YOUNG EUROPEANS: HOW TO ACT ON THE CLIMATE CRISIS?

An EU Climate Law to navigate by

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Abstract

In many respects, the outgoing European Commission is leaving a meaningful legacy for climate action. The 'Clean energy for all Europeans' legislative package puts the European Union (EU) on track to exceed its binding commitment to reduce greenhouse gas emissions by 40% compared to 1990. Furthermore, the regulation on the Governance of the Energy Union lays out for the first time at EU-level a governance process for EU Member States to formulate their contemplated energy and climate policies for the coming decade and their strategy for 2050. Yet as set out in the recent Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°C, the average global temperature has already reached 1°C above pre-industrial levels and the world is on a sinister course for an increase of 3°C or more by the end of the century. The EU's declaratory aim of reaching 80-95% GHG emissions reduction compared to 1990 levels by 2050 falls short of the new temperature goal enshrined in the Paris Agreement. The key issue at stake for EU countries is no longer whether to reach climate neutrality in the next decades but rather *how*.

Planning and achieving the decarbonisation of the EU's economy in just a few decades may very well constitute the greatest challenge that the EU has ever faced. This research paper argues that the EU must dramatically strengthen its climate governance framework if it is to achieve climate neutrality and, by doing so early enough, to limit global warming to the levels foreseen by the Paris Agreement. The EU's current climate targets are not in line with the EU's climate goals and the EU still lacks a long-term decarbonisation vision. Existing EU policies or decisions sometimes run counter to the clean transition, and there is little room for scientific inputs in climate policy-making. Finally, no particular emphasis is put on public participation in climate policies and strategies, despite the far-reaching nature of climate transition.

In July 2019, the President-elect of the European Commission Ursula von der Leyen committed to propose an EU Climate Law. This proposition constitutes an opportunity to research how the existing EU climate governance framework could be improved and provide the necessary tools for the EU to stem the climate crisis. For the beginning of the next European Commission's mandate, this research paper offers an innovative thinking as to how the EU could undertake a

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profound societal transformation into a climate-neutral economy. At a time when EU climate governance is being scrutinised by the main political groups at the European Parliament, we aim to provide policy-makers with suggestions on how to create an EU Climate Law with enough strength, flexibility and resilience to steer the EU's decarbonisation efforts for the next few decades.

This paper argues that the EU Climate Law should enshrine into legislation a legally binding date by which the EU will become a climate neutral economy, with milestone targets to ensure progress throughout delivery. It should set up a process for reviewing these targets in line with the Paris Agreement cycles, and also for adopting and reviewing a prominent EU long-term strategy for decarbonising each policy sector. The consistency of the EU's climate mitigation action should be enhanced by dedicated mainstreaming provisions into all other EU policies, including a general principle according to which the EU should abandon any practice detrimental to the achievement of its climate targets. The EU Climate Law should also strengthen the role of science in climate decision-making by creating a new and independent expert body meant to assess how EU sectoral policies contribute to the achievement of the climate and temperature targets and to make recommendations for improvement. The transition to climate neutrality cannot happen without public support, and this body should also foster public participation in climate policy-making. Additional provisions specific to public participation would ensure that at least the standards of the Aarhus Convention are met before a piece of climate legislation or strategy documents such as National Energy and Climate Plans or national and EU long-term decarbonisation strategies are adopted. Finally, an EU-level permanent climate and energy dialogue could also promote an informed public debate and collect the contributions of EU citizens and civil society in view of adopting policy proposals during a Conference on the Future of Europe.

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List of Abbreviations

CAR	Climate Action Regulation
COP	Conference of the Parties
EEA	European Environment Agency
EESC	European Economic and Social Committee
EU	European Union
EU Member States	EU MS
EC	European Commission
ETS	EU Emission Trading System
UNFCCC	United Nations Framework Convention on Climate Change
GHG	Greenhouse gases
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)
IPCC	Intergovernmental Panel on Climate Change
LTS	Long-term strategy
LULUCF	Land use, land use change and forestry
TEU	Treaty on the European Union
TFEU	Treaty on the Functioning of the European Union
UN	United Nations
UNECE	United Nations Economic Commission for Europe

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1 Introduction

"*The ambition of the new EU Climate Law, which we will present as part of the European Green Deal within our first 100 days in office, will be to transform the way we make policy and organise our societies. I will propose a Climate Law that will enshrine in legislation the 2050 climate-neutrality objective, and more importantly will set the long-term direction of travel for meeting this objective through all our policies*".

Executive Vice-President-designate for the European Green Deal Frans Timmermans[1]

The past years are characterised by a new fact in the relatively short history of Europe: the defining issue of an entire generation of young European Union (EU) citizens born around the second millennium is the depletion of our natural environment. For many decades, human activities have significantly disrupted the fragile balance on which the earth ecosystem is based on. Millennials today live in an environment that is inherently different from the one their parents and grandparents lived in. Today, one million species are on the brink of extinction[2]. Half the world's trees have disappeared, and massive forest fires have – over just a summer – ravaged millions of hectares of forests in Siberia, the Arctic, Alaska, and Amazonia[3]. Air pollution is causing more than 400 000 deaths in Europe each year[4]. In the year 2019, we had already consumed the Earth's yearly planetary resources on 29 July[5]. We use more than 70% of the land surface available on earth[6], and overexploitation threatens food security. Oceans are warming at

[1] European Parliament, "Answers to the European Parliament questionnaire to the Commissioner-designate Frans Timmermans", 27 September 2019.
[2] Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), "Global assessment report on biodiversity and ecosystem services", *Summary for policymakers*, 29 May 2019, p. 4.
[3] K. Pierre-Louis, "The Amazon, Siberia, Indonesia: A World of Fire", *New York Times*, 28 August 2019.
[4] European Environment Agency, "Air quality in Europe – 2018 Report", No 12/2018, 29 October 2018, p. 11.
[5] World Wildlife Fund, "July 29: Earth Overshoot Day 2019 is the Earliest Ever", 29 July 2019.
[6] Intergovernmental Panel on Climate Change [hereafter: IPCC], "Special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems", August 2019, p. 2.

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alarming rates[7], and the unprecedented melting of the Arctic ice risks leading to a further accelerating warming of our atmosphere[8]. As a result of sea-level rise, populations have started migrating[9] and entire cities such as Bangkok, Mumbai or Alexandria could be submerged by 2050[10]. In contrast to flooding in some areas, one fourth of the world population face extremely high levels of 'water stress' which puts lives at risk and fuels conflicts[11].

One great factor multiplying the frequency and magnitude of these dire events is the warming up of the earth's climate. We already experience a climate on average 1°C warmer than what it was two hundred years ago, prior to the Industrial Revolution – and two-thirds of this increase has occurred in just the last fifty years[12]. The consequences of climate change are felt today, with a very visible multiplication of extreme-weather events such as heatwaves, droughts, floods, or wildfires[13]. All climate policies currently planned – not even yet implemented – by countries put the world on course for a temperature increase of 3°C compared to pre-industrial levels, and the level of ambition needs to be increased threefold to fivefold in order to limit the temperature increase to 2°C or 1.5°C[14]. This gap between countries' ambition and scientific evidence has made climate change a central concern for citizens. On 20 September 2019, in the largest climate demonstration known to date, 4 million people across an estimated 163 countries called for

[7] IPCC, "The Ocean and Cryosphere in a Changing Climate", *Summary for Policy-Makers*, September 2019, pp. 8-9.
[8] D. Drollette (Jr.), "What if the Arctic melts, and we lose the great white shield? Interview with environmental policy expert Durwood Zaelke", *Bulletin of the Atomic Scientists*, vol. 75, no. 5, pp. 241-242.
[9] C. Nunez, "Sea level rise, explained", *National Geographic*, 19 February 2019.
[10] D. Lu, C. Flavelle, "Rising Seas Will Erase More Cities by 2050, New Research Shows, *The New York Times*, 29 October 2019.
[11] R. Hofste, P. Reig, L. Schleifer, "17 Countries, Home to One-Quarter of the World's Population, Face Extremely High Water Stress", *World Resources Institute*, 6 August 2019.
[12] J. Hansen, R. Ruedy, M. Sato, and K. Lo, "Global surface temperature change", *Reviews of Geophysics*, vol. 48, no. 4, 2010, para 67.
[13] IPCC, "Global Warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty" [hereafter: 1.5°C report], December 2018, p. 255.
[14] United Nations [hereafter: UN] Climate Action Summit, "United in Science", *High-level synthesis report of latest climate science information convened by the Science Advisory Group of the UN Climate Action Summit 2019*, p. 16.

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urgent action to increase efforts to stem climate change[15]. The time when citizens – and hence voters – refused to exchange short-term cost for long-term climate benefits has passed.

The EU is widely considered at the international level a frontrunner in the promotion and adoption of climate policies[16]. In 1987, the Single European Act conferred the competence upon the then-European Communities to develop an environment policy[17], and the first policy documents addressing climate change at EU-level can be traced back to a European Commission (EC) communication of 1988 and to European Council (EU heads of state) conclusions of 1990[18]. In 1992, countries adopted the United Nations Framework Convention on Climate Change (UNFCCC[19]) and the EU resolved to push for efforts to mitigate climate change at the international level. In a 1996 Environment Council, EU Member States' (MS) environment ministers agreed that "*global average temperatures should not exceed 2 degrees above pre-industrial level*"[20]. In 1997, more than 150 countries signed the Kyoto Protocol to the UNFCCC[21] which includes binding emission reduction targets for a number of them. As part of this Protocol, the EU15 committed to reducing greenhouse gases (GHG) emissions by 8% compared to 1990 levels by the first commitment period (2008-2012)[22], an objective which was overachieved without a need for specific climate legislation[23].

[15] C. Farand, J. Russo, *"*'Four million' join students in climate marches, building pressure on leaders*"*, *Climate Home News*, 20 September 2019.
[16] See for example C. Dupont, S. Oberthür, K. Biedenkopf, "Climate change: Adapting to evolving internal and external dynamics" in Adelle, Camilla, Katja Biedenkopf & Diarmuid Torney, *European Union External Environmental Policy: Rules, Regulation and Governance Beyond Borders,* Palgrave Macmillan, 2018.
[17] Former art. 130r of the Treaty establishing the European Community [hereafter: 'TFEU']. For updated treaty provisions, see art. 3(3) of the Treaty on European Union [hereafter: 'TEU'] and art. 11 of the TFEU.
[18] T. Delreux, F. Ohler, "Climate Policy in European Union Politics" in Laursen F., *The Oxford Encyclopedia of European Union Politics*, Oxford University Press, 2019, pp. 2-3.
[19] United Nations, United Nations Framework Convention on Climate Change, 9 May 1992.
[20] European Commission, "A Community strategy to reduce CO2 emissions and improve fuel economy – Council Conclusions", *Press release*, 1996, para 6.
[21] United Nations, Kyoto Protocol to the United Nations Framework Convention on Climate Change, 11 December 1997.
[22] J. Delbeke, P. Vis, EU Climate Policy Explained, Routledge, 2015, p. 15.
[23] A considerable part of the cuts in GHG emissions were due to economic restructuring in former East Germany, the switch from coal to gas in the UK, and Luxembourg's restructuring of the steel industry. See European Commission, "Memo 04/43 – Kyoto Protocol", *Press release*, 4 March 2003.

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But efforts remained insufficient to curb GHG emissions worldwide. In March 2007, EU Member States agreed to take commitments at EU level though in absence of an international agreement. The European Council adopted an EU-wide independent commitment to reduce GHG emissions in the EU by 20% compared to 1990 levels by 2020. It also committed to raise this objective to 30% under the condition – which was never fulfilled – that "*other developed countries commit themselves to comparable emission reductions and economically more advanced developing countries to contributing adequately according to their responsibilities and respective capabilities*"[24]. A set of binding legislation – the so-called '2020 climate and energy package' was negotiated to implement this 20% objective. It notably included the EU Emissions Trading System (ETS)[25] which puts a price on carbon emitted in the power, industry and aviation sectors through the purchase of emission allowances. It also included the Efforts Sharing Regulation[26] – today known as the Climate Action Regulation (CAR)[27] – which sets individual targets for EU Member States to reduce GHG emissions in a combined set of sectors (road transport and intra-EU maritime shipping, buildings, small industry, agriculture and waste). Other EU legislations included renewable energy[28] or emission performance standards for new passenger cars[29].

But efforts remained insufficient to curb GHG emissions worldwide. Following a 2011 roadmap which presented options for decarbonising the EU's economy[30], the European Council endorsed in October 2014 a new target to reduce EU GHG emissions by 40% compared to 1990 levels by

[24] European Council, conclusions of 8/9 March 2007 7224/1/07, 2 May 2007, para 31-32.
[25] European Union, Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC, 13 October 2003.
[26] European Union, Decision No 406/2009/EC of the European Parliament and of the Council on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, 23 April 2009.
[27] European Union, regulation 2018/842 of the European Parliament and of the Council on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013, 30 May 2018.
[28] European Union, Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources, 23 April 2009.
[29] European Union, regulation 443/2009 of the European Parliament and of the Council setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO 2 emissions from light-duty vehicles, 23 April 2009.
[30] European Commission, "Communication: A Roadmap for moving to a competitive low carbon economy in 2050", COM(2011), 112 final, 8 March 2011.

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2030, accompanied by a binding target for increasing the share of renewable energy consumed in the EU and a non-binding target for improving energy efficiency[31]. In 2018, the EU finalised the legislative process to incorporate these targets into specific legislation, including through a regulation on the Governance of the Energy Union and Climate Action[32].

Fifteen months later, the EU participated in the successful negotiation of a universal treaty – the Paris Agreement under the UNFCCC[33] – whose aim is to "*hol[d] the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change*"[34]. But today, efforts remain insufficient to curb GHG emissions worldwide. In order to meet this ambitious temperature goal, the current EU GHG reduction target must again be increased, and the EU must reach climate neutrality – which means achieving a net balance between emissions and emission removals (through oceans, forests, or technology)[35] – within a timeframe compatible with the Paris Agreement's temperature goal[36]. According to the latest science, the world must become climate neutral by 2038 for a 66% chance of limiting global warming to 1.5°C, or by 2048 for a 50% chance[37].

In August 2019, the President-elect of the European Commission Ursula von der Leyen committed to proposed "*the first European Climate Law to enshrine the 2050 climate-neutrality*

[31] European Council, conclusions of 23-24 October 2014, EUCO 169/14, 24 October 2014, para 2-3.
[32] European Union, regulation 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action [hereafter: Governance regulation], 11 December 2018.
[33] UNFCCC, *Decision 1/CP.21 on the adoption of the Paris Agreement*, FCCC/CP/2015/10/Add.1, 29 January 2016.
[34] Art.2-1(a) of the Paris Agreement.
[35] IPCC, 1.5°C report, p. 545.
[36] The independent scientific analysis of the Climate Action Tracker rates the EU's current climate commitments as "insufficient" with even a 2°C target, let alone the 1.5°C limit: "if all countries were to follow the EU's approach, warming would reach over 2°C and up to 3°C". Climate Action Tracker, *EU*, 2019.
[37] IPCC, 1.5°C report, p. 96.

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target into law"[38]. A component of the European Green Deal, this EU Climate Law is viewed as the instrument which will set the "*long-term direction of travel for all our policies*"[39].

Since 1987, the history of EU climate policy-making shows that although the EU has been effective at delivering its promised GHG emissions reduction targets, it has not adopted those targets as part of a conscious planning, which would have relied on a scientific and cost-effectiveness approach, designed to achieve a full decarbonisation objective. The EU has so far failed to put forward legislation whose level of ambition was sufficient to meet its 1996 non-binding objective of keeping the EU below a temperature increase of 2°C. At the same time, the recent findings of the IPCC Special Report on Global Warming of 1.5°C leaves no doubt that the key issue at stake for the EU is no longer whether or not to reach climate neutrality in the next few decades but rather *how*. The crisis we face is one of a new kind, which will require immediate efforts sustained in the long-term. This research paper argues that the EU needs to dramatically strengthen its climate governance framework if it is to achieve climate neutrality and, by doing so early enough, to limit global warming to the levels foreseen by the Paris Agreement. Pledges and targets need now be complimented by a rigorous planning process which drives implementation. Using the political opportunity of an EU Climate Law proposed by the President-elect of the European Commission von der Leyen, we will research how such a piece of legislation could improve the existing EU climate governance framework and provide the necessary tools for the adoption of far-reaching legislative measures which are required to tackle the climate crisis.

A crisis can be defined as an abnormal and dangerous situation which requires immediate action in order to avoid harmful outcomes. The climate crisis is not an unforeseen event but science is adamant in the urgency and dangerousness of the situation for humans' natural environment. A governance framework refers to the political processes in place allowing for the establishment, monitoring and implementation of policies. In this sense, the scope of the EU Climate Law is to design the governance structure in which sectoral climate mitigation legislation will later be

[38] Candidate for President of the European Commission Ursula von der Leyen, "A Union that strives for more: my agenda for Europe", 16 July 2019, p. 5.
[39] European Parliament, hearing of Frans Timmermans, Executive Vice-President-designate for the European Green Deal before the European Parliament, 8 October 2019.

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enacted, but it falls outside its scope to include substantive provisions meant to decrease the EU's GHG emissions. Finally, the term 'law' refers to a binding EU legislation, which could correspond in strict legal terms to a 'directive' or to a 'regulation'.

In this paper, we conceive the EU Climate Law as a governance structure which will enable the EU to successfully continue its journey towards climate neutrality. As flying is a very polluting means of transportation, we will prefer to use the metaphor of a trip on board a sailing vessel to announce our outline. Before carrying on our decarbonisation expedition, we will analyse the reasons for an EU Climate Law (2.1) and identify specific improvements to the existing EU climate governance system (2.2). We will then make the inventory of the features our vessel needs to reach destination, starting with a compass and navigation map: binding targets all the way to climate neutrality, and a strengthened EU long-term decarbonisation strategy (3.1). We will need a robust mast – mainstreaming tools (3.2) – to ensure that the sails can catch the wind of change. Science should guide climate legislation, and so it will lie in the captain's cabin (3.3). Finally, we will not forget the crew, as nothing can happen without citizens and a participative democracy (3.4).

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2 Preparations for travel: rationale for an EU Climate Law

The EU has been developing the most advanced set of legislation in the world for reducing GHG emissions [40]. Yet its governance framework is not developed enough for planning a transformation into a climate-neutral EU (2.1). An EU Climate Law would strengthen the currently underdeveloped EU climate governance structure (2.2).

2.1.1 On course for climate neutrality: addressing the shortcomings of the existing EU climate governance framework

The changes which are necessary to curb GHG emissions are of such scale that the scope of climate action can only be conceived through a long timescale. We have entered a process of mitigating the impacts and adapting to the effects of climate change that may never leave the realm of public policy. The decisions we take today concerning each sector of the economy must hence be carefully considered as part of a wider plan to limit the global average temperature to around 1.5°C. Yet, the governance tools the EU currently has at its disposal do not allow for such planning. These tools consist firstly in a 2009 non-binding objective of limiting GHG emissions by 80-95% by 2050 compared to 1990 levels[41]. Such a forward-looking objective remains a mere statement of intention if not backed by concrete plans[42], and it has in fact proven insufficient since the last decade to steer the decarbonisation of the EU's economy at a sufficient pace. The second tool at the EU's disposal is more comprehensive than a long-term objective: the 2018 Governance regulation established a framework designed to "*implement strategies and measures designed to meet the objectives and targets of the Energy Union and the long-term Union greenhouse gas emissions commitments… from 2021 to 2030*", to "*stimulate cooperation between Member States*", to "*ensure the timeliness, transparency, accuracy… of reporting*" and

[40] Delreux and Ohler, "Climate Policy in European Union Politics", p. 3.
[41] European Council, Presidency conclusions of 29-30 October 2009, 15265/09, para 7.
[42] M. Duwe & al., "'Paris compatible' governance: long-term policy frameworks to drive transformation change", *Ecologic Institute*, 2017, p. 26.

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to "*contribute to greater regulatory certainty… [and] investor certainty*"[43]. For the 2021-2030 period, the Governance regulation foresees the drafting by EU Member States of their national energy and climate plans (NECPs) for meeting their GHG reduction target, which must follow a binding template, are subject to a preliminary review from the EC, and must be updated in 2024[44]. Member States are also required to draft national long-term strategies (LTSs) "*with a perspective of at least 30 years*" [45] using a non-binding template. The regulation also includes a comprehensive set of reporting requirements accompanied by cooperation and technical support clauses, and a possibility for the European Commission to address insufficient progress – for example through new legislative proposals.

The Governance regulation constitutes a good basis for implementing the 2030 target and it is considered a "*strong foundation*"[46] for an EU climate law. Yet it falls short of a fully-fledged EU climate governance framework. The main purpose of this regulation was to design the processes for implementing the current 2030 target of 40% GHG emissions reduction and its provisions do not put the EU on track for climate-neutrality. The Governance regulation does not include climate targets – for 2030 or beyond – nor does it include mechanisms for reviewing these targets or assessing their adequacy with the Paris Agreement. It also does not enshrine an EU LTS for decarbonising the EU's economy or at least the process which would prepare its adoption. Perhaps as a fateful consequence, the entire set of NECPs and national LTSs which must be submitted respectively by 31 December 2019 and 1 January 2020[47] risks becoming immediately outdated in light of current work at EU level for increasing the 2030 target and adopting a 2050 climate-neutrality target[48].

The figure below outlines the existing features of the EU climate governance framework which will need strengthening for planning the complete decarbonisation of the EU's economy.

[43] Art. 1 of the Governance regulation.
[44] Art. 3, 9, 14 and annex III of the Governance regulation.
[45] Art. 15 and annex IV of the Governance regulation.
[46] N. Meyer-Ohlendorf, L. Fee Meinecke, "A Climate Law for Europe: Making the Paris Agreement real", *Ecologic Institute & The Greens/European Free Alliance*, 2018, p. 11.
[47] Art. 3(1) and 15(1) of the Governance regulation.
[48] See Candidate for President of the European Commission, "A Union that strives for more", p. 6; European Council, conclusions of 20 June 2019, EUCO 9/19, 20 June 2019, para 4.

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Figure 1: Climate governance features for planning the EU's journey to climate neutrality

Features of a climate governance framework	Existing features in the EU acquis
Climate neutrality target and milestone GHG emissions reduction targets	• European Council conclusions setting an objective of reducing GHG emissions by 80-95% compared to 1990 levels by 2050[49]. • European Council conclusions setting a target to reduce EU GHG emissions by 40% compared to 1990 levels by 2030[50].
Periodic review of GHG emissions reduction targets	• No formal review process for GHG emissions reduction targets.
LTS for achieving climate neutrality	• 2011 EC communication "A Roadmap for moving to a competitive low carbon economy in 2050" presenting possible action for delivering an 80-95% GHG emissions reduction by 2050[51]. • 2018 EC communication "A Clean Planet for all" presenting full decarbonisation scenarios by 2050[52]. • No formal process for adopting and subsequently reviewing an EU LTS for achieving climate neutrality.
Mainstreaming provisions to ensure consistency of action	• Treaty-level recognition of the need to mainstream environment protection into all policies[53].
EU MS national strategies and plans for implementing EU targets	• National LTSs with a perspective of at least 30 years, and updated every five years[54]. • Integrated national energy and climate plans (NECPs) 2021-2030[55].
EU-wide reporting on the achievements of climate targets	• Comprehensive EU MS reporting (NECPs implementation, GHG policies, measures and projections, national adaptation actions, energy efficiency and renewable energy measures)[56]. • EC yearly state of the Energy Union report and biennial assessment of progress[57].
Scientific advice in policy-making	• European Environment Agency (EEA) support with reporting and data compilation[58].

[49] European Council, Presidency conclusions of 29-30 October 2009, para 7.
[50] European Council, conclusions of 23-24 October 2014, para 2.
[51] European Commission, "Communication: A Roadmap for moving to a competitive low carbon economy in 2050".
[52] European Commission, "Communication: A Clean Planet for all: A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy", COM(2018) 773 final, 28 November 2018.
[53] Art. 3(3) of the TEU and art. 11 of the TFEU.
[54] Art. 15(1) of the Governance regulation.
[55] *Ibid.*, art. 3.
[56] *Ibid.*, art. 17, 18 and 19.
[57] *Ibid.*, art. 29 and 35.
[58] *Ibid.*, art. 42.

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Public participation	• Multilevel climate and energy dialogue to discuss scenarios for energy and climate policies.[59] • EU bodies (e.g European Economic and Social Committee) and procedures not specific to climate (e.g public consultations, roadmaps, inception impact assessments, etc).

Although the existing elements of the EU climate governance framework may be considered suitable for a near-term and business-as-usual scenario, they should be significantly strengthened for the EU to enter a thorough planning process of complete economic decarbonisation. For example, the EU should adopt a backcasting approach to ensure a timely delivery of climate neutrality – meaning that it would set a date for achieving its ultimate objective and then a timeline for delivering on time. An EU Climate Law could complete the EU's climate governance framework to make it fit with this objective, and ensure that all institutions, sectors and the society as a whole are ready for adopting the measures necessary for reaching climate neutrality.

2.1.2 Planning for success: the benefits of completing the EU's climate governance framework

The point was made previously that the 2030 target adopted in 2014 has not yet been revised to match the new global temperature goal set in the 2015 Paris Agreement, and that the revision of this target risks making obsolete NECPs and national LTSs that will only just have been finalised. This example illustrates the importance of developing a strong climate governance framework which will be flexible, resilient, and capable of steering the EU's decarbonisation efforts for the next decades. The adoption of the Governance regulation was the first step in this process, but there is still a void at the centre of the EU's climate legislation galaxy, around which all different pieces of legislation would orbit and which would provide the full picture and pathway towards a climate-neutral economy. The figure below portrays this current situation:

[59] *Ibid.*, art. 11.

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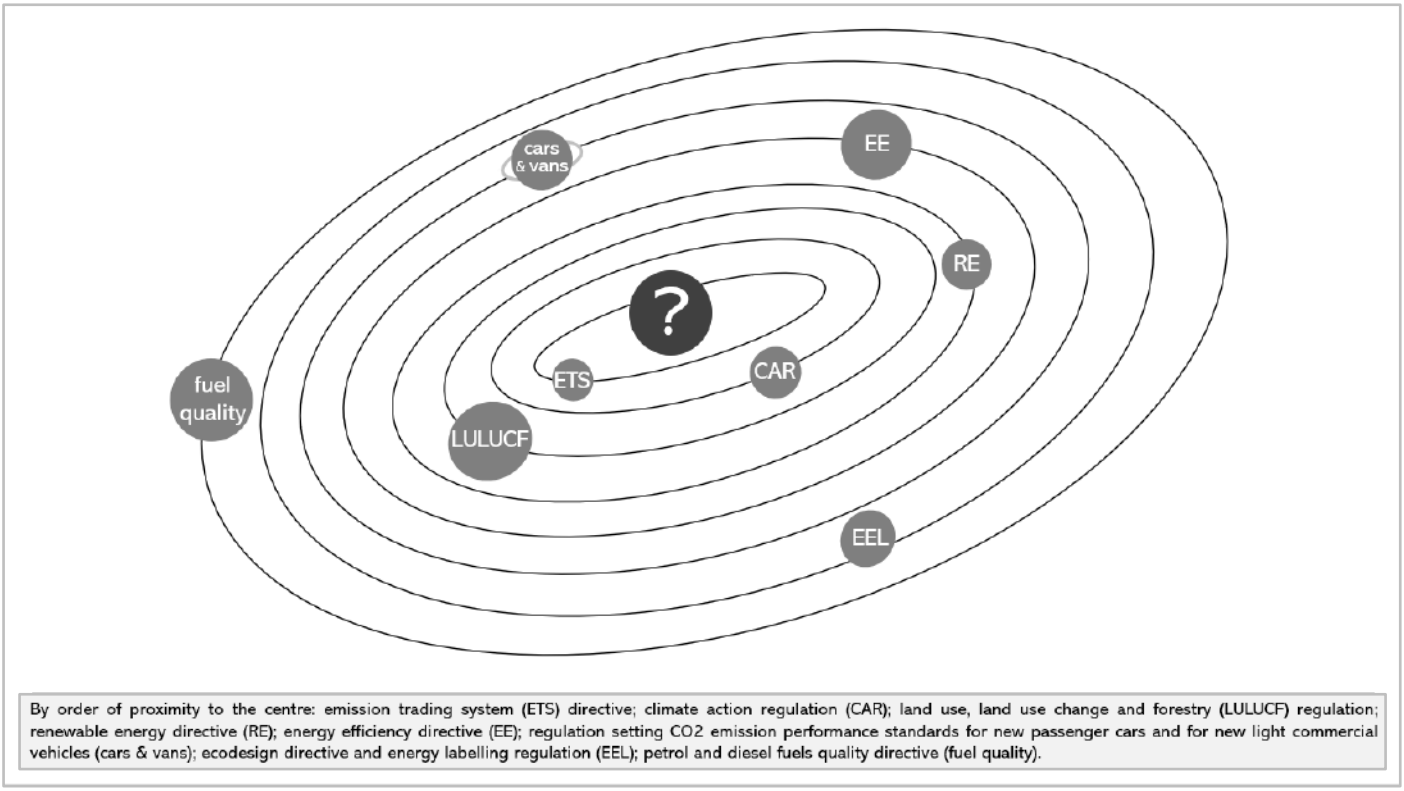
Figure 2: The missing governance star at the centre of the EU's climate solar system



By order of proximity to the centre: emission trading system (ETS) directive; climate action regulation (CAR); land use, land use change and forestry (LULUCF) regulation; renewable energy directive (RE); energy efficiency directive (EE); regulation setting CO2 emission performance standards for new passenger cars and for new light commercial vehicles (cars & vans); ecodesign directive and energy labelling regulation (EEL); petrol and diesel fuels quality directive (fuel quality).

While leaving intact the existing pieces of sectoral legislation mentioned in this figure, the EU Climate Law could fill the question mark at the centre of the galaxy and constitute the main governance instrument around which the implementing legislation would revolve. Such a Climate Law would provide the tools necessary to ensure that the EU follows consistently the path towards climate neutrality. These tools include a legally binding target date for climate neutrality and a backcasting approach containing milestone targets to ensure delivery; an operational mainstreaming principle which ensures consistency of all EU policy-making with the climate neutrality goal; scientific advice prior to setting targets and for assessing their implementation; and public participation in the realisation of the economy's shift towards climate neutrality. These tools are not an exhaustive list of requirements for planning climate neutrality, but rather a collection of governance features which are lacking and which could be implemented at EU level. They have been incorporated in many national climate framework laws adopted in

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EU Member States to steer decarbonisation efforts[60]. Besides, they could coexist with the Governance regulation, leaving its national LTSs, NECPs and reporting features virtually untouched.

Completing the EU's climate governance framework through an EU Climate Law would result in better linking long-term planning with short term implementation. A full and binding climate neutrality date with milestone targets would provide enough visibility and certainty for investors to avoid long-term investments in carbon-intensive technologies. Furthermore, a prominent EU LTS would ease the negotiation of sectoral GHG emissions cuts, as policy-makers would have a grasp of the regulatory conditions and incentives that each economic sector require to achieve the transition. It would strengthen policy-coherence across sectors, and reduce inconsistencies in the EU's different and sometimes competing policies.

The EU Climate Law would also be a meaningful contribution to climate policies in general as the EU is the right policy level: a large number of national climate legislations are derived from commitments made at EU level, and they are developed within the frame of the EU's single market and regulatory rules. There are clear limits to looking at individual EU Member States' GHG emissions – and ways to reduce them – without an understanding of all the wider EU regulations, from the regulation of the internal energy market to EU funding available for the renovation of buildings or even eco-labels for lightbulbs[61]. A governance framework at EU level has an effect from the highest level of climate policy-making in EU countries, and the development of a single EU LTS derived from the assessment of 28 national LTS has a value greater than the sum of its parts.

The adoption of an EU Climate Law to govern climate processes for the next decades has also a symbolic significance which may create political momentum for the adoption of more ambitious targets, and thus increase the chances to meet the Paris Agreement's temperature goal. It may

[60] The following EU Member States have adopted national climate framework laws which include governance features: Austria (2015), Denmark (2014), Finland (2015), France (2015), Ireland (2015), the Netherlands (2018), Sweden (2017), the UK (2008). See Ecologic Institute, "Key elements in existing national climate change laws in the EU", Climate Recon 2050 Conference, 23 May 2019.

[61] See for example European Commission, Decision 2002/747/EC establishing revised ecological criteria for the award of the Community eco-label to light bulbs and amending Decision 1999/568/EC, 9 September 2002.

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increase the feeling that the EU is accountable for delivering swift GHG emissions reduction, with a possibility to hold the EU or its Member States accountable to their commitments before courts in case of non-compliance. At the international level, it would also send a strong signal that developed countries are committing themselves to stringent climate rules, increasing their credibility and hence the likelihood that other countries will follow.

Creating a process that allows the public to participate in the decarbonisation of the economy will also ensure buy-in among those who will bear the consequences of an unfair transition or of a delayed transition. The societal transformation which underpins climate neutrality is so consequential that EU citizens should be involved more deeply than through other legislative processes, and an EU Climate Law can constitute the right legal tool to define this involvement. Equally, the EU Climate Law can ensure that expertise, including scientific expertise, is given its rightful attention in the conversation on avoiding the most dramatic impacts of climate change.

Finally, climate may constitute the make-or-break moment for the EU. Climate neutrality can be part of the answer to the existential question of where the EU is going. In a context of growing populism and mistrust in public policy, the way we tackle the climate crisis has the potential to shape nothing less than our future society, with its values, its new economy and social protection. The manner and pace we choose for our economic decarbonisation will determine how many will win and how many will be left behind the climate and energy transition. Now is the right moment to promote the vision of a prosperous, innovative, resilient, sustainable, fair and democratic future, and the EU Climate Law can be one of the many tools for pursuing this goal.

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3 Setting sails: Features of an EU Climate Law

Having exposed the reasons in support of a comprehensive EU Climate Law which sets out a climate governance framework fit for meeting the Paris Agreement's temperature goal, we will now articulate the main features of the proposed EU Climate Law. It should be built around four key pillars: legally binding and forward-looking targets and strategy (3.1), the mainstreaming of the climate neutrality objective into all EU policy areas to ensure consistency within and between sectors (3.2), the better integration of expertise and science into law-making and objective-setting (3.3), and strengthened participative democracy in the implementation of the clean and just transition (3.4).

3.1 Targets and strategy as the compass and navigation map for the journey

A key element for undertaking an important journey is to know the destination and how to get there. Binding targets will be the compass showing the course towards the right destination (3.1.1), and an EU LTS will be the map which guarantees that the EU doesn't stray from this direction (3.1.2).

3.1.1 Legally binding targets: the importance of scheduling regular stopovers up to climate neutrality

In 2007 and 2014, the European Council set a binding objective of reducing the EU's GHG emissions respectively by 20% in 2020 and by 40% in 2030 compared to 1990 levels[62]. The 2015 Paris Agreement follows this targets-based approach by requesting each Party to adopt and ratchet up a "*nationally determined contribution [NDC] every five years*" with each successive

[62] European Council, conclusions of 8/9 March 2007, para. 31-32; European Council, conclusions of 23-24 October 2014, para 2.

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NDC representing "*a progression beyond the Party's then current [NDC]*"[63]. NDCs are in substance voluntary although legally binding GHG reduction targets that each Party sets for itself. In 2015, the EU has submitted an indicative NDC identical to its target of a 40% GHG reduction target compared to 1990 levels by 2030[64]. By virtue of the Paris Agreement, the EU will update its NDC during the year 2020[65] and also in 2025 following the Paris Agreement's first global stocktake in 2023[66]. At the 25th Conference of Parties (COP) under the UNFCCC, countries are expected to decide whether the common time frames for the implementation of NDCs beyond 2030 should be five years (i.e 2031-2035) or ten years (i.e 2031-2040)[67].

But the Paris Agreement leaves it open for each Party to determine the process through which it will adopt and submit its NDC every five years. The EU Climate Law constitutes the opportunity to integrate the Paris Agreement's rules into the EU acquis through processes which complement and are tuned to those of the UNFCCC. While the current practice of target-setting is the realm of the European Council, the EU Climate Law could enshrine these targets into EU law instead, shifting the decision-process from a non-transparent and solely political negotiation among heads of state to the codecision procedure which governs legislation-making in EU environment policy[68] – meaning that the European Parliament and the Council of ministers must jointly agree to a legislative proposal submitted by the European Commission[69].

This shift would have several advantages. First, it would bring clarity and accessibility to a decision process which is likely to affects the entire EU climate and energy acquis, since new targets will be implemented in the EU legislation. If the EU is to review targets every five years and to submit its NDC to the UNFCCC according to the Paris Agreement, then it should not be

[63] Respectively art. 4(9) and 4(3) of the Paris Agreement.
[64] Latvian Presidency of the Council of the European Union, "Intended Nationally Determined Contribution of the EU and its Member States", 6 March 2015, p. 1.
[65] Council of the European Union, "Preparations for the United Nations Framework Convention on Climate Change (UNFCCC) meetings (Santiago de Chile, 2-13 December 2019)", *Environment Council conclusions*, 12796/19, 4 October 2019, para. 11.
[66] Art. 14(2) of the Paris Agreement.
[67] UNFCCC, "Report of the Subsidiary Body for Implementation on its fiftieth session, held in Bonn from 17 to 27 June 2019", 5 August 2019, para 32-34.
[68] Art. 192(1) of the TFEU.
[69] Art. 289 and 294 of the TFEU.

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only for EU heads of state to decide during two-day summits whether, when and how the negotiation should proceed. Leaders' agenda can evolve as crisis emerge, and the debate on the EU's climate ambition requires time and expertise.

Secondly, the vast societal consequences which underpin the revision of a climate target calls for democratic participation and accountability. The European Parliament has already expressed strong views on the 2030 target and the climate neutrality goal, for example in a 2019 resolution calling for their respective increase to 55% compared to 1990 levels and achievement by 2050[70]. The involvement of the European Parliament would increase the legitimacy of such targets and may increase public support for their achievement. A parliamentary debate would also open the debate on climate action to the EU society, from businesses to civil society organisations and from regions to cities.

Thirdly, enshrining climate targets into EU law would ensure that these targets are legally binding. The EU treaties state that the European Council "*shall not exercise legislative functions*" as its role is to "*provide the Union with the necessary impetus for its development and [to] define the general political directions and priorities thereof*"[71]. While the European Council can certainly provide political impetus by announcing climate targets, such targets should be transposed into EU legislation in order for the EU as a whole to be accountable to all – including to judges – for their implementation.

The European Council has repeatedly announced that it would "*finalise its guidance*" in December 2019 on announcing a date by which the EU must become climate neutral[72]. In her political guidelines, the President-designate of the European Commission von der Leyen has committed to enshrine this date – which she believes should be 2050 – into the EU Climate Law[73]. But she did not commit to also include other milestone targets, once the Parties to the UNFCCC have determined which dates should be used as a reference for climate targets. What

[70] European Parliament, "Resolution of 14 March 2019 on climate change – a European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy in accordance with the Paris Agreement", *P8_TA(2019)0217*, 14 March 2019, para. 1 and 23.
[71] Art. 15 TEU.
[72] European Council, conclusions of 20 June 2019, para 4; European Council, conclusions of 17 and 18 October 2019, EUCO 23/19, 18 October 2019, para. 4. 11954/19, 15 October 2019, para 4.
[73] Candidate for President of the European Commission, "A Union that strives for more", p. 5.

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is known at this stage is that the EU must submit its 2030 target as NDC in 2020, and the EU Climate Law could hence enshrine the 2030 target into EU law as the first milestone target towards the achievement of climate neutrality; and also lay out the process for the adoption of subsequent milestone targets at a later stage.

President-elect von der Leyen has made her intention clear to "*reduce emissions by at least 50% by 2030*" and even "*towards 55% in a responsible way*"[74]. To include the 2030 target in the legislative proposal of the EU Climate Law – and therefore subject to the codecision procedure – may help the European Commission achieve its objective to increase this target given the previous support that such revision enjoyed in the European Parliament and among progressive EU MS[75]. Furthermore, increasing the 2030 target may be the only way to achieve climate neutrality by 2050 as it would be very difficult to achieve a 60% GHG emissions reduction compared to 1990 levels in the two remaining decades – and also less cost-effective[76]. Finally, enhancing this target is a logical step since the existing legislative framework already puts the EU on track for a 48% reduction[77], and even 50% if we include the EU MS' coal phase-out announcements[78].

3.1.2 An EU long-term decarbonisation strategy: the navigation map to escape the reefs

To include a climate neutrality date as well as milestone targets would constitute a very useful governance tool for the EU Climate Law, but targets should be complimented by a fully-fledged strategy which responds to the question of how to achieve climate neutrality. Since 2009, the

[74] *Ibid.*, p. 6.
[75] See for example J. Ekblom, "Eight EU countries call on Timmermans to raise 2030 climate goal to 55%", *Reuters*, 8 October 2019.
[76] G. Zachmann, "Some arguments for increasing the EU's 2030 climate ambition", *COP21 RIPPLES Consortium*, 2019, p. 4.
[77] European Commission, "In-depth analysis in support of the Commission communication COM(2018) 773", 28 November 2018, p. 198.
[78] Sandbag, "Halfway There, existing policies put Europe on track for emission cuts of at least 50% by 2030", March 2019, p. 4.

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vision for the EU's long-term reduction of GHG emissions has been set in European Council conclusions, which state the objective of an EU-wide GHG emissions reduction of 80 to 95% by 2050 compared to 1990 levels. The 2015 Paris Agreement invites Parties to undertake a similar exercise in a more formalised setting through the formulation of "*long-term low greenhouse gas emission development strategies*" by 2020[79]. As a result, the European Commission was requested in 2018 to adopt "*a proposal for a Union long-term strategy for greenhouse gas emissions reduction in accordance with the Paris Agreement*"[80]. The communication 'A clean Planet for All'[81] presents eight GHG emissions reduction scenarios – including business as usual – and decarbonisation option for each economic sector. It has been a very useful instrument for building wide support for the adoption of a 2050 climate neutrality target.

Like with the NDCs, the Paris Agreement does not specify the process by which its Parties should finalise their long-term strategy. At the EU level, the European Council is to "*finalise its guidance before the end of the year [2019] with a view to the adoption and submission of the EU's long-term strategy to the UNFCCC in early 2020*". But there is no process at the moment which clearly sets out which stakeholder should be involved in the drafting of the EU's LTS, nor what is the role of this document or how it should be revised. Only a process for adopting the EU LTS which is transparent, participative and democratic will realise the full potential for this document to become central to policy-making and to guide the adoption of future EU legislation in all sectors for the decades to come.

The EU Climate Law can once again constitute the tool which would implement the Paris Agreement and set out the process for the adoption of an EU LTS. The EU LTS is recognised as an important planning instrument[82] and legal provisions outlining its adoption and revision process would constitute a useful addition to the EU climate governance framework. The EU

[79] Art. 4(19) of the Paris Agreement; UNFCCC, Decision 1/CP.21: Adoption of the Paris Agreement, para. 35.
[80] Art. 15(2) of the Governance regulation.
[81] European Commission, "Communication: A Clean Planet for all".
[82] A. Rüdinger & al., "Towards Paris-compatible climate governance frameworks. An overview of findings from recent research into 2050 climate laws and strategies", *IDDRI & Ecologic*, Study N°04/18, 2018.

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LTS' legitimacy and recognition would significantly increase if the European Parliament and the Council were to give their consent to the creation of such process, through the EU Climate Law. The adoption of this strategy document may also ease the negotiation of the implementing legislation by increasing its technical focus – working on the achievement of the sectoral decarbonisation scenario – and decreasing its political substance. In this context, the entire set of implementing legislation may even be increasingly considered in its entirety rather than as a patchwork of legislation which ought to be reviewed at different moments[83].

The EU Climate Law could list the institution(s) tasked with proposing a first draft of the EU LTS – for example the European Commission – which could then be enriched through the consultation of key civil society stakeholders such as businesses and labour and non-governmental organisations. The EU Climate Law could also request that a specific template is used for drafting the EU LTS, which would include expert assessments outlining all decarbonisation options, their cost and opportunity. Furthermore, the adoption process should also build upon the national LTSs which EU Member States are requested to submit to the European Commission by 1 January 2020[84]. At the moment, these two processes are disconnected, which may produce uncertainty and even inconsistencies[85]. The adoption process of the EU LTS could include structured discussions on the content of EU MS' LTSs to identify opportunities for coordinated actions.

Climate targets and a fully-fledged EU LTS would equip the EU with a compass and navigation map to sail towards climate neutrality. But good governance also calls for a consistent EU action throughout all areas of policy-making.

[83] Art. 15 of the CAR, art. 17 of the land use, land use change and forestry (LULUCF) regulation and art. 30 of the ETS regulation allude to a review 'in light of national circumstances and of the implementation of the Paris Agreement'. The Governance regulation should, according to its art. 45, be reviewed within six months of each global stocktake under the Paris Agreement.
[84] Art 15 of the Governance regulation.
[85] C. Bausch, M. Duwe, "Planning for 2050 – Summary Briefing", *Climate Recon 2050*, 2019, p. 4.

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3.2 Mainstreaming climate neutrality across all policy sectors: a robust mast to support implementation

If the EU is to truly embark on a transformative journey towards climate neutrality in a few decades, it must make sure that nothing will divert its course once on the high seas. Subsequent EU legislation – either implementing the EU's GHG emissions reduction targets or other legislation whose subject is not directly related to climate – must be fully consistent with the climate neutrality objective, or the EU risks losing precious time. In a way, the EU treaties already call for such a consistency in climate action, as they state that "*environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities, in particular with a view to promoting sustainable development*"[86]. The EU shall also work on a "*high level of protection and improvement of the quality of the environment*"[87] and integrate these two elements "*into the policies of the Union*"[88].

But the general formulation of the treaties' provisions and conflicting policy objectives have sometimes led to the adoption of legislations which, instead of respecting a high level of protection of the environment, have had serious detrimental effects on climate. These legislations are not considered a violation to the treaties because legislators and judges apply a proportionality test to weight in different policy objectives. Competing policy interests – such as for example trade policy and environmental protection – hence need to be reconciled through a compromise over the different interests at stake. In theory, the enhancement of the EU's climate targets and the adoption of the climate neutrality objective should affect the policy-makers' conception of a 'high level of protection' of climate. For example, while a certain legislative provision would not have been deemed inconsistent with an objective to reduce GHG emissions by 40% compared to 1990 levels by 2030, it may become inconsistent with an enhanced 2030 target or a climate neutrality target. But in practice, a positive obligation to take measures to achieve a target does not automatically translate into a negative obligation to refrain from taking

[86] Art. 11 of the TFEU.
[87] Art. 3(3) of the TEU.
[88] European Union, "Charter of fundamental rights of the European Union", *Official Journal of the European Union*, C364, 18 December 2000, art. 37.

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measures which jeopardise the achievement of the said target. The treaty objective of working towards a 'high level environmental protection' and the translation of that objective into climate targets therefore do not guarantee the consistency of the EU's action in other policy areas.

The EU Climate Law could support the consistency of the EU's action in the climate policy field and include a negative obligation for the EU to refrain from taking action which jeopardises the achievement of the climate targets. The adoption of this new principle would support the implementation of EU policies and contribute to the development of a more sustainable economy. A chapter dedicated to the mainstreaming of climate objectives in all policy fields could hence include as core provision a general principle according to which: 'in order to ensure the integration of the EU climate targets into the entire EU legislative acquis, the EU institutions must undertake a review and revision of any practice detrimental to the achievement of the said targets'. The practical effect given to this provision would be to compel all acts taken by EU institutions to be consistent with the climate neutrality goal, through the wise scrutiny of judges. A compelling behaviour counterproductive to a clean transition is the EU's continued financial support to the construction of fossil fuel infrastructures through the European Investment Bank[89] in a context where the stock and lifespan of all existing fossil-fuel infrastructures already jeopardise the objective to limit the earth's temperature to 1.5°C[90]. This general principle may also apply against the use of climate funds to replace fossil fuel-based power plants by more efficient fossil fuel plants, or to switch from coal to gas infrastructures, since maintaining fossil fuels locks in emissions at a level substantially higher than the 1.5°C target[91]. This principle would enjoy a dynamic interpretation in light of the latest scientific data available.

This contemplated negative obligation to refrain from behaviours which put climate at risk is a useful addition to the positive obligation for the EU to take the necessary measures for

[89] J. Watts, "Concerns as EU bank balks at plan to halt fossil fuel investments", *The Guardian*, 15 October 2019.
[90] See D. Tong & al., "Committed emissions from existing energy infrastructure jeopardize 1.5 °C climate target", *Nature*, 572, 1 July 2019.
[91] See for example L. Stockman, K. Trout, B. Blumenthal, "Burning the gas 'bridge fuel' myth: why gas is not clean, cheap or necessary", *Oil Change International*, May 2019, p. 7; See also Bloomberg New Energy Finance, "New Energy Outlook 2019, 18 June 2019.

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implementing climate targets. As a result of the adoption or increase of climate targets through the EU Climate Law, the existing set of climate legislation will need to be revised and strengthened. Although it is not within the scope of a governance framework to directly revise the implementing legislation, the EU Climate Law could guide this revision by suggesting to expand the EU climate legislative arsenal to areas which are not yet regulated. Specific provisions could request the European Commission to bring forward legislative proposals on a set of topics by a specific date. A consistent trajectory towards climate neutrality means that the EU should address for example the effects of the non-CO2 effects of aviation, or the adverse impact of methane on global warming. These two issues are raised in the preamble of the Governance regulation but have not yet given rise to policy proposals[92]. Likewise, the European Commission could be requested to tackle the EU's international and ecological footprint since the EU's imported consumption is a net source of GHG emissions in third countries[93]. In the financial sector, other requests for legislative proposals could include the alignment of EU financial institutions' and private financial flows with the climate neutrality objective; or an amendment of the flexibility clause of the Stability and Growth Pact[94] to exclude public investments in the decarbonisation of the EU's economy from the calculation of the national deficits.

A chapter dedicated to the mainstreaming of climate targets in all EU policy-making would increase the consistency of the EU's action and speed up decarbonisation efforts. Target-setting and decarbonisation pathways require extensive scientific expertise, and the EU Climate Law could strengthen the role of science in policy-making.

[92] See respectively (52) for aviation and (53) and art. 16 of the Governance regulation for methane.
[93] A legislative proposal would complement the European Commission, "Communication: Stepping up EU Action to Protect and Restore the World's Forests", COM(2019) 352 final, 23 July 2019.
[94] Council of the European Union, "Commonly agreed position on Flexibility in the Stability and Growth Pact", *Economic and Financial Council conclusions*, 14345/15, 12 February 2016.

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3.3 Make expertise in climate policies great again: put science in the captain's cabin

In 1956, the New York Times published the following: "*variation in the atmosphere's carbon dioxide can account for climatic change… despite nature's way of maintaining the balance of gases the amount of carbon dioxide in the atmosphere is being artificially increased as we burn coal, oil and wood for industrial purposes*"[95]. The date of this quote from a scientific column contrasts heavily with the start of international climate summitry: the IPCC was only established in 1988 and negotiations for establishing the UNFCCC started in December 1990[96]. The length of policy processes can increase the difficulty for regulators to adapt to the state of science or to factor evolving social preferences through legislation. But the singularity of climate change resides in both the scientific complexity and the urgency of the subject. Whereas the recent IPCC reports, and in particular the 1.5°C report[97], have widely attracted media attention, it remains difficult for political processes to integrate scientific concerns and the latest state of science, including at EU level. The process for setting climate targets, currently through European Council conclusions, does not rely on scientific data nor does it involve scientific stakeholders. In fact, the analysis underlying the EU's decarbonisation scenarios by 2050 are all based on the political assumption that the existing legislative framework affecting GHG emission reductions up to 2030 will remain untouched[98]. This shows that the European Commission's analysis fails to align the long-term objective with short-term action. Furthermore, provisions of the Governance regulation display a troubling fact that the responsibility falls under the European Commission to present to the European Parliament reports on the effectiveness of the legislation that it has itself proposed and that it is itself implementing[99]. These examples support the claim that EU climate policies are primarily guided by the short-term consideration of which efforts

[95] W. Kaempffert, "Warmer Climate on the Earth may be due to more carbon dioxide in the air", *New York Times*, 28 October 1956. For a historic overview of the scientific understanding of climate change, see J. Slingo, "The Evolution of Climate Science: A Personal View from Julia Slingo", *World Meteorological Organization Bulletin*, vol. 66(1), 2017.
[96] UNFCCC, "25 Years of Effort and Achievement: key milestones in the evolution of international climate policy", *Timeline*.
[97] IPCC, 1.5°C report.
[98] European Commission, "In-depth analysis in support of the Commission communication COM(2018) 773", pp. 52 and 198.
[99] See art. 35 of the Governance regulation on the State of the Energy Union report.

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current decision-makers consent to make, instead of the longer-term objective approach of which efforts must actually be made according to the latest scientific data.

Science is clear and free of political spin. It is in the interest of decision-makers to receive expert advice on the state of climate change and the means for decarbonising each different sector of the economy. Although few individuals can understand scientific assessments such as the IPCC's analysis, every citizen can understand key messages such as: 'the world must reach carbon neutrality by 2038 for a 66% chance of limiting warming to 1.5°C or by 2048 for a 50% chance of limiting warming to 1.5°C'[100]. Political decisions should be taken in full awareness of these facts, and after weighting the challenges, opportunities and costs of each contemplated option. At national level, a number of EU Member States have instituted through a national climate framework law an expert advisory body whose task is, *inter alia*, to advice policy-makers on the adequacy of climate targets and their implementation. The figure below compares the features of these different bodies[101].

[100] IPCC, 1.5°C report, p. 96.

[101] Other bodies which were not created through EU Member States' national climate framework law include the Belgian Federal Council for Sustainable Development (FRDO, 1997), French High Council on Climate (HCC, 2019), the German Advisory Council on the Environment (SRU, 1971), the National Environmental Council of Hungary (OKT, 1995), the Netherlands Environmental Assessment Agency (PBL), the Portuguese National Council on Sustainable Development and Environment (CNADS, 1997), and the Spanish Environment Advisory Council (CAMA, 1994).

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Figure 3: Overview of EU MS' national expert bodies instituted by a climate framework law

National body	Missions	Composition and appointment
Austrian National Climate Protection Committee - NKK (2011)	• Provides advice on and coordinates climate change policy issues in light of the objectives of the Paris Agreement, in particular long-term mitigation efforts and adaptation.	• One representative from each political party represented in the lower House; one representative from each ministry; social partners (agencies and interest groups). • Chaired by a federal government representative.
Danish Council on Climate Change (2014)	• Evaluates the implementation of national climate objectives and international climate commitments. • Analyses potential means and measures to transition to a low-carbon society by 2050. • Draws up recommendations and scenarios which are presented annually to the Parliament. • Contributes to the public debate and involves relevant parties (business interests, social partners and civil society).	• Seven multidisciplinary academic members appointed by the minister of climate and energy for a four-year term, renewable once.
Finnish Climate Change Panel (2015)	• Advises the ministerial working group for energy and climate. • Compiles and analysis scientific data on climate mitigation and adaptation. • Is consulted on draft climate policy plans. • Monitors the implementation and assesses the consistency and adequacy of energy and climate strategy and policies. • Promotes public discussion based on science and expertise. • Missions evolve after each mandate.	• Fifteen multidisciplinary top-level specialists nominated by research institutions and appointed by the Council of State upon recommendation of the ministry of the environment for a four-year term.
French National Council for the Ecological Transition – CNTE (2013)	• Is consulted on legislative proposals (environment, energy, low-carbon development strategies, and corporate social and environmental responsibility). • Submits reports, including own initiative reports. • Contributes to preparing international environmental negotiations.	• Fifty organisations listed by decree among local authorities, labour organisations, business associations, NGOs, French and European Parliament, and public entities. • Chaired by the environment minister.

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Irish Climate Change Advisory Council (2016)	• Advises the government for the adoption of mitigation and adaptation policies. • Prepares an annual review on GHG emissions reduction for the government and makes an annual 'transition statement' to the Parliament. • Gathers the information and meets the individuals it considers appropriate to perform its duties.	• Nine to eleven members nominated by the environment minister and appointed by the government for a four-years term, renewable once. • Heads of a number of public bodies are members by title.
Swedish Climate Policy Council (2017)	• Evaluates in a yearly report to the government how relevant policy areas contribute or could further contribute to achieving climate goals, including in a cost-effective way. • Evaluates the bases and models upon which the government builds its policies. • Reviews the impact of agreed or proposed instruments from a broad societal perspective. • Fosters more debate in society on climate policy.	• Eight multidisciplinary academic members appointed by the government based on a proposal from the Council itself, appointed for a three-year term.
UK Committee on Climate Change – CCC (2008)	• Provides independent advice to the Secretary of State on the 2050 target, setting and meeting carbon budgets, and international aviation and shipping. • Monitors yearly progress in reducing emissions and submits an annual report to the Parliament. The Secretary of State must respond to the report before the Parliament. • Involves the public in the exercise of its functions.	• Six to nine multidisciplinary members appointed by the national authority. • Six members appointed in the Adaptation Sub-committee. • Duration of term depends on individual appointment.

The overview of these national expert bodies illustrates the eagerness in EU Member States to receive scientific guidance on the best ways to decarbonise the many different sectors of the economy. The missions of national expert bodies can be summarised in three distinct roles: (i) reviewing the impact of sectoral climate legislation on GHG emissions and monitoring the achievement of climate targets; (ii) identifying additional measures, scenarios and policies designed to achieve climate targets; and (iii) fostering public debate on climate policies. National bodies – except the Austrian and French – are expressly independent from their government. Furthermore, they all engage with the government through meetings or reports, and in some instances also with the Parliament.

At EU level, there is no existing expert body which combines a technical assessment of GHG emissions and a critical review of the climate legislation. While the EEA was conferred a role

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under the Governance regulation to "*assist the European Commission in its work as regards the decarbonisation and energy efficiency dimensions*"[102], this role is confined to reporting requirements such as compiling information on EU MS' policies and measures or preparing the EU GHG inventory report. The Governance regulation also established two new bodies – a 'Climate Change Committee' and an 'Energy Union Committee'[103] – but membership only includes representatives from EU Member States and the task of these committees is limited to supporting the adoption of implementing acts setting out the structure, format and submission process for EU MS' reporting.

The EU Climate Law could give prominence to expertise in sectoral policy-making and bridge the gap between science and policy by tasking an independent EU expert body with missions comparable to those of EU Member States' national bodies. Since the EEA is already monitoring GHG emissions and yearly progress, a new expert body could assess how sectors and EU sectoral policies contribute – and make recommendations on how they could further contribute – to achieving the EU's climate and temperature targets in a timely and cost-effective manner. In particular, this body could contribute to the mainstreaming of the climate neutrality objectives into EU legislation (see section 3.2) by identifying behaviours which are counter-productive to a clean transition and suggesting options for ceasing them; as well as fostering an informed public debate on climate action (see section 3.4). It could also assess the potential for the latest technologies to drive the transition to a climate-neutral economy and inform EU's investment decisions. With the five-year NDC review process in mind, this body could also deliver a timely analysis on the adequacy of the EU targets with the Paris Agreement's temperature goal. Yearly reports could be handed in to the European Commission and to the European Parliament, after which a policy debate may take place.

For carrying out these new missions, one could consider expanding the mandate of the EEA. But the critical assessment of existing EU legislation and the formulation of policy recommendations fall far beyond the EEA's core mission, which is to provide "*objective, reliable and comparable*

[102] Art. 42 of the Governance regulation.
[103] *Ibid.*, art. 44.

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information at EU level… to assess the results of such measures and to ensure that the public is properly informed about the state of the environment" [104]. Furthermore, the European Commission and all EU Member States are represented in the Agency's Management Board, which also includes non-EU members. These constraints would not fit with the need for the expert body to be severed from political influence, independent and expertise-driven. The European Court of Auditors could be considered as an option since it enjoys strong independence credentials under the EU treaties[105], but its role is confined to budgetary control[106].

Prior to her election as European Commission President, von der Leyen suggested the creation of a 'council of scientists' to measure progress and success of the EU's climate action[107]. The creation of a new body dedicated to the aforementioned missions would constitute a step forward in setting a strong climate governance framework capable of leading the path towards a climate-neutral EU. Establishing this body in the EU Climate Law will show that the EU is fully committed to shaping the right decarbonisation policies. But while science must feed political debates, it is citizens' consent which eventually drives political choices.

3.4 A meaningful participative democracy: no delivery without the crew

The recent phenomenon of worldwide climate protests initiated by grassroots youth movements illustrates the acute awareness of many citizens about the climate crisis and their desire to take part in the deep societal transformation which underpins climate neutrality. By contrast, the question of how this clean transition will be carried out is a more delicate topic, as has been illustrated by the start of the 'Gilets Jaunes' protests in France over the implementation of a fuel

[104] European Union, regulation 401/2009 of the European Parliament and of the Council on the European Environment Agency and the European Environment Information and Observation Network, 23 April 2009, art. 1.
[105] See art. 285 and 286 of the TFEU.
[106] *Ibid.*, art. 287.
[107] K. Oroschakoff, "Von der Leyen uses climate in a bid to land Commission top job", *Politico*, 7 October 2019.

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tax increase. These demonstrations have reminded that it is citizens who eventually bear the consequences of political choices. Perhaps naturally, there is a paradox between on the one hand the EU-wide understanding among citizens that climate action must be stepped up dramatically and reluctance on the other hand to support individual climate measures whose cost may be passed on to the consumer. In fact, the public is rarely asked the right question, which is not whether they support a single and specific measure or not, but rather which trade-off they are willing to make in order to reach climate neutrality. EU citizens will accept to change fundamental aspects of their life only if they are presented the whole picture, an all-encompassing plan which will tackle climate change on a wide scale but also safeguard their wellbeing. The issue of public consent means nothing less than redefining the social contract that unites citizens with their country, for example by letting the state shut down a coal mine provided that a fair and just compensation is given to workers.

The clean transition will not be achieved if it is not also a just and fair transition, which gathers wide support from the population. The way to achieve this result is through the meaningful inclusion of all competing interests in the conversation. Concertation reduces political opposition as it increases the chances that those who may lose out from political choices receive a compensation. In fact, it has been shown that concertation increases the long-term overall levels of climate policy stringency[108]. Public participation not only increases transparency, but also compliance and the implementation of the discussed policies[109].

The EU legal framework provides for opportunities for citizens and civil society to participate in decision-making through public consultation on roadmaps and inception impact assessments, draft implementing and delegated acts and legislative proposals[110]. The European Economic and Social Committee (EESC) is an advisory body composed of employers, workers and civil society members which may or must be consulted during the law-making process[111]. It promotes public

[108] J. Finnegan, "Institutions, climate change, and the foundations of long-term policymaking" *Grantham Research Institute on Climate Change and the Environment*, Working Paper No. 321, April 2019, p. 23.
[109] A. Rüdinger & al., "Towards Paris-compatible climate governance frameworks", p. 10.
[110] European Commission: "Staff Working Document: "Better Regulation: taking stock and sustaining our commitment", COM(2019) 178, pp. 12-14.
[111] Art. 13(4) of the TEU and 304 of the TFEU.

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participation and better ties between EU policies and economic, social and civic issues. These tools are indispensable elements of democratic participation to rule-making, yet they are not specific to climate. The societal transformation of our economy and society is so far-reaching that it requires additional public participation processes which are specific to the clean transition. The Governance regulation attempted to involve civil society in this specific debate, by requiring EU Member States to ensure "*that the public is given early and effective opportunities to participate in the preparation*" of the daft NECPs and national LTSs[112]. However, it does not embody the minimum requirements of a meaningful public consultation that the EU must abide by under the 1998 United Nations Economic Commission for Europe (UNECE) Convention on access to information, public participation in decision-making and access to justice in environmental matters (Aarhus Convention)[113]. Another attempt by the Governance regulation to bridge the gap between citizens and climate policy-making is the establishment within each EU Member State of a multilevel climate and energy dialogue which brings together "*local authorities, civil society organisations, business community, investors and other relevant stakeholders and the general public*" to "*engage and discuss the different scenarios envisaged for energy and climate policies*"[114]. The mechanism has great potential although its legal formulation is very vague and lacks specification on the timeframe, format, and outcome(s) of the process, which is also disconnected with the setting of climate targets.

The EU Climate Law constitutes a unique opportunity to tie public participation with the making of future climate legislation. Public participation is an essential feature of a climate governance framework and the involvement of the society should guide the process of reviewing climate targets and their subsequent implementation in all sectors of the economy. In her political guidelines, President-elect von der Leyen proposed a European Climate Pact which brings society together to "*design and commit to a set of pledges to change behaviours across our*

[112] Art. 10 of the Governance regulation.
[113] Compliance Committee to the Aarhus Convention, "First progress review of developments relating to request ACCC/M/2017/3 on compliance by the European Union with its obligations under the Convention", 22 February 2019, para. 12 and 61.
[114] Art. 11 of the Governance regulation.

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society"[115]. Her desire to "*insti[l] a new climate culture in Europe*"[116] can also be realised through the enhanced participation of the public in shaping the policies that it expects so much of. A chapter dedicated to public participation in the EU Climate Law would include general public participation provisions in climate law-making, to ensure for example that all climate legislation and strategy documents outlining decarbonisation pathways such as NECPs or national and EU LTSs respect at least the standards agreed under the Aarhus Convention. These provisions would include specific timeframes for the organisation of climate-related consultation at a time when all options are still open and within a duration which allows sufficient preparation, and they would ensure that due account is taken of the result.

To ensure that the public is sufficiently informed about the climate crisis and the EU's action, there is a need for a structure or platform to foster an informed debate on climate policies. Public participation could be part of the mandate of the EU expert body on climate (see section. 3.3), which would be allocated resources to undertake projects supporting public participation. The climate debate is often framed as a distant and negative issue and there is an opportunity for the EU Climate Law to increase awareness of the concrete, local and positive benefits of climate policies. Another potential structure would be an EU-level permanent climate and energy dialogue which would replicate the dialogues organised in EU Member States through the Governance regulation and which would bring EU civil society together to discuss scenarios and best practices for policy-making. Finally, another avenue for fostering public participation would be the direct consultation of randomly selected citizens on climate policies, which was experimented in Germany, Ireland or France[117].

Public participation is only meaningful if the outcome of the consultation is duly taken into account in policy-making. A potential avenue for integrating suggestions in climate policies is the commitment taken by President-elect von der Leyen to organise a Conference on the Future

[115] Candidate for President of the European Commission, "A Union that strives for more", p. 6.
[116] President-elect of the European Commission, "Mission letter to Frans Timmermans, Executive Vice-President-designate for the European Green Deal", 10 September 2019, p. 6,.
[117] M. Duwe & al., "'Paris compatible' governance", p. 6; the French case can be explored on the website of the 'Convention citoyenne pour le climat'.

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of Europe which should bring together citizens and civil society and the outcome of which, she said, will be followed upon "*including by legislative action if appropriate*"[118].

Public participation is an essential component of the climate governance framework, without which EU citizens may not accept the far-reaching measures that are needed to stem the climate crisis. This paper has outlined the reasons and features of an EU Climate Law to prepare for the long journey towards climate neutrality. The vessel has already departed from the harbour, but the conditions for its safe travel are yet to be met.

[118] Candidate for President of the European Commission, "A Union that strives for more: my agenda for Europe", p. 19.

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4 Conclusion

In the most recent years, discussions around the climate crisis have moved from agenda points during international summits to a central concern raised by citizens in the streets. The earth's global temperature has already increase above 1°C compared to pre-industrial levels[119] and the notion of climate change has entered our daily lives. While the EU has adopted since 1996 the objective of reducing global warming to below 2°C, it has not developed a climate governance framework strong enough to steer this transition. The recent commitment taken by President-elect von der Leyen to propose an EU Climate Law constitutes an opportunity to strongly deepen the EU climate governance framework and to make it fit for the objective of achieving climate neutrality in the EU within the next few decades. This paper has shown how the EU Climate Law could improve the existing governance framework and provide the tools necessary for the adoption of the legislative measures which are needed at EU level to tackle the climate crisis.

The existing features of the EU climate governance framework are underdeveloped compared to the task they purport to achieve. The EU has committed to a single target of reducing EU GHG emissions by 40% compared to 1990 levels by 2030 – an objective with is far below what is required to reach climate neutrality before or by 2050. The declaratory aim of reaching 80-95% GHG emissions reduction compared to 1990 levels by 2050 also falls short of the temperature goal enshrined in the Paris Agreement, since the world must become climate neutral by 2048 for only a 50% chance of limiting global warming to 1.5°C'[120]. Although the Paris Agreement has laid down a process under which each Party should review climate targets every five years, the EU has not adopted any formal process of the kind, leaving it to the European Council to determine when and how to review these targets. In terms of long-term vision, the European Commission has presented decarbonisation scenarios to reach climate neutrality by 2050 but the EU has not adopted a position, nor has it consulted civil society or prepared a review mechanism of this destination date. While provisions in the EU treaties call for mainstreaming environment protection into all policies, existing EU policies or decisions are sometimes counterproductive to the clean transition. Whereas reporting on GHG emissions and national climate policies is

[119] J. Hansen, R. Ruedy, M. Sato, and K. Lo, "Global surface temperature change", para. 67.
[120] IPCC, 1.5°C report, p. 96.

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very extensive, there is little room for scientific inputs or expert advice in political decisions relating to climate target-setting. Finally, no particular emphasis is put on public participation in climate policies and long-term strategies despite the need to ensure political support for the adoption of rapid and far-reaching measures.

This proposition for an EU Climate Law presented outlines the required improvements which are required for the EU to reach its climate neutrality destination in just a few decades. The climate law should enshrine into legislation a legally binding date – in line with the latest available science – by which the EU will become a climate neutral economy, with milestone targets to ensure progress throughout delivery. It should set up a process for reviewing these targets in line with the Paris Agreement cycles, and also for adopting and reviewing a prominent EU long-term strategy for decarbonising each economic sector. The consistency of the EU's climate mitigation action should be enhanced by dedicated mainstreaming provisions, including a general principle according to which the EU should abandon any practice detrimental to the achievement of its climate targets, and other provisions requesting the European Commission to propose legislation on a new array of topics essential to the decarbonisation. The EU Climate Law should also strengthen the role of science in climate decision-making by creating a new and independent expert body designed to assess and make recommendations as to how EU sectoral policies contribute or should contribute to the achievement of the climate and temperature targets. The transformation to climate neutrality cannot happen without public support, and this body should also foster public participation in climate policy-making. Moreover, provisions specific to public participation should ensure that at least the standards of the Aarhus Convention are respected before a climate legislation or strategy documents such as NECPs or national and EU LTS are adopted. Finally, an EU-level permanent climate and energy dialogue could also promote an informed public debate and collect the contributions of EU citizens and of civil society in the view of adopting policy proposals during a Conference on the Future of Europe.

The EU Climate Law is an ambitious initiative which follows and coexists with the EU Governance regulation. Many propositions such as enshrining targets into EU law, increasing the role of science or public participation, are consistent with commitments taken by President-

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elect von der Leyen. The EU Climate Law may constitute a unique opportunity to create a coherent regulatory framework dedicated to climate governance which is strong, resilient and flexible enough to steer the EU's decarbonisation efforts for the next decades. This paper has attempted to provide a clear indication of the features which must be integrated into the existing EU climate framework, and to inspire the European Commission or the European Parliament to incorporate them into a legislative proposal on an EU Climate Law. At the same time, these recommendations are not exhaustive, and the entire scrutiny of the legislative process is required to grasp the full potential of the EU Climate Law. For example, one could consider the addition of sustainable finance rules to this framework. Our approach may also have limits, including the choice to leave the Governance regulation untouched and outside the scope of the EU Climate Law whereas others could conceive merging these two instruments into a single framework dedicated to both short-term (2021-2030) and longer-term climate governance. Furthermore, we have left open the question of the legal form of the EU Climate Law, although its content strongly suggests that it should be a regulation, which would deploy immediate effects in EU law and which would not require subsequent incorporation into EU Member States' legal system through national legislation.

We have followed the metaphor of a sailing vessel to describe the features of the EU Climate Law in order to underline the need for an all-encompassing approach of the climate crisis through all areas of policy-making. The specific elements of the EU Climate Law that we have outlined are interlinked and they will deploy their full potential only in conjunction with the others. Remove one of these components and you may be confronted to serious storms on the high seas of implementation. The slightest delay along the way may lead to disaster. Finally, science may be in the captain's cabin, but it is the captain herself who bears the responsibility of leading EU citizens to destination while avoiding the mightiest tempests. Against the backdrop of raising populism and of general mistrust in public policies, the climate crisis may constitute a political opportunity to take a new course towards a prosperous, innovative, resilient, sustainable, fair and democratic future.

With the financial support of the European Parliament

Bibliography

Academic articles and research papers

Bausch, Camilla, Matthias Duwe, "Planning for 2050 – Summary Briefing", *Climate Recon 2050*, 2019, accessed 31 October 2019, https://www.ecologic.eu/sites/files/event/2019/3201-2050-conference-brochure-web.pdf.

Drollette Dan (Jr.), "What if the Arctic melts, and we lose the great white shield? Interview with environmental policy expert Durwood Zaelke", *Bulletin of the Atomic Scientists*, vol. 75, no. 5, pp. 239-246, accessed 31 October 2019, https://www.tandfonline.com/doi/full/10.1080/00963402.2019.1654269?scroll=top&needAccess=true.

Duwe, Matthias & al., "'Paris compatible' governance: long-term policy frameworks to drive transformation change", *Ecologic Institute*, 2017, p. 26, accessed 31 October 2019, https://www.ecologic.eu/sites/files/publication/2017/paris_compatible_governance_-_ecologic_institute_report_0.pdf.

Hansen, J., R. Ruedy, M. Sato, and K. Lo, "Global surface temperature change", *Reviews of Geophysics*, vol. 48, no. 4, 2010, para 67, accessed 31 October 2019, https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2010RG000345.

Meyer-Ohlendorf, Niels, Meinecke, Lisa Fee, "A Climate Law for Europe: Making the Paris Agreement real", *Ecologic Institute & The Greens/European Free Alliance*, 2018, accessed 31 October 2019, https://www.ecologic.eu/sites/files/publication/2018/3527-climate_law_report_112018.pdf.

Rüdinger, Andreas & al., "Towards Paris-compatible climate governance frameworks. An overview of findings from recent research into 2050 climate laws and strategies", *IDDRI & Ecologic*, Study N°04/18, 2018, accessed 31 October 2019, https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Etude/201806-ST0418-paris%20compatible%20gov%20frameworks.pdf.

Sandbag, "Halfway There, existing policies put Europe on track for emission cuts of at least 50% by 2030", March 2019, accessed 31 October 2019, https://sandbag.org.uk/wp-content/uploads/2019/04/Halfway-There-March-2019-Sandbag.pdf.

With the financial support of the European Parliament

Stockman, Lorne, Trout, Kelly, Blumenthal, Barb, "Burning the gas 'bridge fuel' myth: why gas is not clean, cheap or necessary", *Oil Change International*, May 2019, accessed 31 October 2019, http://priceofoil.org/content/uploads/2019/05/gasBridgeMyth_web-FINAL.pdf.

Tong, Dan & al., "Committed emissions from existing energy infrastructure jeopardize 1.5 °C climate target", *Nature*, 572, 1 July 2019, pp. 373-377, accessed 31 October 2019, https://www.nature.com/articles/s41586-019-1364-3.

Zachmann, Georg, "Some arguments for increasing the EU's 2030 climate ambition", *COP21 RIPPLES Consortium*, 2019, pp. 1-14, accessed 31 October 2019, https://www.iddri.org/en/publications-and-events/report/some-arguments-increasing-eus-2030-climate-ambition.

Books & chapters

Delbeke Jos, Peter Vis, EU Climate Policy Explained, Routledge, 2015, accessed 31 October 2019, https://ec.europa.eu/clima/sites/clima/files/eu_climate_policy_explained_en.pdf.

Delreux, Tom, Frauke Ohler, "Climate Policy in European Union Politics" in Laursen F., *The Oxford Encyclopedia of European Union Politics*, Oxford University Press, 2019, pp. 1-27, accessed 31 October 2019, https://oxfordre.com/politics/view/10.1093/acrefore/9780190228637.001.0001/acrefore-9780190228637-e-1097.

Dupont, Claire, Sebastian Oberthür, Katja Biedenkopf, "Climate change: Adapting to evolving internal and external dynamics" in Adelle, Camilla, Katja Biedenkopf & Diarmuid Torney, *European Union External Environmental Policy: Rules, Regulation and Governance Beyond Borders*, Palgrave Macmillan, 2018, pp. 105-124, accessed 31 October 2019, https://rd.springer.com/content/pdf/10.1007%2F978-3-319-60931-7_2.pdf.

Finnegan, Jared, "Institutions, climate change, and the foundations of long-term policymaking" *Grantham Research Institute on Climate Change and the Environment*, Working Paper No. 321, April 2019, accessed 31 October 2019, http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2019/04/working-paper-321-Finnegan-1.pdf.

With the financial support of the European Parliament

Slingo, Julia, The Evolution of Climate Science: A Personal View from Julia Slingo", *World Meteorological Organization Bulletin*, vol. 66(1), 2017, pp. 16-24, consulted 31 October 2019, https://public.wmo.int/en/resources/bulletin/evolution-of-climate-science-personal-view-from-julia-slingo.

Press articles

European Commission, "A Community strategy to reduce CO2 emissions and improve fuel economy – Council Conclusions", *Press release*, 1996, accessed 31 October 2019, https://europa.eu/rapid/press-release_PRES-96-188_en.htm?locale=en.

European Commission, "Memo 04/43 – Kyoto Protocol", *Press release*, 4 March 2003, accessed 31 October 2019, https://europa.eu/rapid/press-release_MEMO-04-43_en.htm?locale=en.

Ekblom, Jonas, "Eight EU countries call on Timmermans to raise 2030 climate goal to 55%", *Reuters*, 8 October 2019, accessed 31 October 2019, https://www.reuters.com/article/us-eu-commission-timmermans/eight-eu-countries-call-on-timmermans-to-raise-2030-climate-goal-to-55-idUSKBN1WN07J.

Farand Chloé, Jill Russo, "'Four million' join students in climate marches, building pressure on leaders", *Climate Home News*, 20 September 2019, accessed 31 October 2019, https://www.climatechangenews.com/2019/09/20/three-million-join-students-global-strike-climate-action/.

Hofste, Rutger Willem, Paul Reig, Leah Schleifer, "17 Countries, Home to One-Quarter of the World's Population, Face Extremely High Water Stress", *World Resources Institute*, 6 August 2019, accessed 31 October 2019, https://www.wri.org/blog/2019/08/17-countries-home-one-quarter-world-population-face-extremely-high-water-stress.

Kaempffert, Waldemar, "Warmer Climate on the Earth may be due to more carbon dioxide in the air", *New York Times*, 28 October 1956, accessed 31 October 2019, https://static01.nyt.com/packages/pdf/weekinreview/warm1956.pdf.

Nunez, Christina, "Sea level rise, explained", *National Geographic*, 19 February 2019, accessed 31 October 2019, https://www.nationalgeographic.com/environment/global-warming/sea-level-rise/.

With the financial support of the European Parliament

European Parliament

Oroschakoff, Kalina, "Von der Leyen uses climate in a bid to land Commission top job", *Politico*, 7 October 2019, accessed 31 October 2019, https://www.politico.eu/article/von-der-leyen-uses-climate-in-a-bid-to-get-commission-top-job/.

Pierre-Louis, Kendra, "The Amazon, Siberia, Indonesia: A World of Fire", *New York Times*, 28 August 2019, accessed 31 October 2019, https://www.nytimes.com/2019/08/28/climate/fire-amazon-africa-siberia-worldwide.html.

Watts, Jonathan, "Concerns as EU bank balks at plan to halt fossil fuel investments", *The Guardian*, 15 October 2019, accessed 31 October 2019, https://www.theguardian.com/environment/2019/oct/15/concerns-eu-bank-balks-plans-halt-fossil-fuel-investments-climate-action-eib.

Lu, Denise, Christopher Flavelle, "Rising Seas Will Erase More Cities by 2050, New Research Shows, *The New York Times*, 29 October 2019, accessed 31 October 2019, https://www.nytimes.com/interactive/2019/10/29/climate/coastal-cities-underwater.html.

World Wildlife Fund, "July 29: Earth Overshoot Day 2019 is the Earliest Ever", 29 July 2019, accessed 31 October 2019, http://wwf.panda.org/?350491/Earth-Overshoot-Day-2019.

Official EU documents

Candidate for President of the European Commission Ursula von der Leyen, "A Union that strives for more: my agenda for Europe", 16 July 2019, accessed 31 October 2019, https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf.

Council of the European Union, "Commonly agreed position on Flexibility in the Stability and Growth Pact", *Economic and Financial Council conclusions*, 14345/15, 12 February 2016, accessed 31 October 2019, http://data.consilium.europa.eu/doc/document/st-14345-2015-init/en/pdf.

With the financial support of the European Parliament

Council of the European Union, "Preparations for the United Nations Framework Convention on Climate Change (UNFCCC) meetings (Santiago de Chile, 2-13 December 2019)", *Environment Council conclusions*, 12796/19, 4 October 2019, accessed 31 October 2019, https://www.consilium.europa.eu/en/press/press-releases/2019/10/04/the-council-sets-out-the-eu-position-for-the-un-climate-conference-in-santiago-de-chile-cop25/.

European Commission, "Communication: A Clean Planet for all: A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy", COM(2018) 773 final, 28 November 2018, accessed 31 October 2019, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52018DC0773.

European Commission, "Communication: A Roadmap for moving to a competitive low carbon economy in 2050", COM(2011), 112 final, 8 March 2011, accessed 31 October 2019, https://www.europarl.europa.eu/meetdocs/2009_2014/documents/com/com_com(2011)0112_/com_com(2011)0112_en.pdf.

European Commission, "Communication: Stepping up EU Action to Protect and Restore the World's Forests", COM(2019) 352 final, 23 July 2019, accessed 31 October 2019, https://ec.europa.eu/info/sites/info/files/communication-eu-action-protect-restore-forests_en.pdf.

European Commission, Decision 2002/747/EC establishing revised ecological criteria for the award of the Community eco-label to light bulbs and amending Decision 1999/568/EC, 9 September 2002, accessed 31 October 2019, https://publications.europa.eu/en/publication-detail/-/publication/db402e5d-b7b9-44d9-a130-67081756af9a.

European Commission, "In-depth analysis in support of the Commission communication COM(2018) 773", 28 November 2018, p. 198, accessed 31 October 2019, https://ec.europa.eu/clima/sites/clima/files/docs/pages/com_2018_733_analysis_in_support_en_0.pdf.

European Commission: "Staff Working Document: "Better Regulation: taking stock and sustaining our commitment", COM(2019) 178, accessed 31 October 2019, https://ec.europa.eu/info/publications/better-regulation-taking-stock-and-sustaining-our-commitment_en.

European Council, conclusions of 8/9 March 2007, 7224/1/07, 2 May 2007, accessed 31 October 2019, http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/93135.pdf.

With the financial support of the European Parliament

European Council, conclusions of 17 and 18 October 2019, EUCO 23/19, 18 October 2019, accessed 31 October 2019, https://www.consilium.europa.eu/media/41123/17-18-euco-final-conclusions-en.pdf.

European Council, conclusions of 20 June 2019, EUCO 9/19, 20 June 2019, accessed 31 October 2019, https://www.consilium.europa.eu/en/press/press-releases/2019/06/20/european-council-conclusions-final-20-june-2019/.

European Council, conclusions of 23-24 October 2014, EUCO 169/14, 24 October 2014, accessed 31 October 2019, https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145397.pdf.

European Council, Presidency conclusions of 29-30 October 2009, 15265/09, accessed 31 October 2019, https://ec.europa.eu/regional_policy/sources/cooperate/baltic/pdf/council_concl_30102009.pdf.

European Environment Agency, "Air quality in Europe – 2018 Report", No 12/2018, 29 October 2018, accessed 31 October 2019, https://www.eea.europa.eu/publications/air-quality-in-europe-2018.

European Parliament, "Answers to the European Parliament questionnaire to the Commissioner-designate Frans Timmermans", 27 September 2019, accessed 31 October 2019, https://www.europarl.europa.eu/resources/library/media/20190927RES62422/20190927RES62422.pdf.

European Parliament, "Resolution of 14 March 2019 on climate change – a European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy in accordance with the Paris Agreement", *P8_TA(2019)0217,* 14 March 2019, accessed 31 October 2019, https://www.europarl.europa.eu/doceo/document/TA-8-2019-0217_EN.html.

European Union, "Charter of fundamental rights of the European Union", *Official Journal of the European Union,* C364, 18 December 2000.

European Union, "Consolidated Versions of the Treaty on European Union and of the Treaty Establishing the European Community of 26 February 2001", *Official Journal of the European Union,* C321E, 29 December 2006.

With the financial support of the European Parliament

European Union, Decision No 406/2009/EC of the European Parliament and of the Council on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, 23 April 2009, accessed 31 October 2019, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2009.140.01.0136.01.ENG.

European Union, Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC, 13 October 2003, accessed 31 October 2019, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32003L0087.

European Union, Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources, 23 April 2009, accessed 31 October 2019, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0028.

European Union, regulation 401/2009 of the European Parliament and of the Council on the European Environment Agency and the European Environment Information and Observation Network, 23 April 2009, accessed 31 October 2009, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32009R0401&from=EN.

European Union, regulation 443/2009 of the European Parliament and of the Council setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO 2 emissions from light-duty vehicles, 23 April 2009, accessed 31 October 2019, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:02009R0443-20180517.

European Union, regulation 2018/842 of the European Parliament and of the Council on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013, 30 May 2018, accessed 31 October 2019, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.156.01.0026.01.ENG.

European Union, regulation 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action, 11 December 2018, accessed 31 October 2019, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.328.01.0001.01.ENG&toc=OJ:L:2018:328:TOC.

With the financial support of the European Parliament

Latvian Presidency of the Council of the European Union, "Intended Nationally Determined Contribution of the EU and its Member States", 6 March 2015, accessed 31 October 2019, https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Bulgaria%20First/LV-03-06-EU%20INDC.pdf.

President-elect of the European Commission, "Mission letter to Frans Timmermans, Executive Vice-President-designate for the European Green Deal", 10 September 2019, p. 6, accessed 31 October 2019, https://ec.europa.eu/commission/sites/beta-political/files/mission-letter-frans-timmermans-2019_en.pdf.

International organisations and bodies

Compliance Committee to the Aarhus Convention, "First progress review of developments relating to request ACCC/M/2017/3 on compliance by the European Union with its obligations under the Convention", 22 February 2019, para. 12 and 61, accessed 31 October 2019, https://www.unece.org/fileadmin/DAM/env/pp/compliance/Requests_from_the_MOP/ACCC-M-2017-3_European_Union/Correspondence_with_the_Party_concerned/First_progress_review_on_M3_EU_adopted_22.02.2019.pdf.

Intergovernmental Panel on Climate Change, "Global Warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty", December 2018, accessed 31 October 2019, https://www.ipcc.ch/sr15/download/#full.

Intergovernmental Panel on Climate Change, "Special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems", August 2019, accessed 31 October 2019 https://www.ipcc.ch/srccl-report-download-page/.

Intergovernmental Panel on Climate Change, "The Ocean and Cryosphere in a Changing Climate", *Summary for Policy-Makers*, September 2019, accessed 31 October 2019, https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf.

With the financial support of the European Parliament

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), "Global assessment report on biodiversity and ecosystem services", *Summary for policymakers*, May 2019, accessed 31 October 2019, https://www.ipbes.net/global-assessment-report-biodiversity-ecosystem-services.

United Nations Climate Action Summit, "United in Science", *High-level synthesis report of latest climate science information convened by the Science Advisory Group of the UN Climate Action Summit 2019*, accessed 31 October 2019, https://public.wmo.int/en/resources/united_in_science.

United Nations, Framework Convention for Climate Change, *Decision 1/CP.21 on the adoption of the Paris Agreement*, FCCC/CP/2015/10/Add.1 [hereafter: Paris Agreement], 29 January 2016, accessed 31 October 2019, https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf.

United Nations, Kyoto Protocol to the United Nations Framework Convention on Climate Change, 11 December 1997, accessed 31 October 2019, https://treaties.un.org/doc/Treaties/1998/09/19980921%2004-41%20PM/Ch_XXVII_07_ap.pdf.

United Nations, United Nations Framework Convention on Climate Change, "Report of the Subsidiary Body for Implementation on its fiftieth session, held in Bonn from 17 to 27 June 2019", 5 August 2019, accessed 16 October 2019, https://unfccc.int/documents/199147#eq-1.

United Nations, United Nations Framework Convention on Climate Change, 9 May 1992, accessed 31 October 2019, https://unfccc.int/sites/default/files/convention_text_with_annexes_english_for_posting.pdf.

United Nations, United Nations Framework Convention on Climate Change, "25 Years of Effort and Achievement: key milestones in the evolution of international climate policy", *Timeline*, accessed 31 October 2019, https://unfccc.int/timeline/.

Other documents

Bloomberg New Energy Finance, "New Energy Outlook 2019, 18 June 2019, accessed 31 October 2019, https://about.bnef.com/new-energy-outlook/.

With the financial support of the European Parliament

Climate Action Tracker, *EU*, 2019, accessed 31 October 2019, https://climateactiontracker.org/countries/eu/.

European Parliament, hearing of Frans Timmermans, Executive Vice-President-designate for the European Green Deal before the European Parliament, 8 October 2019, accessed 31 October 2019, https://www.europarl.europa.eu/news/en/press-room/20190926IPR62264/hearing-of-executive-vice-president-designate-frans-timmermans.

With the financial support of the European Parliament