deep seabed (Elisa Cavallin)

Historically, oceans had a role to play in the development of civilisation, and, to this day, they provide considerable resources, such as food and materials. In recent years, blue economy interests have veered towards the most inaccessible and pristine parts of the oceans, the deep oceans and the deep seabed. The vastness of these areas and their potential for critical materials make them particularly attractive for commercial exploitation, and the interest in deepsea mining, in particular, is substantial.

The reasons behind such a race to the deep are, among others, the transition to a low-carbon economy, especially the need for critical materials for the energy transition. That said, for all the economic potential residing on the deep sea floors, deep seabed mining may pose a threat to the marine environment. In addition, the deep oceans and deep seabed environments remain poorly known and understood, meaning knowledge is scarce. The above considerations call for precaution, the precautionary principle being the beacon to follow in cases where science does not or cannot provide definite and certain answers.

Against this backdrop, the proposed presentation aims to examine different possible legal measures to operationalise precaution in the case of deep seabed mining in areas beyond national jurisdiction: a precautionary pause in the form of a moratorium, area-based management tools, impact assessments, and the implementation of an adaptive management approach in decision-making. The contribution will consider the legal basis for- and the regulation of these instruments, and their potential and limitations for ensuring precaution.

Opening statements:

- Critical material harvesting from the deep seabed is an appropriate/ not appropriate avenue for material procurement and supply.
- Critical material harvesting from the deep seabed can/cannot be reconciled with a precautionary approach.

- The discussed instruments are/are not adequate in ensuring precaution.

2. *Land-Use Competition: A Common Roadblock to Integrating EU Energy and Protein Transitions (Vojtěch Vomáčka and Lucie Zdráhalová)*

The EU's pursuit of a decarbonised energy sector and a sustainable protein system necessitates a synchronized transition. While this offers a promising path, Member States such as the Czech Republic (CZ) face a significant challenge: land-use competition. This contribution explores how competition for land between renewable energy production and food security hampers the integration of the EU's energy and protein transitions within the Czech context as the country struggles with both energy transition and dominance of traditional animal agriculture in CZ's protein sector.

We analyse how CZ's dependence on traditional agriculture and limited space for alternative protein production (e.g., insect farms) or legal restrictions to new technologies (agrovoltaics, hydroponics, aquaponics) exacerbate this land-use competition. Furthermore, we present the results of the biofuel production in the CZ which had nightmarish consequences for food production. Other potential roadblocks to this integrated approach are discussed, such as the dominance of traditional animal agriculture in CZ's protein sector, limited infrastructure for alternative protein production and consumer preferences for meat-based proteins.

The contribution presents policy options and technological advancements that can mitigate this challenge in CZ and may serve as a good practice to other Member States. This might involve removal of legal obstacles, targeted land-use management strategies and fostering consumer acceptance of alternative proteins. By addressing land-use competition, CZ can pave the way for a more sustainable future through a unified approach to the EU's energy and protein transitions.

Opening statements:

- Implementing a strategy that effectively co-locates renewable energy projects with new agricultural technologies can prevent land-use competition.

- Targeted financial incentives are not sufficient to overcome the legal, economic and social barriers to a sustainable protein transition. They must be supported by targeted land-use management strategies, promoting new technologies, and fostering collaboration between

energy and protein producers.

- Shifting consumer preferences towards alternative protein sources is crucial for mitigating land-use competition in CZ and enabling a successful integrated approach to the EU's energy and protein transitions.

3. Boosting renewable energy without compromising environmental protection: The challenges for implementation of Directive (EU) 2023/2413 (Renewable Energy Directive III) (Justyna Goździewicz-Biechońska and Anna Brzezińska-Rawa)

The main goal of the latest revision of the EU Renewable Energy Directive (RED III) is to accelerate the progress of renewable energy development. Since planning and permitting aspects are recognised as significant obstacles to achieving that goal, RED III proposes the frameworks for improvements, especially through integrated mapping and planning of renewable energy and the instrument of Renewable Acceleration Areas (RAAs). However, such prioritisation of renewable energy projects may have harmful impacts on biodiversity and weaken of environmental protection legislation.

This presentation aims to assess the potential strengths and weaknesses of this newly proposed EU regulatory framework and the paths for its implementation. It also tries to identify the possible legal solutions on the national and local level to achieve this renewable energy expansion, which is sustainable, minimises environmental impacts, and is socially sensitive and reliable. The synergy potential of innovative approaches such as e.g. agrovoltaics, and other multi-use spaces or coordination with different legislative areas (e.g. with nature restoration law, energy efficiency legislation and spatial planning) are also discussed. Since the policy instruments and legal state of affairs are locally sensitive, the analysis focuses on the Polish regulatory context. However, considering that the Polish system is rooted in common EU law and policy basis, it may to some extent be assessed as typical. These studies could then be helpful for some generalisations and comparative studies.

Opening statements:

- Prioritisation of renewable energy projects can have harmful impacts on biodiversity and weaken environmental protection legislation.

- What national approaches are adopted to solve the dilemma of conflicts between the promotion of renewable energy and environmental protection?

- Multi-use spaces, such as agrovoltaics, are the future of renewable energy expansion.
- Efficient implementation of areas of accelerated RES development will help avoid costly delays in energy transformation.
- RED III does not specify quantitative goals for Renewable Acceleration Areas.

Session B11

Nature Restoration and Renewable Energy
[Chair: Hendrik Schoukens, Ghent University]

1. ***Offshore windfarm parks as unexpected safe havens for endangered species: opening up new legal avenues for reconciling renewable energy goals and nature restoration? (Hendrik Schoukens)***

   The wind energy sector will play a crucial role in the achievement of the EU's Green Deal targets. In order to meet the EU climate targets, the wind energy sector is expected to save up to 270 million of tons CO2 in 2030. This implies a significant increase in the number of wind parks that will have to be approved during the coming years. However, during the past decades, the construction of wind farms was often approached with scepticism by some environmental NGOs, with reference to the expected impact on local biodiversity. For offshore wind parks, reference is made to the adverse effects on the organisms living on the seabed during the construction stage, the heigthenedheightened risks of collision with migratory birds and the noise impacts on sea mammals, such as porpoises. However, in recent years, both in Belgium and the Netherlands, the first results of the well-established monitoring programmes for the first generations of offshore wind farms (2008), has revealed a more nuanced picture. Surprisingly, wind farms at sea also appear to give rise to positive environmental impacts for the local environment. For instance, once offshore windfarms are installed, these sites are left untouched for several years and no bottom trawling as well as dredging can take place. As a result, such zones present themselves as interesting feeding and breeding grounds for several macrobenthic communities as well as bottom-dwelling fish. Also, wind turbine foundations appear to function as artificial reefs for marine wildlife. Moreover, in general, the positive climate impacts, through the avoiding of additional CO2-emissions, also generate positive impacts on biodiveristybiodiversity. Whereas this first generation of monitoring reports has not led to any long-term conclusive findings, it presents itself as an interesting testgroundtest ground for lawyers. In this paper, it is assessed to what extent these positive environmental impacts, might ease up the permitting procedures fort hefor the construction of offshore windfarm projects. Can such positive impacts be included in EIAs and/or appropriate assessment, at an early stage of the decision-making procedure? And, if so, under what conditions? How to balance out positive effects on some species with negative impacts on others?

And to what extent can (or have) avoided CO2-emissions have to be included in an EIA? This legal analysis will be carried out against the benchmark of both the existing legal instruments of EU environmental law, such as the SEA and EIA Directives and the EU Nature Directives, as well as more recent and future legislation, such as the RED III-Directive and the (future?) EU Restoration Law.

Opening statements:

- Is it provocative to state that, in the long run, offshore windfarm parks lead to more positive than negative impacts on the marine ecosystem?
- How can the generic positive climate impacts be used to balance out possible negative impact in the short run?
- Does the precautionary principle present itself as an obstacle against integrating these positive impacts in the impact assessments?
- How does the RED III-Directive provide for more levers in order to integrate these positive impacts in the decision-making procedures?

2. Nature restoration and renewable energy: friend or foe? (An Cliquet)

One of the arguments that have been used by some against the EU Commission Nature Restoration Law proposal of June 2022, was that it would render the transition to sustainable energy more difficult. However, the Commission proposal included an alignment with renewable energy plans. Also, the wind energy sector clearly and publicly stated that wind energy and nature restoration can go hand in hand. This presentation will look at the relationship between restoration and renewable energy in the Commission proposal, as well as in the amendments that have been made, first by the European Parliament in July 2023 and the compromise resulting from the trilogue negotiations in November 2023. The analysis will examine if and to what extent, conflicts could arise. Reference will be made to conflicts that have arisen in the context of the Birds and Habitats Directives. Although it is not excluded that conflicts can indeed arise, it is also argued that in some cases nature conservation and restoration have been used (or rather abused) as arguments against renewable energy projects.

Opening statements:

- Nature restoration and renewable energy can go hand in hand.
- The EU nature restoration law will make the transition to renewable

energy more difficult.

- Nature conservation and restoration is sometimes abused as argument against renewable energy Projects.

3. Taking a value chain approach in legal research: revealing EU climate, energy and biodiversity law interactions with one CCU value chain (Susanna Kaavi and Tiina Paloniitty)

The EU policy-makers consider carbon capture, utlization and storage (CCUS) as an increasingly significant part of its climate change mitigation toolbox to implement the objectives of the EU Green Deal. CCUS enables capturing CO2 from e.g. industrial installations and using it to produce materials, chemicals and fuels, or storing it permanently in geologial formations or long-lived products. When the CO2 is captured and utilized in production or stored, value chains ensue, where the captured carbon is used as a raw material replacing fossil carbon, CO2 emissions are reduced or CO2 is removed from the athmosphere.

The value chains can be numerous depending on the source and use of carbon; our study explores the legal landscape of one of them. Our value chain begins with forest in Finland that is – or ought to be – a carbon sink, a source of biogenic CO2 and biodiversity restoration site. When the biomass is taken to a pulp mill, biogenic CO2 is captured and used for production of e.g. synthetic fuels and plastics.

The regulatory landscape on this value chain is rich and complex, covering e.g. the EU Emission Trading System, the novel Carbon Removal Certification Framework, Renewable Energy Directive, the ReFuel EU Aviation and FuelEU Maritime Regulations, the LULUCF regulation and regulations on deforestation and nature restoration. Each of the studied regulatory instruments treats the CO2 or carbon differently. This value chain brings forth the fundamental question of the relationship between climate change mitigation and biodiversity restoration, and the fulfillment of both aims simultaneously. As a socio-legal approach to law, legal dogmatics research with a value chain approach applied in this article reveals interactions and dynamics between legal instruments when the EU Green Deal is operationalized in real life.

Opening statements:

- The value chain approach to CCU reveals how various legal instruments of EU energy, climate and environmental law can be crucial for CCU to deliver the policy objectives set for it in the EU Green Deal.

- Forests face various pressures: they ought to be carbon sinks, biodiversity restoration sites and source of biogenic CO2.
- Regulation of these angles is both separate and interlinked: the instruments have interactions and dynamics that the value chain approach reveals.

4. Towards sustainable hydropower in EU law? A systemic approach needed (Antti Belinskij and Suvi-Tuuli Puharinen)

This presentation discusses the conflicting approaches to hydropower in EU legislation. On the one hand, the Water Framework Directive (2000/60/EC) aims at restoring water bodies, which is reflected in the Biodiversity Strategy's (COM(2020) 380 final) target of 25,000 km of free-flowing rivers and in the sustainability criteria under the Taxonomy Regulation (2020/852/EU). According to these instruments, the environmental impact of hydropower must be reduced, even at the expense of production. On the other hand, hydropower is considered an important source of renewable energy under EU climate and energy policies. The EU Court of Justice highlighted this aspect in the Schwarze Sulm ruling (C-346/14), allowing a small hydropower facility to constitute an overriding public interest justifying a derogation under the WFD. The RED III Directive (2023/2413/EU) continues this approach by presuming an overriding public interest for all renewable energy installations. This framework fails to provide a coherent legal approach to hydropower.

The presentation argues that a new systemic approach is needed to reconcile the EU climate, energy and water law objectives in the hydropower sector. It suggests that environmental measures should be structured according to a three-way typology that distinguishes between large, small and medium-sized hydropower facilities according to their importance for energy systems. Large facilities merit the application of flexibilities and exemptions in environmental legislation. Small facilities, in turn, should be required to take all environmental measures, including dam removal. Medium-sized facilities require legal assessment and careful balancing on a case-by-case basis. (Iho et al. 2023).

Opening statements:

- The implications of EU legislation on hydropower facilities depend on the size of the facility.
- For small facilities, full environmental objectives should be applied and dam removal considered, while large facilities require climate

and energy law considerations and more limited environmental measures.

- Legal regulation of hydropower has focused too much on individual facilities and technical aspects, without taking into account the overall perspective of the existing hydropower system.

Session C1

International and Comparative Perspectives on Climate Law and Policy
[Chair: Kars de Graaf, University of Groningen]

1. ***Governance Innovation or Imagination? Navigating the EU's Leading Role towards a Climate Club of Green Hydrogen in a Polarized World (Meng Zhang)***

   The gap between the ambitious Paris Agreement goals keeping the 1.5°C target within reach and the feckless climate actions have been vividly portrayed by the first Global Stocktake in COP28. Facing this gap, there is an urgent call for the shift from fossil-based energy production and consumption to renewable energy sources, where the deployment of green hydrogen constitutes a key pillar. Against this background, formulating a Climate Club of green hydrogen based on a common market with uniform standards might become a game changer to comprehensively and systematically accelerate the deployment of green hydrogen through tackling regulatory barriers, supporting the policy design of financial incentives, and improving social acceptance. In the pivotal momentum of deploying green hydrogen during the energy transition, EU has been playing a leading role. Multilaterally, first proposed by Germany and further supported by the EU, the world's first ever international Climate Club has been officially launched on the 1st of December 2023 at COP28. Unilaterally, the EU has adopted the Carbon Border Adjustment Mechanism (CBAM), including hydrogen into its sectoral coverage, with the transitional period entering into force in October 2023. Both the international Climate Club initiative and the EU CBAM provide institutional impetus and regulatory incentive to the establishment of a Climate Club of green hydrogen. This presentation focuses on whether, and to what extent it is legally justifiable, policy creditable, and politically feasible to formulate a Climate Club of green hydrogen as an innovative governance approach to accelerate the deployment of green hydrogen in the EU and beyond. Will the climate club approach be a governance innovation or fall into an imagination for the EU to speed up its ambitious green hydrogen deployment? This presentation might deliver a new horizon.

   Opening statements:

   - Today, we delve into the critical discussion on the formation of a Climate Club for green hydrogen, a pivotal strategy in accelerating the EU's energy transition from fossil-based energy production and

consumption to renewable energy sources.

- Our focus will be on exploring the EU's leading role in initiating and supporting a Climate Club for green hydrogen based on a common market with uniform standards in order to tackle regulatory barriers, support the policy design of financial incentives, and improve social acceptance.

- This presentation will critically assess the legal justifiability, policy credibility, and political feasibility of establishing a Climate Club for green hydrogen, posing the question: Is this approach a true governance innovation or merely an imaginative endeavor by the EU to accelerate green hydrogen deployment?

2. Exploring the Multi-Facets of the EU Carbon Border Adjustment Mechanism (CBAM) (Hitoshi Ushijima)

This paper explores the multi-facets of the EU Carbon Border Adjustment Mechanism (CBAM). First, after showing a brief overview of the CBAM, this paper will describe that Japan, one of the non-EU states having the EPA/SPA, i.e., businesses, governments, and civil society, is paying attention to the CBAM introduction and development. One argues that the CBAM is a good vehicle for levelling a playfield and pursuing less carbon. Some claim that the CBAM might have conflicts with WTO rules. Others understand the CBAM as one of the promising supply-chain regulations for implementing policies and even igniting a reform of supply chains or energy policy.

Second, considering these conversations in media in the Japanese language and some interviews with Japanese businesses, this paper will try to describe the multi-facets and argue the future of a double-sided usage of policy tools to enhance sustainable energy transition.

Third, in conclusion, this paper poses a question: if this transnational supply-chain regulation might be a powerful tool beyond the original intent of the CBAM, would this impact contribute to more reliance on nuclear power as an easy policy in some countries like Japan and would it be the right decision for the global society?

3. Environmental counterclaims in support of global environmental protection (Stanislava Nedeva)

With the rapid expansion of bilateral investment treaties, investor-State arbitration has paved its way to becoming the most preferred dispute settlement method. However, the system has also attracted 'backlash' as it is primarily fault-based oriented and focuses on identifying treaty breaches and allocating compensation to the foreign investor. Contrary

to the maxim that 'no man shall take advantage of his own wrong', arbitral tribunals have sometimes interpreted investor protection so as to make it difficult for host states to establish the investor's contribution to environmental damages. This is particularly discernible in cases where host state introduced domestic regulations to protect the local environment. With the current pressures to reform the investor-state dispute settlement system to bring greater symmetry between the parties, this paper argues that host state environmental counterclaims should be more widely established in investor-state dispute settlement so as to facilitate states' protection of their environment in the narrow sense, but also contribute towards the development of a global environmental protection in international law, wherein investors' conduct will be more greatly scrutinised. A legal basis for this can already be seen in new generation international investment agreements and free trade agreements as well as in international initiatives, such as the ongoing workings by the UN Human Rights Council on creating a legally binding instrument on transnational corporations with respect to human rights, including the right to a sustainable environment.

Opening statements:

In investor-state dispute settlement (ISDS), the investor raises claims alleging breach of investment treaty protections (e.g. fair and equitable treatment, expropriation), with the host State being in the position of the defendant. But this leaves little scope for the state to bring actions against the investor when their conduct might have been contributory and negative on the local environment. Similarly, whilst investment projects impact the wider public welfare, the public interests are protected by domestic legislation and human rights frameworks, but the scope of protection is usually limited to national remedies, before bringing claims internationally.

4. *Litigating the climate transition in the EU: mapping climate-relevant litigation before the Court of Justice of the European Union (Nina Koistinen)*

The unique legal and political framework of the European Union (EU) has enabled the development of a complex set of multisectoral legal and policy instruments for climate governance, involving multilevel infrastructure in its development, implementation, and enforcement – including dispute resolution. This proliferation of EU regulation across divers sectors, ranging from land-use to emissions trading, has produced an abundance of climate-relevant cases before the Court of Justice of the European Union (CJEU). Energy emerges as the preeminent sector implicated in this body of case law. The cases

seen before the CJEU are primarily 'routine', individually motivated cases brought by undertakings and other stakeholders impacted by EU regulatory instruments on climate and energy. These 'peripheral' or 'inadvertent' climate-related lawsuits may be contrasted with the strategic, landmark climate litigation that scholarship tends to highlight. At the same time, the role of litigation in influencing climate and energy policymaking remains underexplored, despite courts' capacity to influence governance processes through dispute resolution and legal interpretation. The present article will address this gap in extant scholarship by mapping the landscape of climate litigation before the CJEU. Trends in such litigation will be identified and analysed in terms of the legal instruments invoked, the parties involved, the types of proceedings brought, and the judicial response to claims brought. The article will contextualise these trends within EU climate and energy policy, thereby laying the foundation for future research into the role of such litigation in EU policymaking.

Opening statements:

- What role has the CJEU played in EU climate policymaking through adjudication on relevant issues?
- How has climate related litigation before the CJEU informed the development and implementation of EU climate law and policy?
- What is the role of non-strategic and inadvertent climate litigation in the climate transition?

5. Sustainable energy transition: is China on the right track? (Yuhong Zhao)

China has pledged to achieve carbon peaking by 2030 and carbon neutrality by 2060. To deliver the climate mitigation commitments, it is making utmost efforts to cap coal production and consumption and tap renewables including hydro, solar and wind power among others. However, large-scale expansion of renewable energy projects at accelerated speed is generating significant adverse impacts on the environment. This paper asks the critical question whether China is on the right track to achieve its dual carbon targets by sustainable energy transition and how.

Unfettered development of renewable energy at high ecological cost is clearly unsustainable. By reference to cases of disputes over renewable power generation and biodiversity protection, this paper first explains such 'green conflicts' in China and then examines how such conflicts are resolved by the courts, balancing the state priority of low-carbon

energy transition and the equally important responsibility of biodiversity conservation. While judicial protection against the ecological harm caused by renewable energy generation is crucial, it should be the last resort due to its high transaction costs and the uncertainty involved. It is more desirable to prevent or reduce such conflicts at the policy design and plan-making stages. Sustainable energy transition cannot be achieved by focusing solely on renewable power generation in China. Priority should be given to energy conservation, improvement of energy efficiency as well as full purchase of renewable energy by the power grid companies so as to ensure the best use of the renewables at minimal ecological cost.

Opening statements:

- Large-scale development of renewable energy projects at the cost of ecological deterioration and biodiversity loss is unsustainable and poses significant risks to ecological security in China.
- Sustainable energy transition in China requires clear state policy and strategy that give priority to energy conservation and improvement of energy efficiency as well as effective regulatory measures to ensure full purchase of energy generated by hydro, wind and solar projects.
- The green conflicts between renewable energy generation and ecological protection should be addressed more efficiently at the policy-making and planning stages rather than by litigation, though judicial protection of biological security is the crucial last resort for ensuring sustainable energy transition.

Session C2

Carbon Markets and Emissions Trading Schemes
[Chair: Irakli Samkharadze, Georgian National University]

1. ***EU ETS and Maritime Emissions: Navigating New Frontiers in European Climate Legislation and International Law (Kunjie (Jacqueline) Wang)***

   The drafted paper will explore the European Union's integration of the maritime sector into the EU Emissions Trading System (ETS) in 2023, critically examining its role within the broader context of European Climate Law and international environmental governance. As the EU sets ambitious sustainability targets, including greenhouse gas reduction and energy efficiency, understanding the EU's regional strategies and their alignment with global frameworks is imperative. This study will focus on the EU ETS, a vital element in the EU's climate strategy, assessing its implementation in the maritime industry– _an area newly subjected to EU's market-based measures. The paper will discuss the innovative yet contentious nature of including maritime emissions in the EU ETS, evaluating its potential as a model for ETS expansion into other sectors. It will also address the compatibility of EU's unilateral measures with international laws and the potential for harmonizing the EU ETS with similar schemes in jurisdictions like China. This analysis is crucial for understanding the dynamics of regional initiatives within global climate governance and for debating the future directions of the EU's climate policies, including potential modifications to the ETS framework.

   Opening statements:

   - Legal Challenges of the EU Maritime ETS: Does the EU Maritime ETS, while compliant with its international climate law obligations, face significant legal challenges regarding extraterritorial jurisdiction?
   - Compatibility with WTO Rules: Does the EU's Maritime ETS contravene the non-discrimination principles of the GATT and GATS? Given these challenges, what measures can the EU implement to ensure its Maritime ETS complies with international trade agreements while still fulfilling its environmental objectives?
   - Exploring the Necessity for Multilateral Cooperation: Is there a pressing need for multilateral cooperation to effectively tackle maritime emissions? What strategies can the EU employ to

strengthen international collaboration and ensure its Maritime ETS is both legally compliant and environmentally effective?

2. ***Unleashing Regional Carbon Markets: Advancing Sustainable Energy Transition via Innovative Carbon Pricing Scheme in the Energy Community (Irakli Samkharadze)***

The European Union (EU) has set ambitious energy and sustainability targets through the European Green Deal initiative and the Fit-for-55 package, which form the backbone of the European Climate Law. Extending the reach of these targets beyond the formal EU membership, the potential for a regional carbon pricing scheme within the Energy Community (EnC) Contracting Parties presents an intriguing case in the EU's eastern neighbourhood.

The paper aims to highlight this matter and uncover the optimal pathways for integrating regional carbon pricing into the energy transition narrative. It engages itself in studying the dynamics of carbon pricing options, regulatory alignments with international agreements (including the Energy Community Treaty), and the strategic positioning of the Carbon Border Adjustment Mechanism (CBAM) within the regional framework. It further explores the collaborative efforts required among the EnC Contracting Parties to ensure effective CBAM compliance and coordinated policy implementation.

This exploration is crucial for understanding how regional carbon pricing can synergize with existing EU instruments, such as the EU Emissions Trading System (EU ETS), as well as the Renewable Energy and Energy Efficiency Directives. By dissecting these interactions and their impact on driving sustainable energy transitions, this paper offers valuable insights into shaping the future landscape of carbon pricing strategies within the Energy Community and its smooth integration into broader European climate policy.

Opening statements:

- What are the optimal policy options for implementing a carbon pricing system within the Energy Community, and how do these strategies contribute to the development of a regional carbon market?
- How do carbon pricing mechanisms within the Energy Community align with the compliance policies outlined in Article 6 of the Paris Agreement?
- What role does the Carbon Border Adjustment Mechanism (CBAM) play in the potential establishment of a regional carbon pricing

scheme, and how can Contracting Parties coordinate their efforts to meet CBAM criteria effectively?

3. Opportunities of Emissions Trading Schemes: A New Perspective (Felix Ekardt)

The best-known advantage of cap-and-trade systems (quantity governance) is that these approaches promise to achieve an environmental goal particularly efficiently in the sense of "at particularly low cost". The presentation shows that there are some more important advantages connected with an ETS. Cap-and-trade approaches can comprehensively address the motivational situation of norm addressees. They by no means address only monetary self-benefit, but also, for example, conceptions of normality and emotional factors such as denial. Furthermore, if quantity control approaches set ambitious caps, if they address easily graspable control units (such as fossil fuels or animal products at the level of slaughterhouses and dairies) on a sectorally and geographically broad scale (i.e., for example, at the EU level plus environmental clubs with other countries plus border adjustments), they can best avoid governance problems such as problems of enforcement, rebound, shifting and depicting of all environmental law instruments. In addition, quantity governance as an environmental law approach encourages both more consistency and more resource efficiency and frugality – and it is particularly compatible with basic principles of liberal democracies because it leaves the greatest possible degrees of freedom while effectively defending the physical preconditions of freedom.

Opening statements:

- The debate on ETS and economic efficiency is misleading.
- ETS, if designed correctly, shows the best ecological effectiveness of all possible instruments of sustainability governance.
- Quantity governance can be combined particularly well with - national or transnational – social redistributive measures. This is because the fixed cap prevents redistribution from undermining the ecological effects of the system, as is the case with environmental levies with revenue redistribution.

4. Carbon, Courts, and Compliance: Analyzing the Legal Challenges of the European Union Emissions Trading Scheme (Raj K. Lahoti)

The European Union Emissions Trading Scheme (EU ETS) stands as a testament to the success of market strategies in the combat against climate change. As the cornerstone of the E.U.'s policy arsenal, the EU

ETS embodies a pragmatic mechanism for cost-effectively reducing industrial greenhouse gas emissions. Originating from the Kyoto Protocol, it has expanded into the most substantial carbon market globally, setting a benchmark for cap-and-trade systems. This paper examines the legal framework that underpins the EU ETS, shedding light on the pivotal litigation it has weathered in E.U. Courts and the consequential rulings that shape its trajectory.

The efficacy of the EU ETS is predicated on its ability to navigate principles such as "individual concern," "equal treatment," and the delicate harmonization with member states' laws, ensuring timely compliance and proportionate penalties. The dissection of critical cases accentuates how legal scrutiny has fortified the scheme's market-based core and defined the regulatory boundaries between the Commission and member states' sovereignty. Moreover, the paper elucidates the E.U.'s assertive role in external environmental policy, including its exclusive competence in renewable energy certification and its influence on member states' international commitments.

Within the ambit of the European Green Deal and "Fit for 55" package, the EU ETS is undergoing transformative reforms aimed at enhancing its market strategy to achieve a 55% reduction in net emissions by 2030. In light of this, the harmonization of legal and policy frameworks proposed underpins the E.U.'s pioneering stance in the global climate dialogue, presenting cap-and-trade as a scalable strategy for international climate policy.

Opening statements:

- How does the EU ETS serve as a model for global climate initiatives, and what lessons can be learned from its legal challenges and successes in leveraging market strategies to drive sustainable energy practices?
- In what ways can the principles of market-based cap-and-trade systems, as demonstrated by the EU ETS, be integrated or adapted into the legal frameworks of other jurisdictions to meet the Paris Agreement targets?
- Considering the evolving landscape of climate policy, what refinements are necessary within the EU ETS to balance the imperatives of environmental integrity, economic viability, and social equity in the transition to sustainable energy?

5. *Ideal Criminal Enforcement Designs for Greenhouse Gas Emission Trading Schemes: Assessing China's Emission Trading Enforcement Strategies (Ying Xie)*

Economic theories of environmental crime and enforcement have been explored. Moreover, a greenhouse gas (GHG) emissions trading scheme (ETS), a type of economic instrument, has also been widely used to control greenhouse gas emissions in different jurisdictions. For example, China gradually established seven pilot ETSs from 2013 to 2014 and launched a national ETS in 2021. The specific features of the violation of ETS regulations may make the economic theories for the ETS enforcement different from those of general environmental law. However, there have not been any articles analyzing the application of economic theories of public enforcement to the ETS context. To fill this gap, this paper aims to examine and advocate for an ideal framework for ETS criminal enforcement from a law and economic perspective and use ideal framework to assess the enforcement regimes of the Chinese ETSs. Section 2 will discuss the economic theories for the criminal enforcement of the ETS. Section 3 will describe the provisions for applying criminal liability to non-compliant enterprises in the Chinese ETSs regulation and China's Criminal Law. Section 4 will use the ideal framework provided by Section 2 to assess the criminal enforcement regimes of the Chinese ETSs. Section 5 will provide a conclusion for an ideal framework for ETS criminal enforcement and the result of assessing the criminal enforcement regimes of the Chinese ETSs under the framework.

Opening statements:

- An ideal structure for ETS criminal enforcement should consist of three models of provisions, applied gradually in a hierarchy according to the seriousness of the non-compliant behavior.
- An ideal structure for ETS criminal enforcement should include the criminal liabilities for both enterprises and responsible individuals.
- The criminal enforcement regimes of the Chinese national and pilot ETSs do not fully conform to the ideal designs for ETS criminal enforcement regimes.

Session C3

Investment and Regulation in the Energy Transition
[Chair: Edwin Woerdman, University of Groningen]

1. Power Purchase Agreements and the Clean Energy Transition (Florian Seitz)

The RED II obliges member states to establish the legal framework for Renewable Energy Communities (RECs). The basic idea of REC is that citizens, public institutions, and businesses collectively produce and consume electricity, thereby generating economic, ecological, and socio-community value. REC is seen as a central instrument to decentralize and democratize energy supply.

The Austrian legislature has already established the legal framework for RECs in 2021, making Austria one of the first member states to implement Article 21 of the RED II. What's particularly noteworthy is how the directive requirements were implemented: The legislature did not limit itself to minimum harmonization but, in a conscious departure from the wording of the RED II, granted expanded participation opportunities. Unlike what the RED II envisages, the REC does not have to be the owner of the generation plant, and independent producers can also participate in the energy community.

Through this progressive design of the REC, Austria has become a model example of energy sharing. Within three years, over 1,000 RECs have been formed in Austria. The legal framework of RECs in Austria thus serves as a role model for other member states and has also influenced the design of the EMD Directive. Article 15a of the directive introduces new possibilities for energy sharing for active customers, reflecting the "Austrian system."

In my presentation, I would shed light on the implementation of REC in Austria from both legal and practical perspectives and illustrate why this form of energy sharing has become a successful model that could be adopted by other member states.

Opening statements:

- PPAs have already been around in the past but this time they came to stay.
- PPAs are a symptom of the loss of confidence in the European

electricity markets.

- PPAs secure the competitiveness of the European Union but pose a challenge for the internal energy market.

2. An Investment by Nature: How to develop a new investment regime that facilitates a just and sustainable energy transition? (Daniela Muth)

The latest IEA Report calculates that we need an annual increase of $4trn globally, if we are to reach our climate targets. This will be difficult to achieve unless we mobilise private investment.

However, the EU's energy policy is focused on achieving a decentralisation of the energy sector with a central role for citizen participation. Studies suggest that community ownership of energy projects not only increases the public's acceptance of the energy transition, but can also make energy cheaper. The Electricity Directive 2019 and the Renewable Energy Directive 2018 define such enterprises as not-for-profit, thereby making them unattractive for private investors.

Furthermore, in its efforts to speed up the energy transition, the EU is watering down some of the existing environmental safeguards, the urgent need for new energy infrastructure often conflicting with the equally urgent need to protect natural habitats.

This paper will compare key provisions in English and German company law to see how these three competing interests can be reconciled under one umbrella with a common purpose. Drawing from research on different ways to grant legal personhood to nature, it will seek to show that by expanding legal concepts and definitions around 'investment' and 'investor', it is possible to reimagine a company that can accommodate different categories of investors: the profit seeking private (and often foreign) investor, the local citizen seeking a personal and community benefit, as well as the natural habitat that is investing the most valuable asset – the natural resource that is used to generate our energy.

Opening statements:

- We need private investment to generate sufficient funds for a successful energy transition.
- Community ownership of energy projects makes energy production more just, more sustainable and more affordable.
- Our natural environment is usually the largest investor in energy

projects but the only one that does not receive a return on its investment.

3. *The tension between the right to regulate and protection of investments in (offshore wind) energy disputes (Berfu Beysülen Angın)*

Offshore wind energy can lead the way for the energy transition. Realizing its full potential depends on significant public and private investments. Generally, the energy sector requires upfront investments of substantial capital, typically compensated over extended periods. Therefore, investors expect regulatory consistency and rely on international investment law protections. However, shifts in states' energy regulations and policies pose a challenge; creating tension between the right to regulate and investment protection. While these concepts may be contradictory, they are both necessary.

Investment capitals are higher and recuperation times are longer in the highly regulated offshore wind energy sector. Consequently, while the aforementioned challenge is part of a larger and inherent problem in international investment, it is more severe within this sector, and balancing these dynamics is crucial to ensure its further development. Yet, there is a notable lack of literature exploring this particular tension in the offshore wind energy sector.

This research aims to address this critical gap. In this context, the early findings of the research on the concepts of the right to regulate and investment protection, and the tension therein from an energy law and investment arbitration perspective will be presented.

Opening statements:

- Similar to investors, states can also have motives -such as political interests, election concerns, promotion of a certain sector at the expense of others, or even corruption - other than public interest for their actions.
- Therefore, our sole focus cannot be on the protection of investments or the preservation of the right to regulate. Focusing on just one part of the equation will result in imbalance.
- We should focus on ensuring the energy transition by keeping both parties (investors and states) in check. A clear normative framework is needed for this purpose. For instance:
- Adjudicators/arbitrators/judges should not shy away from conducting substantive proportionality tests. It should not be only

up to the states to determine whether a regulatory act is proportional or in public interest.

- Whether a regulatory action is in public interest should be substantively questioned. For example, what the societal impact of an investment is should be considered when deciding on investors' claims and their compensations. (A fossil fuel investment invested 30 years ago and a renewable energy investment invested 5 years ago should not be evaluated with the same perspective. Sometimes, protecting the investor is in public interest.)
- While there is room for improvement, investor-state arbitration does not deserve all the criticism regarding its approach towards the right to regulate. (Because while investor-state arbitration tribunals have already shown explicit deference to the right to regulate of states. In fact, tribunals often reject investors' claims.)

Session C4

Legal Frameworks for Sustainable Energy Technologies and Transition
[Chair: Lorenzo Squintani, University of Groningen]

1. ***Developing and Operating Microgrids under EU Law: An Empirical-Legal Study of Transaction Costs (Jamie Behrendt)***

   The European Green Deal sets a clear target of achieving climate neutrality by 2050. This requires concerted efforts to reduce greenhouse gas emissions and increase the share of renewable energy sources (RES) in the electricity mix. However, the EU's ageing centralised electricity grid poses a challenge to the effective integration of RES. Microgrids, decentralised electricity systems, can offer a solution by allowing consumers to generate and consume their own electricity independently. This reduces the load on the centralised grid and increases the use of RES on a local level. However, regulatory uncertainties limit the development and operation of microgrids. This leads to higher transaction costs (TC) in system development and discourages their implementation. To facilitate the development of microgrids, the sources of TC in the regulatory framework need to be identified. Therefore, the central question empirically addressed in this article is: 'What transaction costs arise in the development and operation of microgrids due to uncertainty in the formal institutional framework of the EU electricity sector?' To answer this question, the study uses a mixed method of exploratory surveys and interviews with microgrid developers, operators and connected customers in EU microgrid projects. The results show that microgrids do not fit within the current legal requirements of EU electricity regulation, leading to uncertainty about their legal status. This uncertainty primarily increases TC associated with navigating the regulatory framework. While these findings provide insights into TC that are specific to the limited number of microgrids studied and therefore cannot be generalised, they serve as a valuable resource for microgrid developers, operators and policy makers in anticipating potential costs and reassessing regulatory frameworks.

   Opening statements:

   - With the EU's climate goals imminent, it is time to challenge traditional energy models and embrace innovative solutions such as microgrids for the integration of RES.

- Microgrids are not just a buzzword; they are grassroots initiatives that empower communities to take control of their energy consumption.
- Legal uncertainties surrounding microgrid operation are not just bureaucratic hurdles; they are stifling innovation and holding back progress in the transition towards a sustainable energy future.

2. Hydrogen certification schemes in international trade: A Deep Dive into operational and technical design elements (Francisca Gallegos Aguirre)

Hydrogen, which is not a naturally occurring substance in significant quantities, must be produced using a primary energy source. Once obtained, the hydrogen molecule remains structurally identical and lacks any identifiable fingerprint that could be used to identify its origin, sustainability attributes, or production methods. In recent times, a number of terms have emerged which are used to describe the hydrogen production methods, including ´green´, ´sustainable´, ´low carbon´, ´renewable´, and ´clean´. However, these terms do not provide an accurate method of tracking and tracing the sustainability characteristics in regulations or contracts.

Furthermore, the practice of colour-coding hydrogen to differentiate production technologies has proven to be impractical for the purpose of fully quantifying and describing the emissions impacts of different types of hydrogen. Consequently, it is imperative to develop effective and efficient tracking tools that will enable meaningful comparisons between different types of hydrogen.

In this context, certification plays a key role. By certifying hydrogen on the basis of specific criteria or requirements, it is possible to reduce the information asymmetries that currently exist in the market in relation to the type of hydrogen being traded. Certification mechanisms serve to promote market development by providing an incentive for low carbon and renewable hydrogen producers to gain access to public support, including premium prices.

This article analyses the role of certification schemes for the development of a hydrogen economy. Firstly, the operational design elements necessary for the practical implementation of the schemes will be analysed, as will the technical criteria used. Secondly, a comparative legal analysis of three selected certification schemes from different jurisdictions, approaches, and criteria will be carried out. This methodology ensures a balanced legal assessment of the operational and technical aspects within these certification mechanisms.

Finally, the article will propose recommendations for the harmonisation of certification mechanisms on a global scale, with the objective of facilitating cross-border interoperability and promoting the growth of a global hydrogen economy.

Opening statements:

- The current system of categorising hydrogen by colour has been demonstrated to be inadequate in accurately quantifying and detailing the environmental impact of various types of hydrogen.
- The introduction of hydrogen certification schemes can reduce the information asymmetries between buyers and sellers in the hydrogen market, thereby increasing transparency and trust.
- At present, the hydrogen market is fragmented due to the different certification schemes established by different jurisdictions. This fragmentation could lead to increased administrative burdens, potentially slowing down the growth of the hydrogen economy.

3. Learning from the European Union's (EU) Regulatory Frameworks on Energy Transition and the Indonesia's Omnibus Law Number 11/20: Their Impacts on the Energy Transition Plan 2050 in the EU and Indonesia (Satya Arinanto and Dian Parluhutan)

This research attempts to study the intersection of the European Union's (EU) regulatory frameworks for sustainable energy transitions by 2045, particularly the EU Green Deal, and Indonesia's Omnibus Law No. 11/2020, as amended by Law No. 06/2023. Thus, this research concentrates on how these legislative frameworks can collectively address the challenges of sustainable energy transitions in a geopolitically unstable world, with a particular emphasis on the European Union and ASEAN regions. This research tries to answer how could the EU regulatory frameworks and Indonesia's Omnibus Law synergize to boost sustainable energy transitions, and what are the potential impacts on environmental and economic policies in both regions. Accordingly, this research employs a comparative legal analysis of the EU's Green Deal and Indonesia's Omnibus Law. It also includes a policy analysis to assess the effectiveness of these frameworks in promoting sustainable energy transitions. To date, this study finds that while Indonesia's Omnibus Law aims to simplify licensing and encourage investment in renewable energy, it faces criticism for potentially weakening environmental protections. Conversely, the EU's frameworks emphasize multi-stakeholder participation and robust environmental standards, making it more adept to sustainable energy transition. The research suggests the necessity for Indonesia to adopt

elements of the EU's regulatory approach for enhancing its energy transition efforts and endeavour proportional adaption.

4. Obligations to renovate buildings and proportionality (Nora Bouzoraa)

The revised Energy Performance of Buildings Directive (EPBD) requires Member States to reduce average energy use by 16% in 2030 and 20-22% by 2035, with regards to residential buildings. Member States can achieve this by including measures in their national framework that ensure that at least 55% of the decrease of energy use is achieved through renovation of the worst-performing building stock. With respect to non-residential buildings, Member States should gradually introduce Minimum Energy Performance Standards (MEPS) to renovate the 16% worst performing buildings by 2030 and 26% by 2033. While the introduction of MEPS is only required for non-residential buildings, it can be used as a tool to achieve the necessary decrease of energy use in residential buildings. In the Netherlands, MEPS have been introduced for office buildings in 2023. The Dutch minister of Housing and Spatial Planning announced that MEPS will also be utilized to bring about renovation of residential buildings in rental sector, starting in 2030. The use of MEPS requires owners of buildings that do not comply with the required MEPS to invest in renovation of their property. MEPS limit the owner's freedom to do with their property as they wish. Furthermore, the investments needed to achieve the MEPS are, apart from existing subsidies, not compensated. Lack of compensation, as well as the restriction of the owners' freedom, can make one wonder about the proportionality of such measures, especially in the case of residential buildings.

Opening statements:

- The introduction of MEPS is proportionate. In fact, further reaching measures (i.e. more concrete obligations to renovate) should be implemented to achieve the necessary reduction of energy use.
- Although property rights are of value, sustainability should always be considered more important than any individual's property rights.
- The EPBD should not only require Member States to introduce MEPS for non-residential buildings, but for residential buildings as well.

4 Keynote Speakers

Heleen de Coninck

Heleen de Coninck is a full Professor of Socio-Technical Innovation and Climate Change at Eindhoven University of Technology since 2020, and a Professor in Climate change and system transitions at the Raboud Institute for Biological and Environmental Sciences at Radboud University Nijmegen's Faculty of Science. As a researcher, Heleen's main research focus is on the role of innovation and technology in the international climate negotiations, on policy for making energy-intensive industry climate-neutral, and on the viability and societal dynamics of new technologies for 1.5C-mitigation pathways.

Heleen was a Coordinating Lead Author in the IPCC Special Report on Global Warming of 1.5C and in the mitigation part of the AR6. She was part of the IPCC Working Group III Technical Support Unit during the AR4 cycle, where she coordinated the IPCC Special Report on CCS. She was also a Lead Author in the climate mitigation part of AR5 (2014). Amongst other ancillary activities, she is currently the vice-chair of the Netherlands Scientific Climate Council.

Damjan Kukovec

Born in 1977 in Ljubljana, Slovenia, Mr Damjan Kukovec obtained a law degree at the Faculty of Law of the Univerza v Ljubljani (University of Ljubljana, Slovenia) in 2001 and a master's degree in law at Harvard Law School (United States) in 2002. He studied for a doctorate at that university, and defended his thesis there in 2015.

In 2002, he began his professional career as a judicial trainee at the Višje sodišče v Ljubljani (Court of Appeal, Ljubljana, Slovenia) and held that position until 2004. During 2004, he was a lawyer at the Special Court for Sierra Leone (Freetown, Sierra Leone) and at the Ustavno sodišče (Constitutional Court, Slovenia).

In 2005, Mr Kukovec joined the Court of Justice of the European Union as a lawyer before joining the Legal Service of the European Commission from 2006 to 2018. In 2006, he passed the Slovenian state bar exam.

At the same time, Mr Kukovec dedicated himself to an academic career, mostly in the field of EU law. Between 2011 and 2013, he taught global law at Harvard Law School and at its Institute for Global Law and Policy. He subsequently taught at several universities of law worldwide, including the FGV Direito Rio, Rio de Janeiro (Law Faculty of the Getulio Vargas Foundation, Rio de Janeiro, Brazil) in 2014, the University of Kent's Brussels School of International Studies (Belgium) in 2016, the European University Institute of Florence (EUI, Italy) in 2016 and 2017, and the Univerza v Ljubljani between 2018 and 2020. From 2018, Mr Kukovec was also a senior lecturer in law and Associate Director of the PhD programme at Middlesex University in London (United Kingdom).

Mr Kukovec is the author of numerous publications in EU law. He is a regular guest lecturer at universities worldwide.

Mr Kukovec was appointed as a Judge at the General Court on 13 January 2022.

5 List of presenters

Ioannis Agapakis

Ioannis joined ClientEarth in March 2020, as a Lawyer in the Protected Wildlife & Habitats Programme. His work focuses on the promotion of an ambitious law and policy framework for biodiversity conservation and governance, both within the EU (mainly through the Nature Restoration Regulation) and internationally (through the Kunming Montreal Global Biodiversity Framework. Ioannis is a licensed lawyer in Greece, having trained in a corporate law firm and interned in the UN's Food and Agriculture Organization, working on MEA compliance and international development law.

Francisca Gallegos Aguirre

I am Francisca Gallegos Aguirre, Chilean lawyer and Ph.D candidate at the University of Eastern Finland and also researcher at the Center of Climate Change, Energy and Environmental Law (CCEEL), UEF Law School. I am part of the THERESA programme, focusing on hydrogen regulation. My PhD project is on hydrogen certification schemes. I obtained my law degree from the Universidad de Chile and a Master in Business Law - European and International Energy Law- from the Technische Universität Berlin, where I cultivated my passion for sustainability and energy law. My doctoral research combines empirical legal research, legal comparativism, and doctrinal constructivism to examine hydrogen certification schemes from a comparative perspective.

Tellervo Ala-Lahti

Tellervo Ala-Lahti, a PhD researcher since September 2021, is currently working with the BIOS research unit. She delves into the interdisciplinary aspects of industrial sustainability. Focused on the precautionary principle, industrial innovations, and the nexus of (techno)science and regulations, her research emphasizes considering uncertainties and conducting risk assessments for activities impacting the environment or human health. In her PhD dissertation, Ala-Lahti investigates the interplay between EU environmental legislation and the pursuit of industrial competitiveness, seeking a balance between precaution and the need for swift adoption of innovations for Europe's global competitiveness, framing it as "green growth.

Liv Malin Andreasson

Liv Malin Andreasson is a PhD researcher at the Faculty of Law, University of Groningen. She is specialised in energy and climate law and her PhD focuses

on the legal aspects of large-scale offshore wind energy developments and new energy storage and transport alternatives in the North Sea. She holds an LL.M in International and European Law at the University of Gothenburg and an LL.M in Energy and Climate Law at the University of Groningen.

Berfu Beysülen Angın

Berfu Beysulen Angin is a PhD Researcher in Energy Law at University of Groningen Faculty of Law. Her research focuses on the intersection of energy law, offshore wind, and investment law. She previously worked as an attorney-at-law specializing in commercial law and contract law, representing clients in various dispute resolution proceedings, between 2014 and 2023.

Satya Arinanto

Professor Dr Arinanto has served as the Special Advisor to the Vice President of the Republic of Indonesia for the Legal Affairs since 2009. Concurrently, Professor Arinanto is the University Professor and Head of the Board of Professors of the Faculty of Law at the University of Indonesia. He was awarded the Professorship in 2005 with an inaugural speech entitled: The Politics of National Legal Development in the Post-Reform Era. Professor Arinanto obtained his Diplom of Law (S.H.), Master of Law degree (M.H.) and Doctor of Law degree majoring in the Constitutional Law and Human Rights Law from the Law Faculty, University of Indonesia. He also attended the associate degree programme in Technical Expert Education at the Department of Computer Application, Bandung Institute of Technology (ITB). Professor Arinanto was a Fulbright Scholar for the Constitutional Law of the United States (May-August 2001) in the United States. From 1992 to 1993, he attended the Advanced Education in International Human Rights Law at the University of Notre Dame, Indiana, United States, with a scholarship from the Ford Foundation.

Monirul Azam

Dr. Monirul Azam is working as Associate Professor of Law at the department of law under the Institute of Social Science, Södertörn University, Sweden. Dr. Azam obtained PhD in intellectual property law at the University of Bern, Switzerland and did Master of European Legal Studies at the Södertörn University with a thesis on EU environmental law. Dr. Azam conducted post-doctoral research on sustainable energy transitions and Governance of Sustainable Development at the Tokyo Institute of Technology and United Nations University. Dr. Azam intends to contribute at the intersection of intellectual property law, environmental law, technology law and energy law using an interdisciplinary and qualitative legal method.

Mariusz Baran

Dr Mariusz Baran - Assistant Professor at Environmental Law Center, Faculty of Law and Administration of the Jagiellonian University in Kraków; membership in the Research Network on EU Administrative Law and the European Environmental Law Forum; laureate of scientific awards, inter alia, winner in the Competition of the Minister of Science and Higher Education of Republic of Poland for scholarships for outstanding young scientists in 2015; author of many works in the field of environmental law and EU law.

Vincent-Carlos Barduhn

Vincent-Carlos Barduhn is a second-year doctoral researcher and research associate at the Research Center for European Environmental Law (University of Bremen). He is part of "KomUR", a Network of Competence on Future Challenges of Environmental Law funded by the German Federal Ministry of Education and Research. During his studies at the University of Hamburg, Vincent specialized in environmental and planning law. His doctoral thesis is based on a comparative approach. He analyzes the instruments that Germany and Spain use to reduce air pollution in order to comply with European Union law requirements, especially pollution limit values.

Chioma Vivian Basil

Chioma Basil is a lawyer, and researcher whose career is dedicated to navigating the complex regulatory frameworks in the energy industry. She is currently a PhD Researcher with EJ&SC of the Université de Pau et des Pays de l'Adour, France. Chioma developed an interest in energy law after earning her undergraduate degree in Law from the University of Abuja, Nigeria. She proceeded to pursue her master's degree at the University of Groningen, the Netherlands where she specialized in Energy and Climate Law. She has published some research work in the Journal of Energy & Natural Resources Law, Springer Nature, and Oil, Gas and Energy Law (OGEL) Journal.

Jamie Behrendt

Jamie Behrendt commenced her work as a PhD researcher at the University of Groningen in August 2021. Within the PhD, she empirically assesses how micro electricity grids should be regulated in the European Union in a way that maximises legal certainty in the electricity sector to make an effective and efficient contribution to the energy transition. Prior to the start of the PhD, she completed the LLM Energy and Climate Law as well as the LLM Legal Research at the RUG. During the Master, she was involved as a research assistant in the Energy Law section, and a teaching assistant in the European Law section.

Antti Belinskij

Antti Belinskij is a Professor of Environmental at the Centre for Climate Change, Energy and Environmental Law (CCEEL) within the University of Eastern Finland (UEF) Law School. He is also a Research Professor at the Societal Change Unit within the Finnish Environment Institute, Syke. Antti has a long experience in the fields of water law, environmental law, and climate change law. He also has extensive experience in interdisciplinary research projects. Prior to his academic career, he worked as a senior legal adviser at the Finnish Ministry of Agriculture and Forestry. He received his LL.D. (2011) from the University of Helsinki.

Nora Bouzoraa

Nora Bouzoraa is a PhD Candidate at the department of Private and Notarial Law of the University of Groningen. Her research focuses on obligations to climate proof buildings and how these obligations relate to the protection of property rights.

Lolke Braaksma

Lolke Braaksma is assistant professor at the University of Groningen (The Netherlands). He is affiliated to the Public Trust and Public Law-programme (PTPL) and the Groningen Centre of Energy Law and Sustainability (GCELS).

Anna Brzezińska-Rawa

Prof. Anna BRZEZIŃSKA-RAWA, Ph.D., habil., is employed at the Faculty of Law and Administration, Nicolaus Copernicus University in Toruń (since 2007). Her research focuses on spatial planning law, public construction law and renewable energy law. The other area of expertise is competition law. She authored over 80 peer-reviewed articles, chapters, and books, including two monographs and one academic handbook. She edited or co-edited five other monographs. Author of over 70 book and article reviews. Active in academic teaching. Member of the Polish Academy of Sciences. Principal investigator and contractor in several grants. Member of several international associations.

Giorgia Carratta

Giorgia Carratta is a dedicated researcher working at the intersection of technological innovation and sustainability. As a Postdoctoral Researcher at the University of Muenster, Germany, she investigates bio-based batteries' social and legal implications within the BIOSTORE project (founded by the Ministry of Culture and Science of North Rhine-Westphalia). Giorgia earned her PhD in Economics and Business Administration from HHL Leipzig

Graduate School of Management, Germany, focusing on the legal aspects of microplastic pollution. She holds a Bachelor's and a Master of Law from Università del Salento, Italy. Giorgia's expertise spans international public law and international and EU
environmental law.

Elisa Cavallin

Elisa is an environmental law researcher at Ghent University, investigating the legal aspects of deep seabed conservation and restoration. She is a member of the Legal Working Group of SER (Society for Ecological Restoration) Europe. She holds a Master's degree in Law and an LL.M. in International and European Law, and she is in the final stages of her PhD journey at Hasselt University. She worked in the European Parliament as a policy adviser on energy and environment. Her expertise covers different areas of environmental law, including nature conservation and restoration, agriculture, bioenergy, impact assessment and waste and industrial emissions.

Adrien Chanteloup

Adrien Chanteloup is a transdisciplinary PhD researcher in Environmental Psychology and Energy Law at Groningen University (2023-2027). His current work aims to understand the main psycho-sociological and legal barriers preventing people from engaging in Energy Governance in times of democratic and environmental crises. He obtained a bachelor's degree in philosophy and political science from the Paris I Panthéon-Sorbonne University (2020) before completing a Master's programme in Rural Development and Natural Resources Management (2022) at the Swedish University of Agricultural Sciences in partnership with Scotland's Rural College, working on the dynamics of land ownership inequalities in Rural Scotland.

Ting Chen

Ting Chen is an energy law PhD researcher at Ghent University. Her research areas include renewable electricity promotional law, electricity market regulation and grid regulation. Her PhD dissertation examines legal approaches to adapting the role of energy consumers to facilitate the uptake of renewable electricity. She has published two articles on that subject: (1) T Chen and F Vandendriessche, 'Enabling independent flexibility service providers to participate in electricity markets: A legal analysis of the Belgium case' (2023) 81 Utilities Policy 101496; (2) T Chen and F Vandendriessche, 'Evolution of the EU legal framework for promoting RES-E: A market compatible paradigm shift?' (2023) 83 Utilities Policy 101608.

Denise Cheong

Ms. Denise Cheong is the Head of Energy Law and Policy at the Centre for International Law (CIL), National University of Singapore (NUS). Her research interests centre around law and policy issues that cut across the energy, ocean and environmental sectors. Prior to her current position, she was formerly the Head of Nuclear Law & Policy and was responsible for developing the area into a standalone programme at CIL. In her new role, Denise's research will focus on energy governance issues of international importance and/or regional significance across the energy cycle, particularly those of a cross-cutting nature.

An Cliquet

An Cliquet is a professor at the Department of European, Public and International Law of Ghent University. She is teaching courses on international and European environmental and biodiversity law. The research of An Cliquet is situated in the field of international and European biodiversity law. Her current research activities focus mostly on ecological restoration in international and EU law. She is supervising PhD research on topics such as ecological restoration of peatlands; restoration of international watercourses; online intimidation of environmental defenders; the protection of the environment and armed conflicts; international wildlife trade; and strategic biodiversity litigation.

Endrius Cocciolo

Endrius Cocciolo is an Administrative and Energy Law Associate Professor at the Public Law Department of Universitat Rovira i Virgili (Tarragona, Catalonia, Spain) and a researcher at the Tarragona Centre for Environmental Law Studies (CEDAT) and at the Research Institute in Sustainability, Climate Change and Energy Transition (IU-RESCAT). He is currently the coordinator of a Horizon MSCA Doctoral Network project (THERESA) on hydrogen regulation and the Principal Investigator of an interdisciplinary project founded by the Spanish Ministry of Innovation on energy communities (ComEnerSys).

José Grabiel Luis Cordova

Mr. Luis Cordova is Assistant Professor at the GCELS and the STeP Research Group at the Rijksuniversiteit Groningen. He developed a Joint PhD between the VUB, Belgium, and the UCLV, Cuba. His PhD research was focused on the right to energy. His research has been oriented to Energy Law and Policy (EL&P) with a special focus on Cuba, Latin America, and the Caribbean. His research has also explored EU EL&P, regarding promoting and regulating energy democracy. He has also researched food-energy nexus, energy

consumer protection, energy transition, the Right to Energy, energy access, energy poverty, and PPAs under the Cuban legal framework, among other related topics.

Milan Damohorský

Prof. Milan Damohorský served as Vice Dean for Foreign Affairs and Head of the Environmental Law Department at the Law Faculty of Charles University in Prague for 22 and 20 years, respectively. Since the 1990s, he has been the Czech representative in the World Commission for Environmental Law of the IUCN, and in 2000 he founded and became the President of the Czech Society of Environmental Law. He acts as a legal advisor for the Czech Ministries of Environment and Agriculture. With 35 years of teaching experience, he has taught environmental law, natural resources law, mining law, energy and atomic law, as well as agricultural law, in both Czech and English. He is the author of more than 350 publications, including textbooks, monographs, chapters in books, articles, and contributions.

Kristina Dierkes

Kristina Dierkes is a PhD candidate at the Chair of Professor Pascale Cancik at the University of Osnabrück, Germany, and part of the Network of Competence on Future challenges of Environmental Law (KomUR). She studied law at the Universities of Osnabrück, Strasbourg and Bristol. After passing her first and second legal state examinations as well as a LL.M. in International Law and International Relations, she has started her PhD in January 2023. Ms. Dierkes' research project focuses on the effectiveness of the non-compliance mechanism of the Aarhus Convention.

Otelemate Ibim Dokubo

Otelemate Ibim Dokubo is currently pursuing her PhD at the University of Groningen in the Netherlands, specializing in energy and environmental law. Her academic and professional journey spans Europe and Africa, with a focus on energy transition, environmental sustainability, and the involvement of the public and stakeholders in energy development. She earned her bachelor's degree in law, majoring in environmental and oil and gas law, from Afe Babalola University. Furthering her expertise, she pursued advanced studies in Energy and Environmental Law at the University of Aberdeen. Before embarking on her PhD, Otelemate practiced law in Nigeria.

Felix Ekardt

Felix Ekardt is Director of the Research Unit Sustainability and Climate Policy in Leipzig which he founded in 2009. Since 2009, he is also Professor for Public Law and Legal Philosophy at Rostock University (Faculty of

Law) as well as member of the Leibniz Science Campus on Phosphorus Research. His scientific focus as a lawyer, philosopher and sociologist lies in issues around human science sustainability studies. More specifically issues of transformation, justice (particularly human rights), governance and law (sustainability law/ environmental law and sustainability politics/ environmental politics in terms of developing policy instruments on international, European, national and regional level).

Matteo Fermeglia

Matteo Fermeglia is Assistant Professor of Climate Law and Governance at Amsterdam University, Faculty of Humanities and at the Amsterdam School for Transnational, European and Regional Studies. He holds a Ph.D. in Legal Sciences at the University of Udine, Italy. His Ph.D. Thesis focused on the legal aspects of the European Union Emission Trading System. In 2017, he was visiting scholar at Columbia Law School, where he collaborated with the Sabin Center for Climate Change Law and the Columbia Centre for Sustainable Investments. He was also visiting scholar at Copenhagen University, Graz University and Wyoming University. He regularly (co-) authors internationally peer-reviewed journal articles in the field of environmental and climate law. Matteo was awarded the Raúl Estrada-Oyuela Award for Emerging Scholars in Climate Law in 2017 by Lexxion publishers.

Ruven Fleming

Dr. Ruven Fleming is Scientific Coordinator of the Groningen Center of Energy Law and Sustainability and Assistant Professor at the University of Groningen. He is working as Project Manager on hydrogen projects at the German Fuel Institute (DBI), TU Freiberg, Germany. Dr. Fleming`s research interest is energy law, with a particular focus on hydrogen, `unconventional T forms of energy production, renewable energy and energy investment and trade law. Dr. Fleming published widely on energy law topics, including the Cambridge Handbook of Hydrogen and the Law (CUP, forthcoming 2024). He advises governments and national parliaments on energy law-related issues.

Carola Glinski

Carola Glinski is Professor of Environmental law at the University of Applied Sciences, Trier, and Associate Professor at the University of Copenhagen. Her research focuses on European, international and national environmental law and on private governance. Currently, she co-leads a BiodivERsA network project on biodiversity protection in international trade and transnational value chains ('BioTrade').

Alba Forns Gómez

Alba Forns is a PhD candidate at the Groningen Centre for Energy Law and Sustainability (GCELS). 7 Formerly dedicated professionally to circular economy and environmental law in think-tanks and European Union (EU) institutions, she is now a Marie Curie fellow at the THERESA Doctoral Network 8 constituted by Universitat Rovira i Virgili (coordinator), Rijksuniversiteit Groningen and the University of Eastern Finland. With a background on EU Law, her research at GCELS focuses on reaching energy justice throughout more inclusive and equitable direct (public participation) and indirect (energy communities) decision-making processes for a European green hydrogen economy to take place.

Justyna Goździewicz-Biechońska

Dr. Justyna GOŹDZIEWICZ-BIECHOŃSKA, Ph.D., is Assistant Professor at the Faculty of Law and Administration, Adam Mickiewicz University in Poznań. She holds an MA in law (2004) and a Ph.D. in law (2011). She is also an architect. Her research focuses on environmental law and legal studies regarding natural resources, spatial planning, and renewable energy. In her work, she draws from her interdisciplinary education, academic and practical experience. She authored over 40 peer-reviewed articles, chapters, and one monograph. She has published in leading national and international journals and participated in scientific dialogues presenting her research in many international conferences.

Carolin von Hagen

Carolin von Hagen is a second-year doctoral researcher at the Helmholtz Centre for Environmental Research, UFZ (Prof. Dr. Wolfgang Köck/ Dr. Moritz Reese) in Leipzig. She studied law at the University of Leipzig. After graduating she worked for more than two years as a scientific associate at a law firm, which is specialized in environmental law and the expansion of wind turbines and photovoltaic systems. Currently she is writing her dissertation and is focused on the dismantling, disassembly and recycling of wind turbines.

Natalie Harris

I completed an Ecology and Wildlife Conservation undergraduate degree at Bournemouth University in 2023, being awarded a First Class Honours. My Independent Research Project focused on the marine environment and environmental law through a critical evaluation of policy and legislation protecting UK seahorse populations and is in the process of being published. I am experienced in Bayesian Belief Network modelling and its application to environmental law and science, meaning my work combines science

and law to strengthen the protection legal frameworks provide the marine environment, through evidence-based analysis. I started my PhD research in January 2024, assessing the ecological impacts and legal regulation of hydrogen extraction from saltwater.

Tim Heidler

Tim Heidler (25 years) is a doctoral researcher and research associate at the Institute for Energy, Environmental and Maritime Law, University of Greifswald (Prof. Dr. Sabine Schlacke). He studied Law at the Universities of Münster and Alicante with internships in Bogotá and Brussels. Currently he is writing his doctoral thesis about the German laws of adaptation. This work is part of an environmental law network (KomUR) funded by the Federal Ministry of Education and Research of Germany. His special interest, apart from Environmental and Energy Law, lies in Constitutional Law of the European Union.

Birgit Hollaus

Birgit Hollaus is a post-doctoral researcher at the Institute for Law and Governance at WU Vienna University of Economics and Business. Birgit's research focuses on the relationship and interrelationship between international and EU environmental law, both in a structural sense and in different thematic areas, ranging from species protection to climate change law. Her book, Multilateral Environmental Compliance Mechanisms and EU Environmental Law, has recently been published by Edward Elgar. Her demonstrated interest in the interrelationship between different levels of law informs her current work on the transformative power of science-based law.

Björn Hoops

Björn Hoops is Full Professor of Private Law and Sustainability at the University of Groningen. He read German and Dutch law as well as economics at the universities of Bremen, Groningen, Hagen, and Oldenburg, and obtained a PhD with distinction from the University of Groningen in 2017. His research focuses on land law and governance in the energy transition. From April 2022 to March 2024 Björn was an EU-funded Marie Curie Fellow at the University of Turin, researching the private-law aspects of community energy projects ("Private Law and the Energy Commons").

Zia-Melchior Hoseini

Zia-Melchior Hoseini is an interdisciplinary researcher in Environmental Policy with background in Management (MEng) and built environment (BSc). His current research as a researcher in School of Social Sciences in Wageningen University & Research (WUR) intersects with policies,

regulations, and public administration of Energy Transition with focus on Hydrogen.

Kaisa Huhta

Kaisa Huhta is Associate Professor of European Law at UEF law school and Center for Climate Change, Energy and Environmental Law and Academy of Finland postdoctoral fellow.

Theodoros Iliopoulos

Dr. Theodoros G. Iliopoulos is a visiting professor of European environmental law at Hasselt University and a postdoctoral fellow of FWO (Research Foundation – Flanders) for his project "Quo Vadis European Renewable Energy Support Law", which is being conducted in affiliation with Hasselt University and Ghent University.

Jordi Jaria-Manzano

Jordi Jaria-Manzano is a Constitutional and Environmental Law Serra Húnter Professor at the Public Law Department of the Universitat Rovira i Virgili (Tarragona, Catalonia, Spain) and a researcher at the Tarragona Centre for Environmental Law Studies (CEDAT) and at the Research Institute in Sustainability, Climate Change and Energy Transition (IU-RESCAT). He is chief editor of the 'Revista d'Estudis Autonòmics i Federals / Journal of Self-Government) and currently leads a research project on sustainability in the digital domain, funded by the Spanish Ministry of Economic Affairs and Digital Transformation.

Vilja Johansson

Vilja Johansson is a doctoral researcher at the Center for Climate Change, Energy and Environmental law at University of Eastern Finland. Her research explores the legislative practices that aim to enhance the justness of climate measures, with a focus on the concept of a just transition. In particular, she researches the legal evolution of just transition in international, EU and domestic contexts and the mechanisms that are applied for the implementation of a just transition in different jurisdictions.

Susanna Kaavi

Susanna Kaavi is a doctoral researcher focusing on questions on the interface between biodiversity and climate change mitigation.

Siemen Kalders

Siemen Kalders is a PhD Researcher at Hasselt University as of September 2023. He obtained a master's degree in law from the Catholic University

Leuven (KU Leuven), after which he completed a LL.M in International and European Law at Ghent University. Currently, he works as a PhD Researcher under the supervision of Prof. Dr. Carole Billiet on the topic of insect protection in the EU and Flanders. In particular, the aim is to protect insects in nature conservation legislation and pesticide legislation in order to reflect their importance to the environment, other species, and humans.

Nina Koistinen

Nina Koistinen is a doctoral researcher at the Centre for Climate Change, Energy and Environmental Law, at the University of Eastern Finland. Her research is conducted within the context of the Horizon Europe RETOOL project (https://retoolproject.eu) and examines how courts in the EU shape and are being shaped by climate transitions. She holds a Master of International and Comparative Law from the University of Eastern Finland, having majored in Environmental and Climate Change Law, and a Bachelor of Law and French from University College Cork, Ireland. Her research interests include climate litigation, the human rights-climate nexus, procedural environmental rights, and intergenerational equity.

Juul Kusters

Juul Kusters is a PhD researcher at the Department of Spatial Planning and Environment, Faculty of Spatial Sciences, University of Groningen. She is specialised in marine spatial planning and is greatly interested in the governance of offshore energy systems. She holds an M.Sc. in Environmental and Infrastructure Planning at the University of Groningen and an M.Sc. in Water and Coastal Management at the University of Oldenburg, Germany.

Raj K. Lahoti

Raj K. Lahoti is an attorney in environmental law and natural resources, complemented by a professional background in engineering with a decade of experience. Stationed in Texas, USA, his practice has involved substantive contributions to field emissions assessments and methane mitigation research within the energy sector. Raj holds a Juris Doctor, complemented by a master's and a bachelor's degree in engineering, solidifying his expertise in the intersection of legal and technical disciplines crucial for advancing environmental compliance and sustainable practices in energy production.

Jens Leker

Jens Leker received his doctoral degree in 1993 from the University of Kiel (Germany). He is currently a full professor at the University of Muenster (Germany), where he is director of the Institute of Business Administration at the Department of Chemistry and Pharmacy. Jens is also a professorial

researcher at the Helmholtz Institute Münster. His research focuses on innovation and technology management and the economic and ecologic analysis of energy storage technologies. He is a member of the German Chemical Society, a fellow of the International Society of Professional Innovation Management (ISPIM), and Editor-in-Chief of the Journal of Business Chemistry.

Feja Lesniewska

Dr Feja Lesniewska is a Senior Lecturer in Sustainable Transitions and Environmental Law at the School of Law, University of Surrey. Feja's research focuses on the tensions within legal and regulatory design that exist in initiatives taken to promote a transition to just sustainable futures within planetary boundaries at the UK, EU and transnational level, especially in land use, land use change and forestry as well as recently the construction sector.

Natalia Lisowska

Natalia Lisowska holds a double LLM degree in European Economic Law and Energy and Climate Law from the University of Groningen (RUG). Currently, she is a PhD researcher at the RUG and her research focuses on energy communities, data and energy justice in the designing of energy dataspaces. She is a member of the Security, Technology and e-Privacy Research Group and the Groningen Centre of Energy Law and Sustainability. She is also a part of the DATA CELLAR project, a European Horizon 2020 project, which is developing an energy dataspace that will facilitate the formation and operationalization of energy communities.

Rosalind Malcolm

Rosalind Malcolm is Professor of Environmental Law at the University of Surrey, UK. She co-directs the Governing Plastics Network and the Surrey Centre for International and Environmental Law. She is a barrister at Guildford Chambers and a Fellow of the Institute for Sustainability.

Dariusz Mańka

I am assistant professor at the Faculty of Law and Administration, University of Warsaw. My interests focus on comparative public law, legal theory, and history of legal thought. In my publications and research projects I explored i.e. radical ecologism and its impact on the European climate law and axiology of legal management of natural resources. Besides academic activity I have been advising international RES investors in Poland and I cooperate with the Polish Photovoltaics Association as legal and regulatory expert.

Volker Mauerhofer

Volker Mauerhofer is Professor and Chair in Environmental Science (Specialization in Social Science) at Mid Sweden University. He holds Master degrees in Laws, Natural Sciences and Ecological Economics as well as a Doctorate in Law. Former positions include Attorney-at-Law, Senior Research Fellow & Visiting Professor at United Nations University/Japan, and Coordinating Lead Author of the UN-IPBES Global Assessment/Chapter 6 (2016/17). Currently he holds a visiting position at the Environmental Law Centre of Meiji University (Japan) and is involved inter alia in IUCN's World Commission on Environmental Law (Member) and the European Environmental Law Forum (Advisory Board Member).

Romain Mauger

Dr. Romain Mauger is Head of Legal Research Unit at the Iberian Centre for Research in Energy Storage (CIIAE), Spain. Dr. Mauger's research experience focuses on energy law for the transition to renewable energy sources with two main angles. 1) Studying the applicable legal framework for fast-evolving energy technologies (e.g., batteries, microgrids, electric vehicles charging points) and their end-uses (e.g., flexibility services) in order to propose regulatory improvements. It entails a strong interdisciplinary research experience. 2) To ensure that the specific, technology-based research fits within the bigger picture, Dr. Mauger's research also integrates the notions of energy justice, just transition and degrowth.

Karsten Mause

Dr. Karsten Mause is Lecturer in Political Economy and Post-Doctoral Researcher in the research project BIOSTORE (Biologization of Batteries and Materials: Developing the Battery of the Future) at the University of Münster, Germany. He received an M.A. in Political Science and a Ph.D. in Economics from the University of Marburg. His research focuses on various subfields of Political Economy as a multidisciplinary research field and has been published in the American Journal of Economics & Sociology, Constitutional Political Economy, European Journal of Law & Economics, the Journal of Industry, Competition & Trade, and other social science journals and books.

Álvaro Martín Morán

Álvaro Martín Moran, Holds a BA in French and Spanish law by Paris 1 and the Complutense. He holds a MA in European Governance from Sciences Po Grenoble, a MA on European Studies by the University of Salamanca and a MA in European Interdisciplinary Studies from the College of Europe in Natolin. His previous work experience includes 3 years as an Academic Assistant

at the College of Europe in Natolin. Currently he is a PhD candidate at the University Rovira i Virgili as part of THERESA project. His research involves the regulation of Hydrogen within the circular economy.

Mateusz Muchel

Mateusz Muchel – PhD in EU law, a polish qualified advocate (attorney-at-law). In 2022 he graduated from the University of Warsaw's doctoral studies and defended the PhD thesis on EU environmental law (under scientific supervision of Professor Jerzy Jendrośka). The PhD dissertation was devoted to the issue of transboundary environmental impact assessment within the EU legal framework (summary). He is an academic lecturer in European Union law at the Chamber of European Law at the Faculty of Law of the University of Warsaw. He is a member of the European Environmental Law Forum (since 2018).

Hana Müllerová

Hana Müllerová (JUDr., Ph.D.) leads the Centre for Climate Law and Sustainability Studies (CLASS) established in 2020 at the Institute of State and Law, Czech Academy of Sciences. Within her original expertise in environmental law, her research work included e.g. the human right to environment, public participation in environmental decision-making, or legal protection of animals. Her current specialisation lies in climate law. Here, Hana now focuses on human rights approaches to climate protection, on climate regulation or climate litigation. She authored, co-authored and edited more than 60 publications in Czech and English on environmental law and climate law.

Daniela Muth

I am a doctoral researcher and member of the Climate Change, Energy Policy and Sustainability Research Centre at the University of Westminster, currently writing my thesis on international investment treaties and their potential for supporting a decentralised energy transition. I also teach International Energy and Climate Change Law. I am dual qualified to practice law in the UK and Germany and have extensive experience as a corporate lawyer, advising national and international clients, particularly in the oil and gas sector. I have a bachelor degree in History and Philosophy from Lancaster University and a Masters in Philosophy from Warwick University.

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Dr. Stanislava Nedeva is a Lecturer in Law at Cardiff University, after having previously taught at Reading University. Her main research interests and passion lie in international arbitration (commercial and investment

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Ceciel Nieuwenhout

Dr. Nieuwenhout is an assistant professor of energy law at the University of Groningen. After her PhD (2020) on offshore energy law, she started working on POCITYF as a postdoctoral researcher, investigating the legal framework for PEDs. Next to her work on this topic, she is actively involved in research on offshore renewable energy and HVDC grids in several EU-funded projects. She teaches Energy Market Law (competition and state aid law and the law on cross-border energy networks) and a research seminar in energy and climate law. Next to her academic work, Nieuwenhout is a local politician (Groningen, GroenLinks).

Heloísa Oliveira

Heloísa Oliveira holds a Ph.D. (2020) in Law from the University of Lisbon School of Law, where she is also a Guest Assistant Professor. She serves as a Research Fellow at the Lisbon Public Law Research Centre, where she coordinates the Lisbon Environmental Law Cluster and acts as the principal researcher for the projects Climate Litigation Observatory and Legal Roadmap for Sustainability. She has published 1 book and 27 articles and chapters. Furthermore, she has co-edited 1 special journal issue and 4 books. She has presented 40 oral communications at scientific conferences.

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Kelsey Pailman is an energy law PhD Researcher at the University of Groningen focusing on the regulation of renewable and low-carbon hydrogen in the promotion of sustainable mobility. Her PhD research forms part of the EU Marie Skłodowska-Curie Actions 'Training for a Hydrogen Economy Based Renewable Energy Society in the Anthropocene' (THERESA) Project. The THERESA Project serves as the first European legal doctoral network focussing on the hydrogen economy. Kelsey is also a South African qualified energy lawyer with experience in providing project development, corporate and regulatory advice to global clients in the renewables, oil and gas and mining sectors. She holds an LLM in energy law from the University of Cape Town in South Africa, having also completed an international exchange at Bucerius Law School in Hamburg, Germany focussing on EU and German energy law.

Tiina Paloniitty

Tiina Paloniitty is Associate Professor of Environmental and Sustainability Law at the Faculty of Law, University of Helsinki. She is also Chair of the Board of the IUCN Academy of Environmental Law, and member of the Finland's Nature Panel, scientific advisory panel on nature.

Dian Parluhutan

Dr. iur. Dian Parluhutan, SH., LL.M Eur. was born in Jakarta in October 1979. Currently, Dr. Parluhutan serves as the Assistant Professor on Energy and Competition Law with the EU Law background at the University of Pelita Harapan, Global Campus. Dr. Parluhutan finished his Doktor des Rechts (Dr. iur) from the Fachbereich Rechtswissenschaft, Freie Universität Berlin under supervision of Professor Dr. Dr. Dr. Dr. Franz Jürgen Säcker on the European Union, German and Indonesian Competition Law. Dr. Parluhutan also serves as the research assistant to Professor Dr. Arinanto, Faculty of Law, Universitas Indonesia on Environmental Law and Energy law. Dr. Parluhutan in 2017 worked as the Wissenschaftliche Mitarbeiter responsible for the German Energy Law- Energiewirtschaftsgesetzt (EnWG) research at the Linklaters LLP. Berlin. In 2017, Dr. Parluhutan served as the Research fellow on the energy and competition law at the WTI, Universität Bern. Dr. Parluhutan has accomplished Magister des Europarechts (LL.M Eur.) from the Universität des Saarlandes, Saarbrücken focusing on the European Economic Law and Foreign Trade Law.

Outi Penttilä

Outi Penttilä (LLD) is an environmental lawyer working as Senior Policy Researcher at the Finnish Environment Institute. Her PhD thesis concerned the history of environmentalism and environmental thinking in international law, focusing particularly on how such thinking entered international law and the birth of a legal discipline called "international environmental law". Currently, she works on projects that concern the legitimacy and fairness of Finnish climate actions, governance innovations for sustainable water use, and the role and impact of legal systems in relation to sustainability transformation.

Kleoniki Pouikli

Dr. Kleoniki Pouikli is an Assistant Professor in EU law and Sustainability. Her research encompasses various aspects of EU environmental law, including waste and circular economy, biodiversity, environmental liability, and air pollution. Additionally, she focuses on sustainability issues such as sustainable trade and green public procurement. Previously, she worked as

a Course Director in EU Environmental Law at ERA Academy of European Law and taught EU Environmental Law at the University of Athens. Kleoniki actively participates in conferences and regularly publishes in international and national journals. She is Associate Editor in the Journal for European Environmental & Planning Law (JEEPL).

Maja Pravuljac

Maja joined ClientEarth in September 2018 and since May 2019, Maja works as a Legal Expert at ClientEarth Protected Wildlife and Habitats Programme, focusing on hydro-energy projects and their impacts on rivers, species and habitats. Apart from hydropower, Maja works closely with other legal experts across Europe in ensuring compliance with the EU and international environmental law. Maja is also a member of the Grant Selection Panel at Open River Programme that supports projects that lead to the removal of small dams and the restoration of river flow and biodiversity across Europe. Before joining ClientEarth, Maja worked as a paralegal in the international law firm CMS Cameron McKenna in Glasgow, after interning for the UNCITRAL Secretariat in Vienna and working for a private law firm in Bosnia and Herzegovina after her studies.

Suvi-Tuuli Puharinen

Suvi-Tuuli Puharinen is an assistant professor of European law at the Faculty of Law of Maastricht University. Her research focuses on the EU water, marine, biodiversity and sustainable corporate governance law. She defended her doctoral thesis, addressing the normative water quality objectives employed in EU water and marine environmental law as regulatory concepts, in June 2024.

Sharleen Quarem

Sharleen Quarem is a joint PhD researcher at Hasselt University and KU Leuven in the field of law and economics. Her doctoral research is framed within the interdisciplinary FWO-SBO project Individual-based Value Assessment of Biodiversity in Policy Implementation ("INVABIO"). It focuses on the value assessment of legal and illegal damage to biodiversity in decision making with an individual scope. The nature of her research places her in both the Environmental Law Unit at the Law Faculty of Hasselt University and the Center for Economics and Sustainable Development at the faculty of Economics and Business of the KU Leuven.

Ruben Rehage

Ruben Rehage works as an interdisciplinary PhD researcher at the Groningen Centre of Energy Law and Sustainability (GCELS) and the Department of

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Susana Galera Rodrigo

Susana Galera Rodrigo is an Associate Professor of Administrative Law, specialized in European issues and multilevel governance. She teaches in undergraduate and postgraduate programs relating to national, comparative, and European legal issues. Occasionally, she acts as a Public Law consultant for European and national institutions and bodies on a wide range of public legal issues. She is the author of many published legal works on European Law, Administrative Law, Environmental Law, and Energy Law. She conducts intensive research, being familiar with the interdisciplinary approach. She has 24 years of quality research assessed by the Spanish Government. Some of her more recent published works can be found at: https://urjc.academia.edu/SusanaGalera

Public Law; European Law; Justice, democracy and government; environment; single market; local and regional entities; trade; energy transition and climate change.

Myele Rouxel

Myele Rouxel is a French-qualified lawyer with expertise in litigation and advocacy in the field of EU environmental and agricultural law. She is currently conducting doctoral research on the transformation of the EU legal system away from the growth paradigm and towards sufficiency. Her research particularly investigates these questions at the EU constitutional level and in the food and energy contexts. Her research interests also encompass international climate change law and animal welfare, topics on which she has previously published.

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Ana Ruiz holds a degree in Law from the University of Lisbon Law School (2017) and an LL.M. in Global Environmental Law and Governance from the University of Strathclyde, Glasgow (2022). She is a Policy Analyst at the European Roundtable on Climate Change and Sustainable Transition - ERCST since 2023 and develops her research in the fields of Environmental Law, European Union Law, and International Law.

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Laura Ruszel is a doctoral student at the University of Warsaw. She graduated with honors with a Master's degree in law and a Bachelor's degree in European studies from the University of Warsaw. She is a multiple scholarship recipient as well as has completed academic exchanges at Korea University and Peking University. She specializes in agricultural law and energy law, mainly in the scope of renewable energy investments on agricultural land.

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Ms Nivedita S is a research fellow with the Energy Law and Policy Team of the Centre for International Law (CIL), National University of Singapore (NUS). Her research explores law and policy issues across the energy, nuclear, ocean, security and environmental sectors. This includes the conceptualisation of international energy law, exploring legal and policy frameworks that can promote energy justice and governance of floating nuclear power plants. Regionally, her focus is on conceptualising 'ASEAN nuclear governance' and the development of ASEAN energy norms. Her primary research interest lies in the intersection of different areas of international law.

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Markus Sairanen is a doctoral researcher at the University of Eastern Finland's Centre for Climate Change, Energy and Environmental Law. His doctoral research focuses on the interaction between EU law and EU policies for accelerating the energy transition. He holds an LLM in environmental and climate change law and a BA in history from the University of Eastern Finland. Outside academia, he has advised companies in the energy sector on cross-border projects and transactions.

Irakli Samkharadze

Dr. Irakli Samkharadze is an energy advisor at OMNIA GmbH and Associate Professor, also the Head of the European Integration Research Centre at Georgian National University. He holds a Ph.D. in Energy Law and an LL.M. degree in International and European Public Law from Erasmus University Rotterdam. Within OMNIA, he supports partners in shaping sustainable, competitive energy markets. Previously, he conducted research at FU Berlin, KU Leuven's Institute for Environmental and Energy Law, and Friedrich-Schiller University of Jena. Irakli authored Georgia's first energy law handbook, drafted country's climate law and received several academic and scientific awards over the course of the years. He publishes extensively on energy and climate change.

Edo Schoone

Edo Schoone started in 2022 as a PhD-researcher at the UHasselt Faculty of Law, where he is connected to the Environmental Law Unit and the Centre for Environmental Science. He has an additional master's degree in Environmental Sciences and experience in practice. His work is funded by the interdisciplinary INVABIO-project (www.invabio.eu) and focuses on the historical valuation of biodiversity in law and the valuation of biodiversity damage in permitting and in sanctioning decisions. He has a three-monthly column in the legal journal M.E.R. about recent evolutions in environmental law and has published an article together with several case notes on Flemish and European environmental law.

Hendrik Schoukens

Hendrik Schoukens is a professor of Environmental Law at Ghent University, a municipality councilor in Lennik and active lawyer at the Brussels Bar.

Florian Seitz

I am a 26-year-old doctoral candidate at the University of Vienna. After completing my bachelor's degree in law and business at the Vienna University of Economics and Business Administration, I completed a Master's degree in European Union and International Law at the University of Amsterdam. Subsequently, I decided to pursue a doctoral programme with a focus on European energy law. In addition to my academic pursuits, I have gained experience in the legal field through positions at a law firm, an ESG asset management company, and as a consultant at a national energy supplier.

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Niko Soininen is professor of environmental law at UEF law school and Center for Climate Change, Energy and Environmental Law.

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Prof. Dr. Lorenzo Squintani holds the position of Professor of Energy Law and serves as the Director of the Wubbo Ockels School for Energy and Climate at the University of Groningen in the Netherlands. Additionally, he is the founder and a member of the managing board of the Like!Me Living Lab, dedicated to enhancing the effectiveness of public participation practices in energy and environmental matters. Prof. Squintani is also the founder and board member of the European Environmental Law Forum and the U4 Environmental Law Network. Serving as His extensive research and teaching interests encompass EU substantive law and EU environmental, energy, and climate law.

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Dr. Florian Stangl is an Attorney-at-Law at Niederhuber & Partner in Vienna, Austria, and a Corresponding Member of the Institute for Environmental Law at the University of Linz, Austria. He is a legal advisor to a broad range of clients, including start-up companies, major energy companies, and the Austrian Ministry for Climate and Energy, mainly in the fields of energy law, climate law, environmental law, state aid law, and EU law. Dr. Stangl is the author of numerous publications, including a chapter on EU Climate Policy (co-authored with Romain Mauger) in Woerdman/Roggenkamp/Holwerda (ed.), Essential EU Climate Law, 2nd Edition. He is a speaker at national and international conferences and courses, including the ERA Summer Course on Environmental Law (on the EIA- and SEA-Directive) in July 2024. Additionally, Dr. Stangl is a Groningen Alumni (LL.M. in Energy and Climate Law, 2014) and was a speaker at the first EELF Conference in Groningen in 2013.

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Flaminia Nera Flavia Stârc-Meclejan is an Associate Professor at the West University of Timișoara, Faculty of Law, where she teaches (EU) company law, environmental law, CSR, ethics and legal English (since 2000). She is a member of the Centre for Business Law Timișoara (West University of Timișoara), a member of the editorial board of the journal "Annals of the Faculty of Law, the West University of Timișoara", the Business Law section, of the European Environmental Law Forum (EELF), of L'Association Henri Capitant and of the Romanian Association of Law and European Affairs (ARDAE). She is a lawyer (since 2013) and a trainer at the National Institute for the Training and Improvement of Lawyers.

Roberto Talenti

Roberto Talenti is a PhD Candidate in Agri-Environmental Law at the Sant'Anna School of Advanced Studies (Pisa, Italy). His research interests lie in the study of climate governance with a critical lens. His PhD thesis focuses on the relationship between animal farming and climate change mitigation in the EU. In further research, he critiques the state-centric and growth-oriented legacy of the international climate change regime. He holds an LLM in International and European Law and an MA in Security Studies. Roberto served as a researcher for the Istituto Affari Internazionali (Rome, Italy), Confagricultura (Brussels, Belgium), and the European Environmental Bureau (Brussels, Belgium). Since 2023, he has been a member of the IUCN World Commission on Environmental Law.

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Ilze joined ClientEarth in August 2023 as a Lawyer/Law and Policy Advisor on Environmental Democracy. Her work focuses on ensuring access to information, public participation and access to justice in environmental matters. From 2015 to 2019, Ilze led the Latvian Parliament's fundamental rights, constitutional and public international law litigation before the Constitutional Court of Latvia. Before joining ClientEarth, she worked as a Senior Legal and Policy Officer for a criminal justice NGO, Fair Trials, advocating for better fundamental rights guarantees for suspects in criminal proceedings, and leading its litigation work in Europe.

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Marina Trindade is a lawyer, qualified in Brazil, and holder of two Postgraduate Degrees (master's level) in public law and public international law. Project Researcher, Law School of the University of Eastern Finland, RELIEF Project (funded by the Finnish Strategic Research Council). Executive Assistant, IUCN WCEL Climate Change Law Specialist Group. Legal Researcher, affiliated with the Athens Public International Law Centre (University of Athens) and the Global Network for Human Rights and the Environment. Research interests include public international law, EU law and legal theory, and the specialised fields of environmental law, energy law, climate change and sustainable development law.

Topi Turunen

Topi Turunen (LL.D) is senior research at the Finnish Environment Institute. He has 10 years of experience in the field of environmental law, especially topics relating to circular economy. His current research focuses on regulating circular economy, critical raw materials and plastics. Turunen is the editor-in-chief of the Finnish environmental law journal Ympäristöjuridiikka. Currently, among other duties, he acts as a work package leader in Urban Symbiosis project examining the legal and policy instruments for more efficient critical raw materials management.

Hitoshi Ushijima

Hitoshi Ushijima is a professor of law at Chuo University, Tokyo, Japan, and a visiting senior fellow at LSE, UK. His research foci include administrative law, regulatory policy, and environmental and climate law. Professor Ushijima has teaching experiences at Tulane Law School and KU Leuven and is the author of the Japan Chapter of "Administrative Law and Governance in Asia" (Routledge, 2009). He has been a member of the World Commission on Environmental Law, IUCN. Professor Ushijima received his LL.B. from Chuo

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Frederik Vandendriessche mostly focuses on energy contracts and the regulatory framework applicable to the energy sector. He has experience with on- and offshore renewable energy projects, energy efficiency projects, grid operation and construction, energy commodity trading. Frederik is the author of various publications on his areas of expertise and a regular guest speaker at seminars and conferences. He is also a professor in public law and energy law at Ghent University.

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Jiri Vodicka

I'm an assistant professor at the Department of Environmental Law and Land Law at Masaryk University in Brno. I developed an interest in environmental law early in my academic career. After completing my law degree, I worked as a lawyer at the Czech competition authority, gaining valuable experience in regulatory aspects of law. I focus on environmental and regulatory aspects of the Automotive, climate, and other environmental law themes. I've authored several publications and scientific articles on these topics and regularly present at academic conferences and events. I have taught courses at other universities, such as Brno University of Technology and educational platforms like the Academy of European Law.

Vojtěch Vomáčka

Vojtěch Vomáčka is a leading Czech environmental law expert with over 100 publications. Most cited author in environmental cases before the Czech Supreme Courts. Advises the European Commission on environmental access to justice. Trains judges and prosecutors across Europe.

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Kunjie WANG is a Research Assistant at the Faculty of Law, University of Macau, and a former Visiting Fellow at the Faculty of Law, University of Coimbra. She got her Doctoral degree from University of Macau, and holds two Master's degrees – one in European Union Law from University of Macau and another in Political Economy from University of Torino. She has published several papers in peer-reviewed journals, focusing on her research interests

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Shashi Kant Yadav

Shashi Kant Yadav is a doctoral researcher at the University of Surrey. His research analyses how the differences in legal structures of India and Australia impact the application of the precautionary principle on scientific uncertainties related to hydraulic fracturing. His research has been published in leading environmental and energy law journals, such as the Journal of Energy and Natural Resources Law, Environmental Law Review, and forthcoming in Climate Law, among others.

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Ying Xie is a Ph.D. candidate of METRO at the Faculty of Law, Maastricht University and funded by CSC scholarship. She is a member of the Ius Commune Research School and the European Environmental Law Forum. She obtained an LLB at Qufu Normal University in 2019 and an LLM in International Law at the University of Macau in 2021. She has been invited to give academic presentations at international conferences in Italy, the Netherlands, Croatia, Finland, etc. She published a paper on the Korea-Europe-Review, an open access, peer-reviewed journal. She had internship experience in China's procuratorate and law firms.

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Lucie Zdráhalová specialises in sustainable agriculture and animal welfare. Her expertise also covers public construction law and its environmental implications.

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Dr. Meng Zhang is currently working as a Senior Postdoc Fellow for climate law and policy at the Centre for Climate Change Law and Governance (CLIMA) in the University of Copenhagen (Denmark), focusing on the project "Regulatory Innovation to Incentivize Green Hydrogen (RIGHydro)". Dr. Zhang's research domain embraces international environmental law, EU environmental and climate law/policy, Chinese environmental and climate law/policy, and comparative environmental and climate law. He obtained his PhD degree (Doctor in Law) at Ghent University (Belgium, 2021). In addition, Dr. Zhang also works as an adjunct senior lecturer at the Department of Business Law, Lund University (Sweden); affiliated researcher for human rights and climate change at the Raoul Wallenberg Institute (RWI) of Human Rights and Humanitarian Law (Sweden); a guest lecturer of the EU Jean Monnet Module(EUIndoPac): the EU and the Indo-Pacific region (UCLouvain, Belgium); and a National Rapporteur in the Climate Litigation Initiative (C2LI)

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6 Contact information

For further information about the conference, please contact the Organization Committee (Kars de Graaf, Lorenzo Squintani, Fitsum Tiche, Hans Vedder, and Edwin Woerdman) at EELF@rug.nl.

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