



PALGRAVE STUDIES IN EUROPEAN UNION POLITICS

SERIES EDITORS:

MICHELLE EGAN · NEILL NUGENT · WILLIAM E. PATERSON



Framing Climate Change in the EU and US After the Paris Agreement

Frank Wendler

palgrave
macmillan

Palgrave Studies in European Union Politics

Series Editors

Michelle Egan, American University, Washington, DC, USA
Neill Nugent, Manchester Metropolitan University, Manchester, UK
William E. Paterson, Aston University, Birmingham, UK

Following on the sustained success of the acclaimed European Union Series, which essentially publishes research-based textbooks, Palgrave Studies in European Union Politics publishes cutting edge research-driven monographs. The remit of the series is broadly defined, both in terms of subject and academic discipline. All topics of significance concerning the nature and operation of the European Union potentially fall within the scope of the series. The series is multidisciplinary to reflect the growing importance of the EU as a political, economic and social phenomenon. To submit a proposal, please contact Senior Editor Ambra Finotello ambra.finotello@palgrave.com. This series is indexed by Scopus.

Editorial Board

Laurie Buonanno (SUNY Buffalo State, USA)
Kenneth Dyson (Cardiff University, UK)
Brigid Laffan (European University Institute, Italy)
Claudio Radaelli (University College London, UK)
Mark Rhinard (Stockholm University, Sweden)
Ariadna Ripoll Servent (University of Bamberg, Germany)
Frank Schimmelfennig (ETH Zurich, Switzerland)
Claudia Sternberg (University College London, UK)
Nathalie Tocci (Istituto Affari Internazionali, Italy)

Frank Wendler

Framing Climate
Change in the EU
and US After the Paris
Agreement

palgrave
macmillan

Frank Wendler
University of Hamburg
Hamburg, Germany

ISSN 2662-5873

ISSN 2662-5881 (electronic)

Palgrave Studies in European Union Politics

ISBN 978-3-031-04058-0

ISBN 978-3-031-04059-7 (eBook)

<https://doi.org/10.1007/978-3-031-04059-7>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2022

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Cover illustration: Magic Lens/Shutterstock

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG

The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

ACKNOWLEDGMENTS

Research for this book was funded by an individual, 36-month research grant by the German Science Foundation (DFG) with the title: “How Ideas Frame the Politics of Climate Change” (project number: WE 5071/4-1). This support is gratefully acknowledged.

PRAISE FOR *FRAMING CLIMATE CHANGE IN THE EU AND US AFTER THE PARIS AGREEMENT*

“This comparative analysis of contemporary climate change discourse in the EU and the US impresses through its sound theoretical grounding and systematic empirical investigation. It makes an outstanding contribution to understanding the critical role of ideas and their framing in climate politics. It also provides new insights into the deep-rooted transatlantic differences in this policy field. Recommended reading!”

—Sebastian Oberthür, *Vrije Universiteit Brussel and University of Eastern Finland, Finland*

“This book provides the first comprehensive comparison of climate action in the EU and the US after the Paris Agreement. Contrasting policy development in both cases, it shows the power of ideas in explaining different approaches to tackling climate change. While recognizing the role of institutions and actor interest, Frank Wendler offers a solid empirical study of how discourse employed by key actors within both systems shapes their climate politics. Recommended reading!”

—Jon Birger Skjærseth, *the Fridtjof Nansens Institute, Norway*

“This book makes a novel contribution to our understanding of different discourses in climate change policy-making on the EU level and in the US. It offers a nuanced analysis. The book makes an important and very timely contribution to the literature. It breaks new ground and provides a comprehensive assessment of core ideas and discourses which shape EU and American climate policy-making.”

—Rüdiger Wurzel, *University of Hull, UK*

CONTENTS

1	Introduction: How Ideas and Discourse Frame the Politics of Climate Change	1
2	Theoretical Framework: Framing, Issue Dimensions and Political Space	35
3	Climate Change Policy in the EU: From the Paris Agreement to the European Green Deal	65
4	US Climate Politics Since the Paris Agreement	119
5	Comparative Analysis: Framing Climate Change Discourse in the EU and the US	187
6	Conclusion: Framing Climate Change in the EU and US After the Paris Agreement	217
	Annex: List of Documents Coded for the Empirical Analysis	233
	Index	251

ABOUT THE AUTHOR

Frank Wendler is Senior Faculty Member (*Privatdozent*) at the Department of Social Sciences and Lead Researcher for the project ‘How Ideas Frame the Politics of Climate Change’, funded by the German Science Foundation (DFG) and based at the Center for Sustainable Society (CSS) of the University of Hamburg, Germany.

LIST OF FIGURES

Fig. 5.1	Paradigmatic salience of frames in climate policy discourse of the EU	202
Fig. 5.2	Paradigmatic salience of frames in climate policy discourse of the US	203
Fig. 5.3	Variation of the similarity indicator of keyword rank orders as an indicator for political contestation of climate policy discourse in the EU	210
Fig. 5.4	Variation of the similarity indicator of keyword rank orders as an indicator for political contestation of climate policy discourse in the US	211
Graph 1.1	Survey of countries concerning their vulnerability towards and readiness to deal with climate change, based on the Global Adaptation Index and data set established by the University of Notre Dame, Indiana (ND-Gain)	14
Graph 3.1	Structure of climate change frames in EU policy discourse (EP Pty Grps = European Parliament Party Groups)	96
Graph 3.2	Code map of frames in EU Council conclusions on climate change	100
Graph 3.3	Code map for EU Commission policy documents on climate change	101
Graph 3.4	Code map for EP plenary resolutions on climate change	102
Graph 3.5	Code map for EP party group motions for an EP resolution on the European Green Deal	104
Graph 4.1	Structure of frames in US climate policy discourse	163

Graph 4.2	Code map for climate change discourse by the Obama administration	168
Graph 4.3	Code map for discourse on climate change in speeches by President Obama	169
Graph 4.4	Code map for legislative proposals on climate change sponsored by Democrats	170
Graph 4.5	Code map of policy discourse on climate and energy policy by the Trump administration	171
Graph 4.6	Code map of legislative proposals on climate and energy policy sponsored by Republicans	173

LIST OF TABLES

Table 1.1	Overview of criteria for the evaluation of climate policy development in the EU and US since the adoption of the Paris Agreement (explanation of abbreviations used: GHG = greenhouse gases, NDC = Nationally Determined Contributions as required from signatories of the Paris Agreement)	10
Table 2.1	Typology of six approaches to framing climate change (CC) and climate change policy (CCP)	47
Table 2.2	Survey of analytical dimensions and comparative hypotheses	51
Table 2.3	Survey of comparative hypotheses on framing of climate change in the EU and US	53
Table 3.1	Overview of European Council conclusions on climate change; abbreviations in order of appearance: PL = Poland; COP = Conference of the Parties; NDC = Nationally Determined Contributions	75
Table 3.2	Rank order of frames in policy documents of the three main EU institutions	98
Table 3.3	Framing of motions for the EP resolution on the European Green Deal by EP party groups	105
Table 4.1	Rank orders and cumulative percentage of frames in US policy discourse on climate change	164
Table 5.1	Rank order of frames with cumulative percentages in EU policy discourse on climate change	191

Table 5.2	Rank order of frames with cumulative percentages in US policy discourse on climate change	192
Table 5.3	Issue categories in climate policy discourse in the EU	193
Table 5.4	Issue categories in climate policy discourse of the US	193
Table 5.5	Composition, scope and density of linkages between frames in policy discourse of the EU	196
Table 5.6	Composition, scope and density of linkages between frames in policy discourse of the US	196
Table 5.7	Keyword rankings for six climate frames in EU policy discourse; keywords were partly abbreviated for reasons of space; full list of keywords can be found in the annex	205
Table 5.8	Keyword rankings for six climate frames in US policy discourse; keywords were partly abbreviated for reasons of space; full list of keywords can be found in the annex	207
Table 5.9	Similarity of keyword rank orders in policy discourse of the EU	209
Table 5.10	Similarity of keyword rank orders in policy discourse of the US	209



Introduction: How Ideas and Discourse Frame the Politics of Climate Change

This book approaches climate change as a problem of collective action whose solution depends to a significant degree on policy beliefs and their underlying ideas. We posit that ideas become critical for framing the political space of climate governance as they are adopted by political agents to provide justificatory reasons for policy-making through political discourse. Taking this approach does not mean to question that climate change exists as a material fact created by changes in atmospheric and natural cycles that will result in massive impacts on ecosystems and society (Haines and Frumkin 2021; Romm 2018; Schellnhuber 2015; Rosenzweig et al. 2017). It also does not deny that dealing with a changing climate will require substantial material efforts from society involving the use of considerable economic, technological and financial resources, both in terms of the mitigation of and adaptation to climate change and including loss and damage (Keskitalo et al. 2019; Mechler et al. 2018; Bäckstrand and Lövbrand 2015; Dryzek et al. 2011). Focusing on ideas about climate policy, however, follows the assumption that a major challenge of dealing with global warming is political and more specifically, discursive: namely, to establish a justification for collective action that adopts a commonly accepted definition of climate change and proposes mutually acceptable principles, approaches and timelines of action to

mitigate its causes and effects in a sufficiently specified political and institutional framework. In this context, three main reasons can be given for why climate change is a field of policy-making where ideas and discourse can be assumed to matter substantially, and probably more than in other fields of environmental or economic policy-making.

First, when raising global warming as a problem for society, a major challenge for political agents is the fact that it cannot be identified as a visible, evident, or easily quantifiable material phenomenon such as pollution levels or species depletion. Instead, it is a problem that is identified and evaluated through ideational concepts and perspectives. This is rooted in the fact that the very concept of climate is an abstraction from specific everyday experience to longer-term observation whose evaluation varies with regard to its temporal (i.e., shorter- or longer-term) and spatial (i.e., local, regional or global) framework of reference. Addressing climate change as a problem in political discourse, moreover, has to engage with the fact that it proceeds through largely intangible atmospheric processes and is evaluated with regard to effects on ecosystems and human society that are probable or likely, but also uncertain with regard to their specific manifestation in terms of time, space and scope. Therefore, climate change is inevitably an ideational concept by involving a generalization from single events to systemic processes and cause–effect relationships with slow, diffuse and uncertain effects. Even recent advances in climate attribution scholarship remain hesitant to directly relate specific events such as extreme weather to climate change beyond the discussion of probabilities (Otto 2020; Stott et al. 2016; NASEM 2016). As a consequence, climate change evokes a variety of different futures for society when raised as a problem in political discourse, based on different perceptions and values as well as their contestation.

Second, concerning the development of policy, possible solutions to the climate crisis are neither evident nor reducible to technical fixes. Instead, recognizing the reality of a changing climate prompts a range of questions about what normative principles should be applied to devise approaches and instruments to either mitigate or adapt to global warming. Against this background, climate change has been described as a ‘wicked’ or ‘diabolical’ problem involving multiple intractable ethical and moral dilemmas (Incoprera 2016; Jamieson 2014; 2012; Sun and Yang 2016; Dryzek et al. 2013; Levin et al. 2012; Steffen 2011). This implies that global warming emerges as a challenge for society that defies unequivocal, purely efficiency-based solutions and involves deeply political

questions about trade-offs between competing normative goals of society. The scope and structure of ensuing controversy can be seen to depend in large part on what aspect of society is brought in relation with impacts of global warming. Normative dilemmas arising from climate change as a source of conflict for political decision-making emerge most drastically from questions of climate equity and justice, both between generations and social groups but also on a global scale between industrialized countries and those most vulnerable to global warming (Okereke 2011, 2018; Okereke/Coventry 2016). In this vein, climate change has been considered as a transformative challenge arising from the failure of a capitalist model of growth (Klein 2014) and as sign of a transition to the Anthropocene as a new stage in Earth history resulting from the exploitation of fossil fuels (Pickering and Dryzek 2019; Latour 2018). Approached in this way, climate change has the potential to raise questions about fundamental ethical values of society including attitudes towards growth, consumption and individual lifestyles in political debate. In this context, only passing mention can be made of scholarly accounts covering epistemic, ethical and cultural perspectives on climate change (Leichenko and O'Brien 2019; Hulme 2009; Dryzek et al. 2011; Breakey et al. 2015; O'Brien et al. 2010).

Finally, a major question to be addressed at the level of ideas and discourse by policy-makers is how to define the political and institutional framework for action against climate change. At a programmatic level, this involves the question whether climate action is conceptualized just as a subset of environmental policy, or whether it must be addressed in a broader framework that includes energy and economic policy, social, employment and agricultural policies or fields of external action such as trade, foreign and security or migration policy. In its broadest definition, action against climate change is defined as a challenge involving the entity of all departments of government as a cross-cutting question, requiring leadership at the highest executive level and an adjustment of virtually every field of policy-making. Beyond this task of defining the horizontal cooperation of various departments within a given political system, a related question is how to identify and relate levels of action within a vertical dimension, reaching from the local to the national, regional and global levels. Concepts of action against climate change envisaged through political ideas and discourse vary widely in this regard—from suggestions for changes in individual behavior at the local level to debates about global governance. This aspect is further emphasized through the

fact that the architecture of global climate governance after the Paris Agreement is a complex combination of legally binding rules and provisions of ‘soft law’, based on a polycentric dispersion of authority, and still in a process of evolution (Gupta 2014; Popovski 2019; Oberthür 2016). An essential question in this context is whether climate change is a challenge that re-defines the boundaries and sovereignty of the nation-state as the central framework of democratic legitimacy and representation (Dryzek et al. 2019). Combining these three points, ideas and their promotion through discourse matter for action against climate change in relation to three questions: namely, why it is a problem, what policy change it requires and what political framework is suitable to take collective action. This point is brilliantly reflected in an introductory chapter of a widely recognized handbook of global climate and environment policy (Falkner 2013):

Even scientific consensus cannot tell us what kind of a problem climate change is: scientific understanding translates uneasily into policy-making at the global or indeed other levels because it does not make political, economic, technological, and social definitions of the problem obvious (...). In fact, scientific uncertainties ... pale in comparison to the obstacles and uncertainties that come with understanding what kind of problem climate is from a social-economic-political perspective. (Hoffmann 2013: 6)

How does political discourse and controversy that arises from the advocacy of competing ideas about climate change affect policy-making in empirical cases? This question invokes a research agenda exploring the political space of climate governance: namely, the thematic scope and institutional venues of policy debates, prevalent issue dimensions as well as ideological foundations of positions, and forms of resulting contestation between political agents. This book seeks to advance research in this field by comparing two political systems with far-reaching institutional and economic similarities but diverging forms of discourse and policy on climate change: namely, the European Union (EU) and United States (US), focusing on how political discourse affects their respective policy-making on climate change since the conclusion of the Paris Agreement (COP21) in December 2015.

While this volume cannot present a comprehensive theoretical explanation of policy developments in these two cases, it presents the first detailed

comparative survey of climate change discourse and contestation in the EU and US. More specifically, it provides insights about how the political space of climate politics in both cases, as derived from the salience structure, linkages and contestation of frames used to advocate positions towards climate change, can be linked to the divergence of their policy development. Its foundation is a typology of discursive frames derived from the distinction of three levels of controversy about climate change discussed above: its definition as a problem for society, the evaluation of policies and controversy on levels and forms of collective action. From this point of departure, the study compares the evolution of policy discourse leading up to and resulting from the European Green Deal in the EU case with the more fragmented and polarized debate on carbon pricing, the energy transition and the Green New Deal agenda in the US case. This comparison will demonstrate that policy debates in both cases are not distinguished adequately through a simplistic dichotomy between positions associated with environmentalism and climate denial; it also questions that the US case differs from its EU counterpart simply through more intense polarization between two ideologically coherent camps of advocates and opponents of climate action. Instead, the present study demonstrates that in a highly dynamic policy debate about appropriate political responses to the climate crisis, the volatility and fragmentation of discursive justifications for climate policy are key to understanding the divergence of both systems in terms of their policy-making output.

The subsequent sections go on to explain the approach and rationale of this study by reviewing the state of research and discussing a range of approaches that can be used to explain policy divergence, including material, institutional and ideational factors. The concluding section of this chapter once more specifies the main question of this study and provides an overview of the structure of this book.

1.1 RATIONALES FOR COMPARING THE EU AND US IN CLIMATE CHANGE POLICY

Comparing the European Union and United States as actors of global climate governance is compelling for two main reasons. First, in terms of their political and economic clout, both jurisdictions represent the most significant part of the economically developed world, covering 12.6 (US) and 7.3 (EU) percent of global greenhouse gas (GHG) emissions according to current figures compiled by the Emissions Database for

Global Atmospheric Research of the EU Joint Research Center (Crippa et al. 2021). While the involvement of both is considered politically critical, the EU and US have taken different positions towards the establishment of a global climate regime during its first phase under the 1997 Kyoto Protocol; the latter was agreed by the Clinton administration but never submitted to ratification and rejected by the subsequent Bush administration. Both jurisdictions became members of a comprehensive global agreement on climate change only with the conclusion of the Paris Accord in December 2015. After the expression of intent by President Trump to withdraw the US from the agreement in June 2017, and the proclamation of a European Green Deal by the new EU Commission President von der Leyen to achieve carbon neutrality until 2050 in December 2019, the position of ‘the rich world’ towards climate change continues to be characterized by the sharp contrast between European and US positions. Evaluating and explaining the positions of both jurisdictions therefore seems of utmost importance to predict future developments of global climate policy agreements, even after the US has rejoined the Paris Agreement following the election of President Biden in November 2020.

Second, in a context of comparative research, studying the EU and US is an intriguing case of two contrasting cases of globalized multi-level governance (cp. Zürn 2012, 2018). Both political systems are constituted as (quasi-)federal multi-level systems with a comparable state of economic development and far-reaching institutional similarities involving an independent executive and bicameral legislature (Fabbrini 2019; Kreppel 2018). In this sense, both systems have subscribed to the same international agreement whose implementation, however, requires cooperation between different branches of government and with constituent states that enjoy far-reaching autonomy from the federal or supranational level. An evident difference between both systems, however, is the degree of political polarization of positions and discourse concerning the issue of climate change, established as a clear marker of party-political orientation in the US and involving a strong current of climate change skepticism and denial across the Republican party. In this sense, a comparative study of controversy and policy-making on this issue in both systems is relevant not just for research specifically interested in climate policy, but also the broader research debate on political responses to global governance and its contestation in different political and institutional settings.

Against this background, it is surprising that within the extended research literature on climate governance, only few direct comparisons exist between the EU and US, and none that directly compares policy-making developments within both jurisdictions since the Paris Agreement. There is no shortage of surveys of EU and US climate policy independently of each other, starting with compact surveys of both systems in several of the main research handbooks on climate change policy (Bäckstrand and Lövbrand 2015; Simonis 2017; Carlarne et al. 2016). In addition, one of the most comprehensive edited volumes on the EU in its role as a leader of global climate governance contains chapters on EU Member States and institutions, but also on the United States (Wurzel et al. 2021, 2017). Several other monographs include detailed surveys of EU climate policy and its specific instruments and legislation in all relevant areas, but no comparison to other jurisdictions such as the US (Delbeke and Vis 2015, 2019; Boasson and Wettestad 2013; Oberthür and Dupont 2015). A commonality of these surveys is that they focus on aspects of policy, while focusing less on party politics, contestation and public controversy.

Unsurprisingly, this emphasis on policy in the literature on the EU is reversed in existing studies of US climate governance, where the politics of climate change—namely, questions of advocacy, controversy and polarization—generally move to the foreground in relation to analyzing the content and instruments of specific policies (Sussman and Daynes 2013; Vezirgiannidou 2013; Bailey 2015; Atkinson 2018; Mildemberger 2020). The fact that the US climate policy remains fragmented, however, does not imply that there is a shortage of detailed research about its development and explanation. In this context, the two case studies on the US by Brewer (2015) and particularly Karapin (2016) engage in a substantial review and scrutiny of theoretical explanations for policy development. In this context, both studies also take into consideration the development of contrasting policies at the federal and state level, particularly in California and several states on the East Coast, particularly New York state (Karapin 2016: 112–191). More recent analyses have focused on executive action by the presidential administration (Thompson et al. 2020) and discussed the patchwork of carbon pricing across subnational jurisdictions across Northern America (Rabe 2018).

Against the background of this rich and theoretically sophisticated literature, it is surprising how few direct comparisons exist between EU and US climate change policy: so far, mostly one major reconstruction of

developments since the adoption of the Kyoto Protocol written from a legal perspective (Carlarne 2010), a collection of analyses on energy law (Heffron and Little 2016) and a brief research article concentrating on institutional features of both systems (Skjaereth et al. 2013). In addition, several case studies covering the emergence of emissions trading as a concept originally established in the US for sulfur dioxide and later adopted by the EU for carbon emission regulation involve insights from both systems (Meckling 2011; Neuhoﬀ 2011; Biedenkopf et al. 2017). Finally, some general surveys of climate policy at a global level include the EU and US without engaging in a specific comparison between them (Harrison et al. 2010; Luterbacher and Sprinz 2018, Kalantzakos 2017). Finally, both the EU and US are covered in a broad, theory-oriented explanation of environmental policy performance in 21 OECD countries based on a model of agenda-setting and veto power of involved political actors (Jahn 2016). Especially this latter study provides relevant insights for the subsequent discussion about how institutional features of political systems shape conditions for the advocacy of climate policy. However, aside from conceptual diﬃculties of subsuming action against climate change as a part of environmental policy, this account remains relatively unspecific for explaining the striking divergence of advances in climate action between the EU and US.

Focusing on this question, the following sections discuss several broad approaches for explaining this variance, and thereby to embed the subsequent analysis of ideas and discourse in the context of other analytical perspectives. In this vein, the discussion in this chapter starts by identifying the explanandum of comparison: namely, the diverging development of climate policy in the EU and US since the adoption of the Paris Agreement in 2015. From this point of departure, we review three broad approaches to the explanation of this divergence: first, material factors arising from the exposure of countries to the impacts of climate change and key economic interests; second, institutional factors potentially affecting policy development in a comparison of the EU and US as two multi-level systems; and finally, ideas and beliefs as expressed through attitudes towards and discourse about the issue of climate change.

1.2 CLIMATE POLICY IN THE EU AND US SINCE THE PARIS AGREEMENT

The Paris Agreement sets a suitable framework for the comparison between EU and US climate policy, as it is the first comprehensive international agreement on action against climate change to which both systems have subscribed. While the main commitment of signatories to the Agreement is to make efforts to keep global warming well below 2 degrees Celsius relative to pre-industrial values, the agreement prescribes no explicit targets for the reduction of GHG emissions, and also leaves the choice of specific policies for mitigating the causes of climate change to its signatories. Against this background, there is no straightforward, linear measurement for the stringency of climate action goals set by the signatories of the Paris Agreement. In order to capture the climate policy development of the EU and US, however, we can apply the following three criteria: (1) the overall ambition of action aiming at climate change mitigation, as measured by the percentage of GHG emission reduction in the mid-term until 2030, and longer-term until 2050; (2) the scope of climate policies concerning the reach and synergy of regulatory instruments covering sources of GHG emissions such as energy, transport, buildings and industry; and finally, (3) the interrelation of institutions responsible for adopting and implementing climate policy decisions within the vertical and horizontal separation of powers (i.e., between the executive and legislative branches, and between the federal/supranational level and constituent states). A survey of these indicators is shown in Table 1.1.

Accordingly, climate policy development of EU and US can be summarized as follows.

First, concerning ambitions of climate governance, the EU has adopted the goal of net-zero carbon emissions until 2050 and a corresponding mid-term target of 55 percent emission reductions by 2030 through the proclamation of its European Green Deal agenda. In the US, mid-term carbon emission reductions of 26–28% by 2025 relative to 2005 values have been pledged in the National Determined Contribution (NDC) by the Obama administration; however, this commitment was rescinded through the complete refusal to commit to any GHG reduction pledges by the subsequent Trump administration. After committing to the goal

Table 1.1 Overview of criteria for the evaluation of climate policy development in the EU and US since the adoption of the Paris Agreement (explanation of abbreviations used: GHG = greenhouse gases, NDC = Nationally Determined Contributions as required from signatories of the Paris Agreement)

	<i>The European Union (EU)</i>	<i>The United States (US)</i>
Ambition of GHG emission reduction	Achievement of carbon neutrality until 2050; agreed 2030 mid-term targets	Controversial; mid-term targets for 2030 specified in NDC
Scope of policies for mitigation of climate change	Comprehensive, including emissions trading, energy sector, vehicle standards and effort sharing	Fragmentary, with stay on energy framework and dispute on vehicle standards
Relation between institutional levels (horizontal/vertical)	Cooperative, with regulation adopted through legislative procedure and workable compliance of Member States	Adversarial, with regulation issued through executive and contestation of policies between state and federal level
Summary	Stable and progressive policy development	Fragmentary and contested policy development

of net-zero economy-wide emissions by 2050 as a candidate,¹ President Biden has proclaimed climate change as the second of seven major priorities of his presidency and made the pledge to “put the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050” (White House 2021a). This commitment has been complemented by the pledge to achieve a 50–52% reduction of greenhouse gas (GHG) emissions by 2030 relative to 2005 levels (White House 2021b).

Second, the EU has developed a comprehensive policy framework to achieve decarbonization covering CO₂ emissions trading (ETS) from industry and the energy sector, effort sharing for sectors outside the ETS and vehicle and product standards; in the US, policies remain fragmentary, as the main set of regulations governing the energy sector remains stayed, vehicle standards have remained controversial, fragmented and partially dependent on voluntary industry pledges, and no emissions

¹ The website of the Biden/Harris presidential campaign contains the pledge to ‘build a more resilient, sustainable economy – one that will put the United States on an irreversible path to achieve net-zero emissions, economy-wide, by no later than 2050’ (<https://joe.biden.com/clean-energy/>).

trading exists at the federal but only at the state and regional level (in California and through the Regional Greenhouse Gas Initiative).

Finally, relations between institutional levels can be described as relatively cooperative in the EU, as regulation has been adopted through legislative procedures following initiatives by the executive, and Member State support and compliance has remained at a level not obstructing further decision-making. By contrast, inter-institutional relations in the political system of the US are highly adversarial as climate regulation has been adopted (and repealed) almost exclusively through executive action against opposition from the legislature; relations between states and the federal government are characterized by confrontation and an often highly publicized role of litigation through the courts, particularly concerning regulation covering energy production and vehicles.

Taken together, these points establish the point of departure for our comparison of the EU and US concerning their policy-making development: For the EU, it can be characterized as generally stable and progressive in the sense of advancing steadily towards more stringent and comprehensive regulation; by contrast, the climate policy framework for the US remains fragmentary by being based on a narrow and not fully enforced set of standards particularly in energy policy, and intensely contested between institutional levels, both between the legislative and executive branches and through controversy between US states and the federal government.

1.3 MATERIAL FACTORS: VULNERABILITY AND ECONOMIC INTERESTS

A first possible approach for explaining the diverging policy responses of the EU and US to climate change could be based on material factors and interests: namely, that actual and anticipated material impacts of climate change, and of policies proposed for its mitigation, determine policy responses. Starting by focusing on the expected impacts of climate change as an explanatory factor, we could expect that the exposure to threats posed by global warming—such as floods, heat periods and extreme weather—prompt policy-makers to take more stringent action against climate change.

A usable measure for the material threat posed by climate change is provided through the Global Adaptation Index and data set,² developed by the University of Notre Dame in Indiana (ND-GAIN, cp. Chen et al. 2015). This index combines two aspects of the material efforts required for an adaptation to the consequences of climate change: first, a vulnerability score that combines indicators of the exposure of a given country to climate change from a biophysical perspective, its sensitivity in terms of dependence on sectors negatively affected by climate hazards, and the adaptive capacity in terms of available social resources for sector-specific adaptation. This score is operationalized as a value that can vary between 0 and 1, with higher values indicating a greater degree of exposure to climate hazards (Chen et al. 2015). Second, the index considers a readiness score, defined as a measure of a country's ability to mobilize investments for an adaptation to climate change, including an economic (business investment), governance (factors for adaptation investment) and social aspect (including factors of social equality, education and capacity for innovation). This score can equally range between 0 and 1, and is combined with the vulnerability index to result in the overall adaptability score with a value between 0 and 100 (with increasing values indicating higher readiness and adaptive capacity). We would assume that lower degrees of vulnerability and greater readiness scores might work as a limiting factor for a country's support of climate action.

However, comparing the 2017 data for the Member States of the EU and the United States leads to no substantial comparative insight other than that both jurisdictions belong to a group of upper-income countries with relatively low vulnerability and high readiness scores. The vulnerability index for the US (0.339) is almost identical with the average value for the EU-28 (0.340), indicating a slightly higher exposure to climate change than Germany, France, Italy and the UK, but a lower one than other EU Member States with a higher degree of exposure such as Hungary, Croatia, Latvia or Romania.³ The readiness score of the US (0.697) is somewhat above the average of the EU-28, but on a similar

² The country index, explanation of methodology, technical document and full data set are available from the website of the University of Notre Dame, Indiana, URL: <https://gain.nd.edu/our-work/country-index/> (last retrieved 26 February 2020).

³ The exact vulnerability scores for the countries mentioned are as follows: Germany .292, France .296, the UK .299, Italy .320, Hungary .365, Croatia .387, Latvia .393 and Romania .411. Source: <https://gain.nd.edu/our-work/country-index/rankings/>.

or lower level as major EU countries supporting climate policy such as Germany, the UK during its membership in the EU or the Scandinavian countries, where the highest readiness scores can be found within the EU.⁴ Considering the overall adaptation index, the value for the US (67.9) is again somewhat higher than the average of the EU-28 (63.1), but close to values for key EU states such as Germany (69.3), the UK before Brexit (69.1) and France (66.6). Within this comparison, the highest values are found in the Scandinavian countries, and the lowest in some states of Southern Europe, the Baltic states and particularly the South East European Member States.⁵ Considering the global ranking of countries, the US is in 22nd place globally in its vulnerability score, and therefore well within the range of EU countries whose positions rank between third and 85th places. In the overall adaptive index, the US is ranked in 15th place globally, well within the range of EU countries whose position in this ranking varies between 3rd and 65th positions.

A limitation of this data is that the US is included only as a single entity, without considering the substantial variation in climate exposure between regions and states. More detailed insights about anticipated economic effects of climate change within the US are provided by Climate Impact Lab, a cooperation between scientists and policy experts from several institutions including Berkeley and Rutgers University (Hsiang et al. 2017). While restrictions of space make it impossible to go into very much detail, an impact map published by the project demonstrates that both the current and anticipated effects of climate change are strongest in the Southern regions of the US, particularly covering states such as Arizona, Texas, Louisiana, Alabama and Florida⁶. This observation stands in notable contrast with the political support and progress of US States in relation to climate policy, where the states mentioned score low in

⁴ The respective scores for the countries mentioned are as follows: Germany .678, the UK .681, Sweden .728, Finland .747 and Denmark .756. Source <https://gain.nd.edu/our-work/country-index/rankings/>.

⁵ In Southern European Member States, values range between 62.6 (Spain) and 56.9 (Malta), with intermediate values for Portugal (61.6), Italy (60.7) and Greece (58.6); the values for the three Baltic states are 62.4 (Estonia), 61.1 (Lithuania) and 60.8 (Latvia); the lowest values for all EU Member States are found in the case of Bulgaria (56.8), Croatia (56.0) and Romania (52.8). Source: <https://gain.nd.edu/our-work/country-index/rankings/>.

⁶ Retrieved online from the project website: <http://www.impactlab.org/>, last access: 26 February 2020.