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Global Climate Governance: Does Bilateral Cooperation Matter?

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Global Climate Governance: Does Bilateral Cooperation Matter?

by

Nataliya Stranadko

A dissertation submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Public Affairs and Policy

Dissertation Committee:
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2023

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Abstract

The international relations literature looks at the climate regime from a perspective of power distribution, state interests, institutions, and multilateral negotiations. The international law literature focuses on legal analysis and design of international climate agreements. The transnational governance literature examines the participation of transnational actors at different levels of governance. However, each of these disciplines overlooks the trend in bilateral cooperation between national and subnational actors in a multilateral setting, which arises as part of the construction of the international regime. Why do national and subnational public actors in global climate governance cooperate bilaterally when multilateral cooperation already exists? What type of bilateral cooperative agreements do these actors prefer, and why? Using qualitative methods, including both content analysis and subsequent interviews, this dissertation demonstrates the role and importance of bilateral transatlantic cooperation and informal agreements between national and subnational actors in global climate governance. Using a case study comparing the European Union and the United States, this research identifies a diagonal dimension of interaction between states and transnational actors while developing the concepts of “translateral cooperation” and “translateral agreements” in the new climate regime.

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framework, connect science and policy, and provide practical recommendations for international climate cooperation.

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Chapter 1. Introduction

“Mr. president-elect, you’ve put forward a bold transformative climate plan. But you’ve also underscored that no country alone can solve this challenge...To end this crisis the whole world must come together. You’re right, to rejoin Paris on day one. And you’re right to recognize that Paris alone is not enough. And failure is not an option. Succeeding together means tapping into the best of American ingenuity, creativity, and diplomacy, from brain power to alternative energy power, using every tool we have to get where we have to go.”

– John Kerry, 2020

1.1 Research Problem and Questions

This dissertation argues that challenges in global climate governance, and lessons learned from the Kyoto’s regime, give opportunities for developing bilateral cooperative relationships in a new climate regime between national and subnational actors in the transatlantic context, particularly between the United States and the European Union.

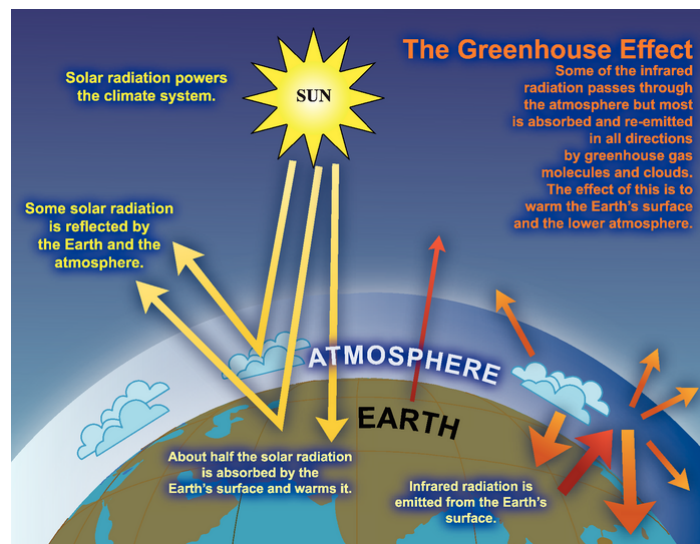
This evolving landscape raises the following research questions:

1. Why do national and subnational public actors in global climate governance cooperate bilaterally in a setting in which multilateral cooperation already exists?
2. What type of cooperative agreements do these actors prefer, and why?
3. What challenges do European and US actors meet in building a cooperative partnership, and what opportunities do they discover through their bilateral cooperation?
4. How does bilateral cooperation impact multilateral negotiation and vice versa?

Climate change and the enhanced greenhouse gas effect had long been discussed among scientists, but only in the late 1980s was it recognized as a global environmental problem that involves multi-level scale, multi-actor engagement, multi-sector binding, and vertical and horizontal dimensions of interactions in the global governance system (Andonova et al., 2009; Keohane and Victor, 2011; van Asselt, 2014).

The natural greenhouse gas (GHG) effect is an essential component in the climate system, and it plays a crucial role in regulating the Earth's average temperature of about 15°C (59°F). Without the GHG effect, the Earth's average temperature would be minus 18°C, making it difficult for all living species to survive in cold climatic conditions. Greenhouse gases (carbon dioxide, methane, nitrous oxide, and water vapor) are naturally present in the atmosphere. They create a “blanket” that protects the Earth’s surface from infrared solar radiation and regulates temperature (Figure 1.1).

Figure 1.1 The Model of the Natural Greenhouse Gas Effect¹



¹ IPCC (2007). *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.

The increased concentration of anthropogenic GHG gases after the Industrial Revolution has led to an increase in the global average surface temperature around the world, primarily due to the burning of fossil fuels and deforestation, which disrupted the Earth's climate balance.

In 1988, the World Meteorological Organization and the United Nations Environment Program (UNEP) established the Intergovernmental Panel on Climate Change (IPCC), which brings together the world's climate change scientists to assess climatic changes, their impacts on the environment, economy, and society, and proposes actions to mitigate climate change and adapt to the current conditions. The IPCC produces scientific assessment reports and summaries for policymakers every 5-7 years.

In 2013, the IPCC Fifth Assessment Report² recounted that the global average temperature increased by about 0.85°C from 1880 to 2012. Furthermore, the IPCC concluded that atmospheric concentrations of carbon dioxide (CO₂) have increased by 40% since the pre-industrial era, and continued GHG emissions will cause further warming and changes in the climate system's components (e.g., changes in precipitation, sea level rise, extreme weather events). In 2021, the Sixth Assessment Report³ presented new data with the global average surface temperature increased from 1850-1990 to 2010-2019 by approximately 1.07°C.

² IPCC (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

³ IPCC (2021). Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 3–32, doi:[10.1017/9781009157896.001](https://doi.org/10.1017/9781009157896.001).

Multilateral efforts to address the climate change problem and to build effective global climate governance⁴ began in 1992 when countries adopted the United Nations Framework Convention on Climate Change (UNFCCC) as a key international treaty, which aims at “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (UNFCCC, 1992). Looking for a practical mechanism for the UNFCCC implementation, in 1997, the United Nations adopted the Kyoto Protocol as a set of norms, rules, and principles that states agreed upon. The Kyoto Protocol obligated industrialized countries to reduce GHG emissions by 5.2% during 2008-2012 compared with the baseline year 1990 to hold the increase in the global average temperature to below 2°C above the pre-industrial level. Joint Implementation (JI) Projects for developed countries, Clean Development Mechanism (CDM) for developing countries, and Emission Trading Scheme (ETS) were developed as policy instruments and financial mechanisms to achieve the Kyoto Protocol’s goal. The UNFCCC Secretariat was established as the main institution to coordinate climate policy implementation by states.

However, the Kyoto Protocol’s implementation has encountered several obstacles that bring into question the effectiveness of multilateral climate agreements and global climate governance in general (Bulkeley et al., 2012). The first obstacle was the segregation of states into small negotiating groups. In global climate governance, such phenomenon has been referred to as “fragmentation” (van Asselt, 2014), “disaggregated

⁴ Governance refers to all processes of governing through the formal institutions of government with recognition of the opinion of citizens, interaction with society, non-government organizations, business and academia across different sectors and levels. The global governance refers to the change in the nature of international relations and highlights the role of states and diverse social actors in patterns of rule at the transnational and global levels (Bevir, 2011).

world order” (Slaughter, 2004), “polycentric approach” (Ostrom, 2009), “multi-level governance” (Peel et al., 2012), and “regime complex” (Keohane & Victor, 2011; 2016).

About 200 countries gather each year at the annual climate change conference to discuss the implementation of the multilateral climate agreement and each state's contribution to the global problem. These states include developed countries (e.g., USA, Canada, Germany), developing nations (e.g., African countries, Brazil, China), and countries in transition economies (e.g., Georgia, Russian Federation, Ukraine). The states have diverse interests in politics, economic development, power, financial resources, capacity building, culture, and beliefs. These diverse interests impact climate action goals and implementation of commitments under the international climate agreement to reduce GHG emissions and adapt to climatic changes. Thus, based on similar interests, states started forming their own coalitions and groups for negotiation, giving them flexibility and adaptability over time (Keohane & Victor, 2011). In the Kyoto case, the following groups were formed: the EU Group, the Umbrella Group (industrialized countries), the African Group of Negotiators, the Arab States, the Environmental Integrity Group, the Least Developed Countries, and the Small Island Developing States.

The second obstacle was adopting the UNFCCC top-down approach to implement the Kyoto Protocol. The UNFCCC Secretariat, as an established international institution, operated under a strong hierarchical order related to all countries and their GHG emissions reporting systems. This approach made the international system inefficient by eliminating flexibility in considering national circumstances and vulnerabilities of different countries.

The third obstacle is the isolation of non-state actors from decision-making and the lack of coordination and cooperation. The national governments reported to the UNFCCC Secretariat about the country's emissions reduction targets and their implemented climate policy under the Kyoto Protocol. Non-state actors (subnational actors, non-government organizations, business companies, and academia) were not significantly involved in developing climate policy and GHG emissions regulations. This approach led to the disagreement between national authorities and non-state actors on achieving the established targets inside the country. It also led to a lack of coordination and cooperation on how the adopted regulations impact, for example, the behavior of business companies and households to cut GHG emissions.

The last obstacle under the Kyoto Protocol implementation was the lack of linkage to sustainable development and how climate actions can contribute to enhancing environmental protection, access to natural resources, and ecosystem services (e.g., water, food, medicine, and recreation) to support human development goals (Gupta, 2014).

The above Kyoto obstacles challenged multiple states, which could not achieve emissions reduction targets partly because climate actions are rooted in domestic politics that involve subnational actors, which form their own coalitions, clubs, and networks. After the Kyoto Protocol period, national and subnational actors started intensive negotiation and cooperation bilaterally⁵ across borders, which gave them flexibility in terms of freedom of choice in developing climate actions under non-binding rules and

⁵ Bilateral cooperation means creating cooperative partnership between only two actors involved.

norms. Learning from the Kyoto regime⁶, in 2015, the states adopted the Paris Agreement as a new international treaty that began implementation in 2021. This treaty operates on a five-year cycle of increasingly ambitious climate actions developed and implemented by countries.

The regime's transformation from the Kyoto Protocol to the Paris Agreement has been analyzed by scholars in the fields of international relations, international law, and transnational governance. The international relations literature looks at the climate regime from a perspective of power distribution, state interests, institutions, and multilateral negotiations (Kahler, 1992). The international legal theory focuses on legal analysis and the design of international climate agreements (Bodansky et al., 2017). Finally, the transnational governance literature examines the participation and involvement of transnational non-state actors at different levels of governance (Broto and Bulkeley, 2013). However, each of these disciplines and theories overlooks *the trend of bilateral cooperation between national and subnational actors in a multilateral setting, which has risen as part of the construction of the new international climate regime.*

Therefore, this dissertation has three objectives. The first objective is to show key reasons for the growth of bilateral cooperation between national and subnational actors. The second objective is to reveal the role and importance of bilateral informal agreements in achieving greenhouse gas emissions reduction. Finally, the third objective is to show

⁶ Krasner (1983: 2) defines regimes as "...sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations. Principles are beliefs of facts, causation, and rectitude. Norms are standards of behavior defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice."

the visibility and accountability of subnational public actors in global climate governance.

This dissertation starts with introducing the research problem, questions, and main definitions in Chapter 1 and the role of the EU and US in the Kyoto and Paris climate regimes. Chapter 2 gives a brief overview of the existing literature and discusses the theoretical framework outlining the current knowledge, gaps, challenges, and opportunities in the area of global climate governance, as well as provides conceptualization for introducing a new term *translateral cooperation*. The main issues addressed in this Chapter are: a) key differences between two climate regimes, b) theoretical foundations based on regime theory, law theory, cooperation theory, and decision-making theory, and c) key obstacles and lessons learned from the Kyoto Protocol implementation. Chapter 3 is concerned with the design and methods used for this research. This Chapter shows that the deductively inductive qualitative approach is the most appropriate approach to answer my research questions by conducting the interview and thematic content analysis. Chapter 4 presents the findings of this research and gives answers to four research questions that unravel key reasons for the growth of translateral cooperation, discuss a typology of translateral agreements, challenges and opportunities actors meet during their cooperation and the effect of bilateral and multilateral cooperation on each other. Finally, Chapter 5 provides the conclusion, limitations of this study, and considerations for further research regarding translateral cooperation.

1.2 The EU-US Case Study Choice

Among the countries that joined the Paris Agreement, the largest GHG emitters are China (23.9%), the US (11.8%), India (6.8%), and the European Union (EU) (6.8%). Together, these countries account for almost 50% of global emissions (Climatewatch, 2021). Therefore, the most effective international actions on climate change will need to involve these nations (Andresen et al., 2021; Victor, 2016).

The United States, China, and the European Union have long-standing transatlantic partnerships in building peace and security, developing trade relations, and facing global challenges, including environmental protection, climate change, and the energy crisis.

In 2018, the EU demonstrated leadership and announced the vision to become the first world climate-neutral continent by 2050 and transform its economy towards net-zero GHG emissions. In 2021, the European Parliament and the Council adopted the European Climate Law⁷ that established a legally binding target of net-zero GHG emissions for EU member states. Furthermore, in April 2022, the European Commission announced 100 cities⁸ that would act as experimentation and innovation hubs to become climate-neutral and smart cities by 2030.

Following the EU, in November 2021, at the UNFCCC 26th Conference of Parties (COP 26), China and the US pledged to achieve climate neutrality by the middle of the

⁷ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1119> (accessed on July 5, 2022)

⁸ European Commission, Directorate-General for Research and Innovation (2022). *EU missions: 100 climate-neutral and smart cities*, Publications Office of the European Union <https://data.europa.eu/doi/10.2777/191876> (accessed on July 5, 2022)

century. Since 2015, the EU has initiated and signed bilateral agreements on climate change and energy cooperation with the US and China at the national level. Furthermore, subnational actors in these states intensified their bilateral cooperation with foreign counterparts. For instance, California currently has 22 bilateral agreements with several Chinese provinces (e.g., Memorandum of Understanding on the Cooperation for Low Carbon Development between The Provincial Government of Jiangsu of the People's Republic of China and the Government of the State of California of the United States of America) and 21 bilateral agreements with EU countries, including Denmark, Germany, Netherlands, Sweden, and others⁹ (e.g., the Letter of Cooperation between the Ministry of the Environment and Energy of the Kingdom of Sweden and the State of California on Cooperation in the Field of Climate Change). Furthermore, subnational actors joined the Powering Past Coal Alliance (PPCA)¹⁰ as a global effort to support the Paris Agreement goal and phase out coal by 2050. Currently, the PPCA has 163 members, including 48 subnational governments.

Each case of bilateral climate cooperation between the US, China, and the EU deserves separate research attention. The Harvard Project on Climate Agreements at the Harvard Kennedy School and the Center of Public Diplomacy at the University of Southern California began intensive research into US cooperation with China and India on climate change and the role of subnational actors (Aldy et al., 2016; Leffel, 2018;

⁹ California Energy Commission, Climate Change Partnerships <https://www.energy.ca.gov/about/campaigns/international-cooperation/climate-change-partnerships> (accessed on August 20, 2022)

¹⁰ The Powering Past Coal Alliance (PPCA) is a coalition of national and subnational governments, businesses and organizations working together towards the transition from coal power generation to clean energy (e.g., wind, solar, hydro) <https://www.poweringpastcoal.org> (accessed on August 22, 2022)

Davidson, 2019). Considering the share of global emissions between these states, such studies are indeed essential. However, the EU-US bilateral cooperation research also deserves attention because it demonstrates an interesting phenomenon of cooperation between national and subnational actors that may constitute a new theoretical and practical concept in the climate regime and could be replicable to other countries.

Thus, the EU–US case study was chosen for the following reasons.

First, this case can empirically test Smith’s (2005) bi-multilateral framework in the area of climate change. Examining EU-US relations, Smith (2005) demonstrated a high intensity of interactions and negotiation processes between both sides which occurred at the bilateral and multilateral levels. The scholar called this tendency “bi-multilateralism” that arises as a part of the construction or reconstruction of the international regime. Smith (2005) proposed the framework to analyze EU-US relations which can allow us to understand cooperation and the effect of bilateral and multilateral agreements on each other. According to the scholar, the bi-multilateral framework includes six features of the negotiation process (occasions, contexts, participants, agendas, strategies, and outcomes) and a list of key research questions to which EU-US negotiations give rise (Appendix A).

The second reason for choosing the EU-US case study is the emerging phenomenon of the rising trend in bilateral cooperation in the diagonal dimension of interactions—between state actors (EU member states) and transnational subnational actors (individual US states and cities). I introduced a separate term for this cooperation

called *translateral cooperation*.¹¹ This phenomenon indicates a need to understand motives and tipping points for establishing such cooperation. For example, was the adoption of the Paris Agreement in 2015 considered a tipping point? Or did the announcement of President Trump in 2017 to withdraw from the Paris Agreement intensify the development of translateral cooperation? Answering these questions in the scholarly domain can contribute to the international relations discipline by identifying the reasons for the growth in translateral cooperation during the international climate regime's construction. Furthermore, it can contribute to the international law discipline and transnational governance theory by offering a typology of *translateral agreements* that would be an essential part of the soft law¹² mechanisms and practical legal steps during the Paris Agreement implementation.

The third reason for the selection of the EU-US case study is to ascertain whether California's climate leadership and policy experience represent a subnational cooperative model for other US states to follow. The leadership effect on other US states can provide empirical evidence of cooperation between national and subnational actors, which is crucial for recognizing subnational actors as interrelated subjects of international relations, international law, and transnational governance.

¹¹ See definition of *translateral cooperation* in Chapter 1.6.

¹² See definition of *soft law* in Chapter 1.6.

Finally, the EU-US case study was chosen to examine the potential of translateral cooperation in supporting the European Green Deal¹³ that the EU announced in July 2021 and the US Green New Deal¹⁴ introduced in the House of Representatives in April 2021.

Therefore, this research is important for scholarship and international climate policy because it raises the visibility and understanding of the role of *translateral cooperation* in global climate governance.

In the policy domain, it can illuminate the importance of *translateral cooperation* in achieving the nationally determined contributions (NDCs)¹⁵ agreed upon under the Paris Agreement, particularly Article 6, and strengthen coordination between actors in vertical and horizontal dimensions of interaction. Moreover, identifying motivations and conditions of *translateral cooperation* between national and subnational actors across borders can improve our understanding of changing patterns in multilateral negotiations. Thus, improving our conceptual understanding of the growth in translateral cooperation can help solve the practical problem of achieving NDCs.

Before diving into the literature review and theoretical framework, it would be helpful to understand the role of the EU and the US in global climate governance.

¹³ The European Green Deal is the initiative of all 27 EU member states to reduce GHG emissions by at least 55% by 2030 compared to 1990, and turn the EU into the first climate neutral continent by 2050 https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en (accessed on August 15, 2022)

¹⁴ The Green New Deal was introduced in House by Alexandria Ocasio-Cortez (Democratic Party) on April 20, 2021. Its main goals are to achieve the GHG emission reductions needed to stay under 1.5°C of warming, to create jobs, to invest in the infrastructure and industry, to secure people with clean environment and healthy food, and to promote justice and equity <https://www.congress.gov/bill/117th-congress/house-resolution/332/actions> (accessed on August 1, 2022)

¹⁵ According to Article 4 of the Paris Agreement, the nationally determined contributions (NDCs) are the national targets for GHG emissions reduction accompanied by domestic mitigation measures.

1.3 The EU in Global Climate Governance

The EU demonstrated enormous efforts and global leadership during the Kyoto Protocol's implementation and negotiations on the Paris Agreement under the UNFCCC. Such leadership and efforts, as well as a modification of the features in the Paris Agreement, not only attracted a large number of nations in a short period¹⁶ but most importantly, brought the biggest world emitters of GHG emissions such as the US and China to the commitments under the new treaty (Oberthür & Groen, 2018).

The EU ratified the Kyoto Protocol on May 31, 2002, when it included only 15 member countries (EU-15)¹⁷. Today, as a supranational regional entity, the EU includes 27 member states¹⁸, taking into account that the UK left the Union in January 2020 (Brexit). One should consider that the internal EU process for ratification of international treaties requires approval by the European Parliament and adoption by the European Council. It also requires ratification by all EU member states individually.

For the first commitment period under the Kyoto Protocol (2008–2012), the EU-15 was obligated to reduce GHG emissions by 8% below the 1990 level. To be able to achieve this target, a comprehensive 2020 Climate and Energy Package was developed in 2007, and the 8% reduction was divided among member states through their legally binding national targets¹⁹.

¹⁶ After the Kyoto Protocol's adoption, it took seven years for this treaty to enter into force compared to less than one year for the Paris Agreement.

¹⁷ The EU-15 comprises Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the UK.

¹⁸ The EU-27 comprises the EU-15 member states, minus the UK, plus Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Cyprus, and Malta. Cyprus and Malta did not have national targets for the first commitment period under the Kyoto Protocol.

¹⁹ Commission Decision (2006/944/EC), 'Determining the respective emission levels allocated to the Community and each of its Member States under the Kyoto Protocol pursuant to Council Decision 2002/358/EC', December 14, 2006; Commission Decision (2010/778/EU) amending Decision 2006/944/EC,

The 2020 Climate and Energy Package²⁰ included three critical objectives by 2020: (a) a 20% cut in GHG emissions (from the 1990 level), (b) 20% of EU energy produced from renewables, and (c) 20% improvement made in energy efficiency. To achieve these objectives, the European Commission put in place a variety of policy instruments (e.g., the Emission Trading System) used by member states, as well as several innovative and financial supporting programs (e.g., NER 300, Horizon 2020). As a result, the EU-15 has successfully reduced GHG emissions by 11.7% from the 1990 base year (even more than the 8% established target) during the first commitment period. The EU-28 achieved their reduction target by about 19% compared to the base year, which corresponds to 23.5 gigatons of CO₂ equivalent²¹. The achieved amount does not include additional reductions from the Land Use, Land-Use Change, and Forestry (LULUCF)²² sector and the international Emission Trading System (ETS) mechanism.

For the second commitment period under the Kyoto Protocol (2013–2020), the EU-28, jointly with Iceland, committed to reducing GHG emissions by 20% below the 1990 level, which is in line with the adopted 2020 Climate and Energy Package. The second commitment period was introduced because countries could not agree on adopting a new treaty in Copenhagen in 2009. The main disagreement was between developed and developing countries about adopting new legally binding emission reduction targets. The

December 15, 2010; and Commission Decision (2013/644/EU) amending Decision 2006/944/EC, November 8, 2013.

²⁰ Commission Communication, '2020 by 2020 Europe's climate change opportunity', COM (2008) 30 final, January 23, 2008.

²¹ Commission Staff Working Paper, 'Analysis of options beyond 20% GHG emission reductions: Member State results', SWD (2012) 5 final, February 1, 2012.

²² LULUCF means land use, land-use change, and forestry, which is one of the sectors for GHGs reduction mentioned by the Intergovernmental Panel on Climate Change.

developed countries (e.g., the United States) required GHG emissions reduction obligations from fast-growing developing nations (e.g., China and India). However, developing states referred to their needs for economic growth and emphasized historical GHG emissions contribution and responsibility from developed countries. The result was two different draft texts of a new agreement from developing and developed states, which they could not agree and adopt as a new international climate agreement. Thus, to be able to continue climate negotiations on the way to a new treaty, the UNFCCC parties agreed to set new emission reduction targets for 2013–2020 through the adoption and ratification of the Doha amendment²³ to the Kyoto Protocol. Further, under the second commitment period (2013-2020), the EU updated its Emission Trading System (ETS)²⁴, established the Florence Process²⁵ with California, Canada, China, and New Zealand, and linked the EU ETS with the ETS of Switzerland²⁶.

Besides internal cooperation and achievements among member states, the EU paid attention to the importance of its foreign policy and cooperation with other countries, particularly with the US. In the area of climate change and energy, the EU and the US work together through several bilateral platforms at different levels of governance, such as the EU–US Energy Council, Global Covenant of Mayors for Climate

²³ Doha amendment to the Kyoto Protocol, COP Report FCCC/KP/CMP/2012/13/Add.1, February 28, 2013. The Doha amendment replaced the table in Annex B to the protocol and added one more greenhouse gas for reporting—nitrogen trifluoride (NF3).

²⁴ Emission Trading Scheme (ETS) is one of the mechanisms under the Kyoto Protocol to achieve emissions reduction targets. The ETS allows industrial companies receive or buy emission allowances, which they can trade as needed. Sometimes it is called ‘cap and trade’ system.

²⁵ The Florence Process aims to collect and share knowledge and information on the functioning of emissions trading systems worldwide, to establish a network among ETS experts, and to create a forum for interactions between policymakers and ETS experts.

²⁶ Linking Agreement between the EU and the Swiss Confederation on the linking of their GHG emissions trading systems, the Official Journal of the European Union, December 7, 2012. This agreement entered into force on January 1, 2020.

and Energy, the Energy Research and Innovation Program, and the International Urban Cooperation initiative.

The EU–US Energy Council was established in 2009 under the Obama administration. It aims to promote deep policy and scientific cooperation on energy security, energy markets, clean energy, and energy-efficient technologies. Climate change aspects were incorporated into this platform. The EU–US Energy Council usually meets annually in Brussels or Washington, DC. However, the US presidential election in 2016 brought a challenge for EU–US cooperation under this platform. The newly elected president, Donald Trump, questioned the value of climate change and clean energy production. In July 2018, the eighth EU–US Energy Council meeting was the first and the only meeting of this Council during the Trump administration²⁷.

The EU ratified the Paris Agreement on October 5, 2016, which allowed this international treaty to enter into force on November 4, 2016²⁸. For the period of commitments under the Paris Agreement (2021–2030), the EU developed the 2030 Climate and Energy Package²⁹. This Package includes new key objectives by 2030: (a) a cut of at least 40% in GHG emissions (from the 1990 level), (b) 32% of EU energy shared from renewables, and (c) 32.5% improvement made in energy efficiency. These

²⁷ US Department of Energy, the Office of International Affairs, <https://www.energy.gov/ia/articles/eighth-meeting-us-eu-energy-council-brussels-belgium>.

²⁸ According to Article 21 of the Paris Agreement, the treaty shall enter into force on the 30th day after the date on which at least 55 parties to the UNFCCC accounting in total for at least an estimated 55% of the total global GHG emissions have deposited their instruments of ratification, acceptance, approval, or accession.

²⁹ Commission Communication, ‘A policy framework for climate and energy in the period from 2020 to 2030’, COM/2014/015 final, January 22, 2014.

targets will be more ambitious and include at least a 55% cut in GHG emissions (from the 1990 level)³⁰.

Even working remotely in their homes during the COVID-19 pandemic, EU officials were able to show leadership and agree on the 2050 Long-Term EU Strategy for reducing GHG emissions³¹. According to this strategy, Europe has the vision to become the first world climate-neutral continent by 2050 and lead its economy with net-zero GHG emissions. Further, the EU announced the European Green Deal as an ambitious action plan to make the economy sustainable by turning climate and environmental challenges into opportunities. The European Green Deal package includes (a) the European Climate Law to turn political commitment into a legal EU obligation, (b) the European Climate Pact to engage society in climate actions under the Sustainable Development Goals (SDGs), and (c) the 2030 Climate Target Plan to reduce GHG emissions by at least 55% by 2030 under the Paris Agreement³².

Interestingly, President Franklin Roosevelt initially launched the New Deal to help the US recover from the Great Depression. Nowadays, the EU has a package on the table in terms of the European Green Deal to work collaboratively with the US and other countries on boosting the efficient use of resources by moving to a clean, circular economy, restoring biodiversity, and cutting pollution.

³⁰ In September 2020, as part of the European Green Deal, the Commission proposed to raise the GHG emissions reduction target to at least 55% compared to 1990. See https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en

³¹ Long-term low GHG emission development strategy of the EU and its Member States, submission to the UNFCCC Secretariat, March 6, 2020, <https://unfccc.int/documents/210328>.

³² The European Green Deal, https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en.

This package on the table was timely enough in terms of the US presidential election in November 2020. The newly elected president, Joe Biden, announced climate change as one of the top priorities of his transition plan. Shortly after that, the EU put on the table another transatlantic package called a New EU–US Agenda for Global Change. One of these transatlantic agenda pillars is “working together to protect our planet and prosperity.”³³

Currently, both counterparts can sit together around the table and discuss a shared transatlantic commitment to a net-zero emissions pathway by 2050, the upcoming WTO-compatible EU Carbon Border Adjustment Mechanism, the design of a regulatory framework for sustainable finance, goals for biodiversity protection, and the Global Plastics Treaty ahead of the next United Nations Environment Assembly.

In February 2022, the first step to such discussions was made. After four years of a break during the Trump administration, the ninth EU-US Energy Council again met in Washington D.C.³⁴. The Council underlined the importance of energy and climate cooperation toward achieving net-zero GHG emissions by 2050, which are aligned with the goal of the Paris Agreement. Furthermore, the Council acknowledged the EU-US leadership in launching the Global Methane Pledge³⁵ at the 26th Conference of the Parties (COP 26) of the UN Climate Change Conference. The Council also highlighted the importance of bilateral

³³ Commission Communication, ‘A new EU-US agenda for global change,’ JOIN(2020) 22 final, December 2, 2020.

³⁴ Joint Statement on the US-EU Energy Council, February 7, 2022 <https://www.state.gov/joint-statement-on-the-u-s-eu-energy-council/>

³⁵ The EU-US initiative launched at COP 26 in November 2021 in Glasgow. The goal of this initiative is to take voluntary action to reduce global methane emissions at least 30% by 2030 compared to 2020. Today, 121 countries joined this initiative <https://www.globalmethanepledge.org> (accessed on September 5, 2022)

cooperation on clean and renewable hydrogen as well as onshore and offshore wind energy. In 2022, the Council will prepare a roadmap with joint actions in the area of climate and energy cooperation.

In September 2022, the second step and follow-up actions were made. As a result of the 2021 EU-US Summit, the European Union opened its new office in San Francisco, California, to strengthen transatlantic technological cooperation. This Office will promote the EU standards and technologies, policies, regulations, and governance models in order to reinforce cooperation with US subnational stakeholders, including the work under the EU-US Energy Council and the EU-US Trade and Technology Council. The latter includes ten working groups for implementing the political decisions and coordinating the technical work. Two of those ten groups are directly connected to the implementation of the European Green Deal and GHG emissions reduction targets:

1) Technology Standards Cooperation Working Group, and 2) Climate and Green Technologies Working Group.³⁶

The EU-US Energy Council and the EU-US Trade and Technology Council will also be working towards the implementation of the Carbon Border Adjustment Mechanism (CBAM) under the Green Deal. CBAM was designed in compliance with the World Trade Organization (WTO) rules to reduce the risk of carbon leakage (when companies can move their carbon-intensive production facilities abroad). The EU importers will buy carbon certificates and pay the established price for the carbon used in the production of imported goods in another country (carbon tax). The CBAM would

³⁶ The EU-US Trade and Technology Council https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/eu-us-trade-and-technology-council_en#ways-of-working (assessed on September 6, 2022).

encourage non-EU producers to green their production processes. The European Parliament adopted the CBAM regulation in June 2022. The CBAM will start on January 1, 2023 with a transitional period until 2026, and the full implementation by 2032 for specific ETS industrial sectors (cement, iron and steel, aluminum, fertilizers, and electricity).

The CBAM is already in place in California for the electricity sector. Therefore, opening the EU Office in San Francisco is a good start for learning and sharing experience and developing *translateral cooperation* in the future.

1.4 The US in Global Climate Governance

Despite the active participation of US Vice President Al Gore in drafting the Kyoto Protocol, the US did not ratify this international treaty because of the scientific uncertainty and the expected negative economic consequences to be caused by legally binding emissions reduction targets (Carlarne, 2010). Annex I to the Kyoto Protocol did not include obligations from rapidly developing countries, such as China and India, and this was one of the crucial arguments the US made against the ratification of the Kyoto Protocol.

The US has continued to participate in international climate negotiations. However, the absence of federal support on climate change policy did not allow the US to move forward and demonstrate national climate leadership until 2009, when Barack Obama was elected president. The newly elected president announced a Climate Action Plan to cut carbon pollution. He was ready to negotiate and find solutions for emissions

reduction targets appropriate for both developed and developing countries. Active negotiations and discussions between the three biggest emitters—the US, China, and the EU—on the design, structures, rules, and provisions of the new climate treaty led to the adoption of the Paris Agreement in 2015. The non-binding nature of GHG emissions reduction obligations under the new treaty allowed President Obama to accept the Paris Agreement on September 3, 2016, without a procedure of ratification by the US Senate. The US submitted to the UNFCCC Secretariat its Initial Nationally Determined Contributions (NDC) and committed to reducing GHG emissions by 26–28% below its 2005 level in 2025.

However, in June 2017, the new US President, Donald Trump stated that the US would cease all implementation of the non-binding Paris Agreement because of “the draconian financial and economic burdens the agreement imposes on our country.”³⁷ On November 4, 2019, the US government officially notified the Secretary-General of its decision to withdraw from the Paris Agreement. The decision took effect on November 4, 2020, according to Article 28 of the Paris Agreement.

Nevertheless, the above decision was only valid for three months because the newly elected President, Joe Biden, rejoined the Paris Agreement on February 19, 2021.

Following the US climate policy and international negotiations, one can observe the changing patterns of climate governance that engage regional, national, subnational, and local levels. Some US states adopted their legislative and institutional models to address environmental and climate change problems. The US recognized a transboundary

³⁷ Statement by President Trump on the Paris Climate Accord, <https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord> (accessed on July 18, 2020).

environmental pollution effect and the impact of climate change, and it established several regional partnerships and initiatives. More than 12 ongoing regional collaborations with the involvement of state and private stakeholders started their activities during the Kyoto Protocol period (Carlarne, 2010). The most well-known of these collaborations are the Regional Greenhouse Gas Initiative, the Midwestern Greenhouse Gas Reduction Accord, and the Western Climate Initiative.

California is a leader among US states in driving significant changes, ambitions, and commitments on climate actions at the subnational level. This leadership started in 1967 when Governor Ronald Reagan approved the Mulford-Carrell Air Resources Act to create the State Air Resources Board and committed California to address the serious air pollution problem.³⁸ Since 2000, the Board’s responsibilities also included monitoring and reducing GHG emissions. In 2006, Governor Arnold Schwarzenegger signed the Global Warming Solutions Act of 2006, which established the first-in-the-world program of a regulatory and market-based mechanism to reduce GHG emissions (further known as the “Cap-and-Trade Program”). California’s Cap-and-Trade Program is one of the key elements of the California Climate Action Plan. The Program was adopted in 2011 as the first emission-trading system (ETS) in North America. As of today, it covers 450 industrial facilities. In 2014, California’s cap-and-trade program was linked with the Canadian province of Québec to achieve ambitious California’s GHG emissions reduction target – 40% below the 1990 level by 2030³⁹. Today, California Cap-and-Trade Program is the fourth largest ETS in the world, following the cap-and-trade program of

³⁸ California Air Resources Board <https://ww2.arb.ca.gov> (accessed on August 24, 2022)

³⁹ California Governor's Executive Order B-30-15 - Reduction target of 40% below 1990 level by 2030 <https://www.ca.gov/archive/gov39/2015/04/29/news18938/index.html> (accessed on September 1, 2022)

China, the EU, and South Korea⁴⁰. In 2018, by Governor's Executive Order B-55-18, California established an additional goal – to achieve carbon neutrality by 2045.

Under California's leadership, in the post-Kyoto period, several new collaborative initiatives of national and subnational governments were created, including the Under2 Coalition (2015), the International ZEV Alliance (2015), the Governors' Accord for a New Energy Future (2016), the US Climate Alliance (2017), the America Pledge (2017), and the Transport Decarbonization Alliance (2018).

33 US states have currently prepared their climate action plans with GHG emissions reduction targets to support the Paris Agreement's goal.⁴⁰ Furthermore, 15 US states have adopted legislative acts to move toward a 100% clean energy future⁴¹.

After President Trump's decision to withdraw from the Paris Agreement, the US states started to play an active role in decision-making and the formation of transatlantic climate cooperative initiatives at the subnational level to support the Paris Agreement. Today, a number of partnerships with the participation of the US and EU member states have been created: the NDC Partnership, the US-EU Joint Consultative Group on Science and Technology Cooperation, the Global Covenant of Mayors for Climate and Energy, and the International Urban Cooperation Program.

One may question the role of US states (subnational actors) and their ability to participate in international cooperation and foreign policy. Indeed, Farber (2011, p. 10)

⁴⁰ Center for Climate and Energy Solutions <https://www.c2es.org/document/climate-action-plans/> (accessed on September 2, 2022)

⁴¹ Center for American Progress <https://www.americanprogress.org/issues/green/reports/2020/04/30/484163/states-laying-road-map-climate-leadership/> (accessed on August 23, 2022)

stated that according to the US constitution, only the federal government has a responsibility and control of foreign affairs by providing a unified voice abroad. Farber (2011) emphasized the three formal constitutional restrictions for the individual US states to be involved in transatlantic environmental regulatory cooperation.

The first restriction is the doctrine of the dormant commerce clause. Sometimes, the US states have taken the lead in environmental protection because of pressing local environmental problems (e.g., waste disposal). In this case, the conflict may arise between the local interest in environmental regulations and the economic interests of other US states and foreign counterparts. Therefore, the doctrine of the dormant commerce clause “prohibits states from engagement in regulation that discriminates against interstate or foreign commerce” Farber, 2011: p. 4). The second restriction is related to the adoption of US state laws. Any state law should not conflict with federal law, in other cases, state law would be invalid. The final constitutional restriction is related to the foreign policy domain. The US states cannot invade the foreign affairs domain, which is a responsibility of the federal government (e.g., US states cannot enter into international treaties).

However, despite these restrictions, the US states can enter into informal non-legally binding agreements (e.g., Memorandums of Understanding) with foreign countries that relate to their own interests and do not violate federal law. Thus, to navigate this grey area, Farber (2011) suggests documenting all details about how policy and cooperation address domestic needs and coordinate regulatory issues as much as possible with the federal government.

Much research and analysis have been done on US climate change policy, the history, reasons for non-ratification of the Kyoto Protocol, and the importance of relations between the US president and Congress (Bailey, 2015; Fullerton & Wolfram, 2012; Pataki et al., 2008; Sussman & Daynes, 2013). But there has been little research on the EU–US bilateral cooperative relationship at the subnational level in the area of climate change.

Meantime, in the political world, US Senator Chris Murphy (Democrat) and US Senator David Perdue (Republican) introduced a Bill to Establish the Office of Subnational Diplomacy within the US Department of State⁴² (Appendix B). The Bill emphasizes the growth of subnational cooperation and the role of subnational actors in complementing the efforts of Federal government. The primary duty of this Office is the overall supervision of Federal support for subnational engagements by State, county, and municipal governments with foreign governments, including negotiating agreements with foreign counterparts. According to this Bill, subnational engagement means “formal meetings or events between elected officials of State or municipal governments and their foreign counterparts.”⁴² According to this Bill, the Office would advise State and municipal government officials regarding questions of global affairs, foreign policy, cooperative agreements, and public diplomacy. The Senate read a Bill twice and referred it to the Committee on Foreign Relations on August 4, 2020.

⁴² Murphy, C. (2020). *Text - S.4426 - 116th Congress (2019-2020): City and State Diplomacy Act*. Congress.gov. <https://www.congress.gov/bill/116th-congress/senate-bill/4426/text?q=%7B%22search%22%3A%5B%22City%2Band%2BState%2BDiplomacy%2BAct%22%5D%7D&r=1&s=1> (accessed on February 2, 2022)

Recently, President Joe Biden signed the Inflation Reduction Act of 2022⁴³, which became public law on August 16, 2022. This Act promises a bright future for subnational stakeholders in the area of environment, climate, and clean energy. The Act will result in the investment of \$369 billion in energy security and climate change projects to reduce GHG emissions. The Bill modifies and extends the current tax credits for producing electricity from renewable resources (wind, biomass, geothermal and solar, landfill gas, trash, qualified hydropower, and marine and hydrokinetic resources) and energy-efficient buildings and creates new tax credits for the production of clean hydrogen, zero-emission electricity generation facilities, energy storage technology, and commercial clean vehicles. In addition, the Bill allocates funding to 1) the Department of Transportation for low-emission aviation technologies, 2) the Department of Energy for a variety of energy efficiency projects, for grants and loans to states and local governments for building codes, domestic production of hybrid electric vehicles, energy infrastructure projects, and advanced industrial technologies to reduce GHG emissions, 3) the Department of Interior for conservation, drought response projects, and technical assistance for climate change urban planning, mitigation, adaptation, and resilience, and 4) the Environmental Protection Agency for establishing the GHG Reduction Fund and for supporting various programs to reduce GHG and air pollution emissions (e.g., incentives to states to adopt and implement zero-emission standards for mobile sources). The Bill also provides for the lease of federal land in the Outer Continental Shelf for offshore wind development.

⁴³ Inflation Reduction Act of 2022 <https://www.congress.gov/bill/117th-congress/house-bill/5376> (accessed on September 8, 2022)

Therefore, the recent federal legislative progress gives a window of opportunity for the US subnational actors to develop, update and implement climate and energy programs, and build transatlantic cooperation with foreign counterparts in supporting the Paris Agreement's goal.

1.5 Definitions

This research focuses on cooperation between states and subnational actors, including the US states. To avoid confusion between these terms, my study employs the term *states* to refer to sovereign political entities in international relations (national level), and it refers to *US states* as individual states in the USA (subnational level).

In international relations theory, *bilateral cooperation* refers to cooperation between two sovereign states. However, in this research, I use the term *bilateral cooperation* for the subnational level too, because policy-makers at national and subnational levels apply this term to cooperation between any two actors.

In this study, *multilateral cooperation* refers to cooperation between multiple sovereign states as well as multiple cities. I apply the term *transnational municipal cooperation* to bilateral cooperation between cities across borders. Finally, I introduce the new term *translateral cooperation* referring to cooperation between states and subnational transnational actors.

From an international legal perspective, my research calls attention to *informal agreements* as agreements signed between two public actors based on mutual trust, non-legally binding rules, and commitments. Thus, informal agreements incorporate soft law instruments for achieving goals established by two public actors.

I use definitions proposed by Abbott & Snidal (2000) to distinguish between hard and soft law. The scholars define *hard law* as “legally binding obligations that are precise (or can be made precise through adjudication or the issuance of detailed regulations) and that delegate authority for interpreting and implementing the law.” The realm of *soft law* “begins once legal arrangements are weakened along one or more of the dimensions of obligation, precision, and delegation” (Abbott & Snidal, 2000: 442).

In my research, *bilateral* and *translateral agreements* are considered informal non-binding agreements in international relations.

Chapter 2. Literature Review and Theoretical Foundations

In global climate governance (Gupta, 2014; van Asselt, 2014), the UNFCCC⁴⁴, the Kyoto Protocol⁴⁵, and the Paris Agreement⁴⁶ are key fora for multilateral cooperation on climate change. The regime's development from Kyoto to Paris, together with new features of the Paris Agreement gave rise to the trend of *translateral cooperation* between state and subnational actors that deserves an explanation.

2.1 International Regimes in Global Climate Governance

Krasner (1983: p. 2) defines regimes as "...sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations. Principles are beliefs of facts, causation, and rectitude. Norms are standards of behavior defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice."

The Kyoto Protocol (Ma, 2012; Aichele & Felbermayr, 2013; Grunewald & Martinez-Zarzoso, 2016; Almer & Winkler, 2016; Galo et al., 2017) and the Paris Agreement (Aldy & Stavins, 2009; Bodansky, 2016; van der Gaast, 2017; Buchholz et al., 2018) are entirely different in terms of principles, norms, rules, and decision-making procedures (Figure 2.1). The modification of these features in the Paris Agreement not

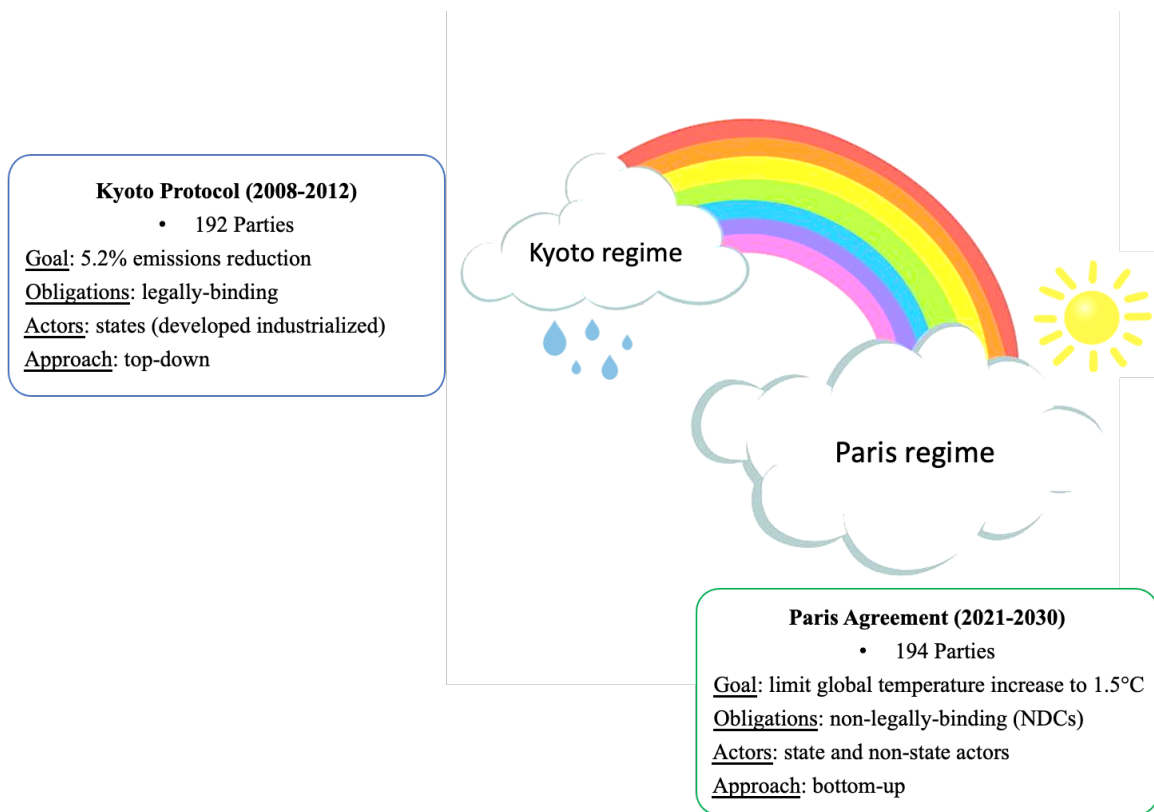
⁴⁴ The treaty was adopted on 9 May 1992 in New York and entered into force on 21 March 1994.

⁴⁵ The treaty was adopted on 11 December 1997 in Kyoto and entered into force on 16 February 2005 after the ratification by not less than 55 Parties to the UNFCCC, incorporating Parties included in Annex I which accounted in total for at least 55% of the total carbon dioxide emissions for 1990 of the Parties included in Annex I. It aimed to reduce GHG emissions by 5.2% during 2008-2012 compared with the baseline 1990.

⁴⁶ The treaty was adopted on 12 December 2015 in Paris and entered into force on 4 November 2016 after the ratification by at least 55 Parties to the UNFCCC accounting in total for at least an estimated 55% of the total GHG emissions.

only attracted a large number of nations to join this agreement in a short period⁴⁷ but, most importantly, to bring the largest GHG emitters, such as the US and China, to sign onto the commitments under this treaty. The Paris regime emerged when states agreed that, in the pursuit of their own national interests, GHG emissions reduction is better achieved by cooperating with all countries involved.

Figure 2.1 Regimes in Global Climate Governance



The principles of the Kyoto and Paris regimes differ regarding recognizing climate change problem and the established common goal. In 2013, the IPCC Fifth

⁴⁷ After the treaty's adoption, it took seven years for the Kyoto Protocol to enter into force compared to less than one year for the Paris Agreement.

Assessment Report scientifically confirmed that the global average temperature increased by about 0.85°C from 1880 to 2012. Also, the IPCC recognized that atmospheric concentrations of carbon dioxide (CO₂) have increased by 40% since the pre-industrial era and continued anthropogenic GHG emissions will cause further warming and changes in the climate system's components (e.g., changes in precipitation, sea level rise, extreme weather events). These climatic changes would affect both developing and developed countries. Therefore, countries decided to change the common goal from obligated quantitative GHG emissions reduction target (5.2% emissions reduction) to global temperature limitation (below 1.5°C).

Changes in *norms* also contributed to switching from compulsory emissions reduction targets to global temperature limitations in the following way. The Kyoto Protocol only obligated 39 industrialized countries and the European community to reduce GHG emissions by 5.2% over the 2008–2012 period compared with 1990. Each developed state had an individual legally binding emissions reduction target (Figure 2.2) with compulsory reporting of the progress to the UNFCCC Secretariat. However, developing countries did not have any legally binding obligations to reduce GHG emissions under the Kyoto Protocol. Such division of countries implied a regime of low coherence and accountability in which the absence of binding obligations for developing states was questionable fairness (Keohane & Victor, 2011).

Figure 2.2 Obligations of Developed Countries under the Kyoto Protocol⁴⁸

Annex B	
Party	Quantified emission limitation or reduction commitment (percentage of base year or period)
Australia	108
Austria	92
Belgium	92
Bulgaria*	92
Canada	94
Croatia*	95
Czech Republic*	92
Denmark	92
Estonia*	92
European Community	92
Finland	92
France	92
Germany	92
Greece	92
Hungary*	94
Iceland	110
Ireland	92
Italy	92
Japan	94
Latvia*	92
Liechtenstein	92
Lithuania*	92
Luxembourg	92
Monaco	92
Netherlands	92
New Zealand	100
Norway	101
Poland*	94
Portugal	92
Romania*	92
Russian Federation*	100
Slovakia*	92
Slovenia*	92
Spain	92
Sweden	92
Switzerland	92
Ukraine*	100
United Kingdom of Great Britain and Northern Ireland	92
United States of America	93

* Countries that are undergoing the process of transition to a market economy.

Note: The USA did not ratify the Kyoto Protocol, so the country was not obligated to reduce emissions

⁴⁸ The Kyoto Protocol of the United Nations Framework Convention on Climate Change <https://unfccc.int/process-and-meetings/the-kyoto-protocol/history-of-the-kyoto-protocol/text-of-the-kyoto-protocol> (accessed on August 30, 2022)

Kyoto regime's norms led to disagreement between developed and developing nations in further negotiation because by setting the emissions reduction target only for developed countries, the regime was not able to create incentives to decarbonize the economy. While some countries (e.g., Canada) failed to meet the Kyoto targets, other countries reduced GHG emissions without making any targeted effort (for instance, Russia and other post-Soviet states after the economic collapse associated with the end of communism). Agreeing on new targets for a second Kyoto commitment period (2012-2020) was difficult because the focus on legally binding targets had turned climate negotiations into a distributional conflict over respective shares of the mitigation burden (Falkner, 2016). If only developed states take responsibility for GHG emissions reduction, but developing countries such as China, India, and Brazil are allowed to grow their economies and increase GHG emissions, the effectiveness of mitigation policy will be reduced (Gupta, 2012). This is why negotiations in Copenhagen in 2009 were unsuccessful, and countries did not adopt a new treaty because of this key disagreement.

In the Paris regime, developed countries acknowledged their historical responsibility for past GHG emissions, and they agreed to take the further lead in emissions reduction but only if developing countries take climate actions too, particularly actions to reduce GHG emissions. Such an agreement on common responsibilities and obligations between all nations led to establishing new *rules* in the Paris Agreement in terms of Nationally Determined Contributions (NDCs).

NDC is a climate action plan to reduce GHG emissions, which each country should submit on a 5-year cycle to reach the goal of the Paris Agreement. According to

Article 4 of the Paris Agreement “Each Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.” Sweet (2016) emphasizes that “common but differentiated responsibilities” and “respective capabilities” are different things. Differentiated responsibilities refer to the historical responsibility of the advanced industrial countries for the GHG emissions already stored in the atmosphere. On the other hand, respective capability refers to the greater ability of richer countries to take costly and inconvenient measures to address climate change.

Article 4 of the Paris Agreement also includes the following provision:

“Developed country Parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets. Developing country Parties should continue enhancing their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances.” This provision could tell us that there are no legally binding rules in the Paris Agreement in terms of attached mandatory emissions reduction targets compared to the Kyoto Protocol, and each country can decide domestically and adjust its climate action plan (NDC) based on national circumstances.

This is the area and approach where regime theory intertwines with international legal theory in terms of ‘hard law’ and ‘soft law’ in international relations. For example, the UNFCCC Secretariat defines the Paris Agreement as “a legally binding international

treaty on climate change.”⁴⁹ However, legal scholars Bodansky et al. (2017) emphasize that even the Paris Agreement is considered a legally binding treaty, it incorporates some non-binding elements and provisions, such as NDCs, to promote ambition and accountability.

Such an arrangement was confirmed by other legal scholars, Kenneth Abbott and Duncan Snidal, who define ‘hard’ and ‘soft law’ in the following way. *Hard law* is “legally binding obligations that are precise (or can be made precise through adjudication or the issuance of detailed regulations) and that delegate authority for interpreting and implementing the law.” The realm of *soft law* “begins once legal arrangements are weakened along one or more of the dimensions of obligation, precision, and delegation” (Abbott & Snidal, 2000: p. 442). In the same vein, Shaffer and Pollack (2010: p. 709) say that ‘hard’ and ‘soft law’ should not be view as antagonists. Instead, one can say that “some states or other actors, unhappy with existing legal agreements, may promote the adoption of new legal provisions designed to obfuscate and undermine those arrangements.” Thus, in the Kyoto regime, developed states were unhappy with legal obligations and commitments on emissions reduction targets without any climate actions coming from developing states. Consequently, states adopted soft-law provisions in the Paris Agreement to fulfill the legally binding treaty for developed and developing states.

Article 4 provisions of the Paris Agreement with NDCs approach give states flexibility to determine their climate actions in light of national circumstances and diverse interests. It also allows countries to modify their political climate strategies over time,

⁴⁹ The United Nations Framework Convention on Climate Change. The Paris Agreement <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> (accessed on August 24, 2022)

reduce transaction costs and minimize uncertainty associated with implementing NDC commitments (e.g., Ukraine is going through a war that affects the country's NDC commitments in terms of political strategy and emissions reduction commitments).

Soft-law provisions are also incorporated in Article 6 of the Paris Agreement on the voluntary market and non-market-based mechanisms. Countries may "...engage on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance..." (Article 6). This provision allows for cooperation and development of joint Emission Trading Systems (ETS) between countries to reduce GHG emissions. Even more, Article 6 encourages a bottom-up approach with the involvement of non-state actors in climate actions to achieve the goal of the Paris Agreement: "...aim to incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party."

Article 6 emphasizes the importance of non-market approaches in the NDCs' implementation in the context of sustainable development and poverty eradication. Non-market-based mechanisms may include any coordinated efforts and activities on mitigation, adaptation, finance, technology transfer, and capacity building.

Therefore, incorporating the above soft-law instruments in the Paris Agreement, countries established new *decision-making procedures* in the Paris regime, where non-state actors (subnational public actors, regional and non-government, organizations, businesses, and academia) have rights, voice, and responsibility to participate in national and international decision-making and take actions to reduce GHG emissions to

implement NDCs. The importance of subnational non-state actors was recognized in 2014 when the UNFCCC Secretariat launched a global climate action portal called Partnerships for the Non-State Actor Zone for Climate Action (NAZCA)⁵⁰. This portal was necessary to cover a lack of cooperation and coordination between state and non-state actors observed in the Kyoto regime. The portal launched 151 cooperative initiatives in cross-cutting sectors (energy, transportation, agriculture, industry, urban infrastructure, waste, water, and sustainability), and it captures ambitious climate actions by non-party stakeholders (subnational regions, cities, businesses, investors, and civil society organizations) at regional, subnational, and local levels in order to help achieve commitments announced by states under the NDCs. Today, 29,656 non-party actors implement climate actions in 196 countries. Of this number, 11,355 stakeholders are cities (39%), 270 are regions (1%), 12,957 are business companies (44%), 3,349 are civil society organizations (11%), and 1,529 are investors (5%). The phrase “cooperation and coordination on climate actions” is now fixed in the reports of the Intergovernmental Panel on Climate Change and UNFCCC’s decisions. It also connects sectoral actions with the Sustainable Development Goals (SDGs). Subsequently, scholars began to discuss the role of subnational actors in achieving the NDCs under the Paris Agreement (Hsu et al., 2020; Murthy, 2019).

In summary, incorporating soft-law provisions into the new treaty allowed states to 1) compromise and accommodate power differences between developed and developing nations, so each country contributes to the global emissions reduction goal, 2)

⁵⁰ For the current climate actions and the involved stakeholders, see the NAZCA portal at <https://climateaction.unfccc.int> (accessed on September 13, 2022).

reduce transaction costs of implementing the new treaty, 3) minimize uncertainty to implement commitments, 4) open space for participation of subnational stakeholders in decision-making, and 5) encourage cooperative initiatives between state and non-state actors through the market and non-market-based mechanisms.

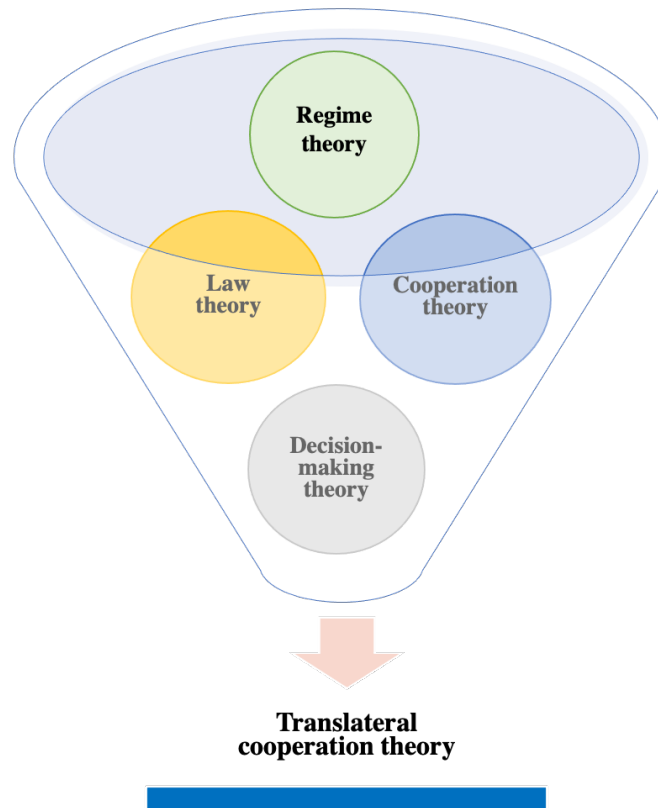
All the above make the Kyoto and Paris regimes are utterly different from each other in terms of principles, norms, rules, and decision-making procedures, and thereby facilitate international commitments of all countries through various cooperative partnerships between state and non-state actors.

2.2 Theoretical Foundations

As discussed in Chapter 2.1, by changing of design, structure, norms, and rules in the multilateral climate agreement as well as welcoming non-state actors to participate in volunteer GHG emissions reduction, the regime transformation from the Kyoto Protocol to the Paris Agreement created the conditions and gave space to *translateral cooperation* between national and subnational actors across borders.

To build a foundation for the analysis of translateral cooperation theory, it is necessary to examine the established theories: regime theory, cooperation theory, law theory, and decision-making theory (Figure 2.3).

Figure 2.3 Theoretical Foundations



Regime theory is an approach within the international relations discipline that explains the behaviour of states in international affairs, their cooperation, and potential international outcomes in the given area of international relations (Keohane, 1982; Ruggie, 1982; Krasner, 1983). In the area of climate change, states' behaviour and cooperation in the Kyoto and the Paris regimes differed regarding established principles, norms, rules, and decision-making procedures (discussed in Chapter 2.1.). These differences led to different outcomes in terms of signing international treaties – the Kyoto Protocol and the Paris Agreement.

According to cooperation theory, "...cooperation occurs when actors adjust their behavior to the actual or anticipated preferences of others, through a process of policy coordination. Policy coordination, in turn, implies that the policies of each state have been adjusted to reduce their negative consequences for the other states" (Milner, 1992: p. 467). However, regime and cooperation theories apply this definition only to sovereign states as principal actors. Subnational actors and cooperation between state and transnational non-state players do not fall into this category.

From an international law perspective, multilateral and bilateral agreements are the primary mode of cooperation. However, international legal theory mainly concentrates its attention on the analysis of multilateral agreements and, in some cases, bilateral, formal, legally binding agreements between states (hard law). It pays far less attention to informal bilateral agreements (soft law) between states and transnational subnational actors. This literature pays less attention to bilateral cooperation and soft law instruments, the design of bilateral agreements, and their effect on multilateral treaties (Guzman, 2005; Smith, 2005; Lawrence & Wong, 2017; Mitchell et al., 2020).

Smith (2005) emphasizes that a trend in bilateral cooperation could usually be observed in the period of construction or reconstruction of the international regime. Belis et al. (2018) highlight an opportunity for multiple bilateral cooperation or "multiple bilateralism" (p. 2) between state actors, particularly in the period of transformation from the Kyoto regime to Paris. Thus, according to international law, if states decide to cooperate bilaterally (only two actors involved), they should sign a formal bilateral agreement as a mode of cooperation.

Considering the EU-US case study selected for this research, one can look at the official list of treaties and other international agreements of the United States in force provided by the US Department of State.⁵¹ According to this official list, the US has 24 bilateral agreements with 21 EU countries in the area of environment, conservation, and energy. Almost all these bilateral agreements were signed during 1995-2002, and relate to the Global Learning and Observations to Benefit the Environment (GLOBE) Program.⁵² On the other hand, the US has only five bilateral agreements on cooperation in environmental affairs and energy that are not related to the GLOBE program: 1) Agreement on Cooperation in Environmental Affairs with Germany (1974), 2) Agreement on Cooperation in Energy Research, Science and Technology, and Development with Germany (1998), 3) Memorandum of Understanding Concerning Cooperation in the Field of Environmental Protection with Italy (1987), 4) Memorandum of Understanding Concerning Cooperation in the Field of Environmental Protection with the Netherlands (1985), and 5) Agreement for Cooperation on Environmental Protection in Defense Matters with Sweden (1995).

Thus, looking at this official list of international agreements in environmental affairs, one can ask the following question: “Does it mean that there is no cooperation going on except for the GLOBE Program between the US and the EU on environmental protection?” The answer is No. According to the International Environmental

⁵¹ The US Department of State, Office of Treaty Affairs. Treaties in Force 2020 and the 2021-2022 Supplement to Treaties in Force 2020 <https://www.state.gov/treaties-in-force/> (accessed on September 15, 2022)

⁵² Global Learning and Observations to Benefit the Environment (GLOBE) Program <https://www.globe.gov> (accessed on September 12, 2022)

Agreements (IEA) Database Project⁵³, there are over 650 *informal* bilateral environmental agreements. The text of most of these agreements is not publicly available. However, some agreements could be found on the Embassies' websites. According to the IEA database, there are 36 bilateral informal agreements between the US and the EU countries, most of which relate to fishery. The same question has been raised: "Does it mean that there is no cooperation between the US and the European countries on the environment, climate change, and energy?" The answer is, again, No.

Exploring further, the US Environmental Protection Agency (EPA) mentioned a list of multilateral and bilateral environmental partnerships and activities on the agency's website. In the area of climate change "the EPA works through multilateral (among multiple countries) and bilateral (between two groups) initiatives to catalyze action around the world to reduce the greenhouse gases that are contributing to climate change. EPA also participates in initiatives to advance energy efficiency, account for greenhouse gas emissions, and collect and measure data to support climate action. EPA also provides data and tools to help countries build capacity to meet their commitments under these agreements."⁵⁴ The EPA lists a number of initiatives on climate change and energy, including the Global Methane Initiative, Clean Cooking Alliance, Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants, ENERGY STAR International Partnership, SmartWay Global Cooperation, and others.

⁵³ The International Environmental Agreements (IEA) Database Project developed by the University of Oregon <https://iea.uoregon.edu> (accessed on September 2, 2022)

⁵⁴ The US Environmental Protection Agency website <https://www.epa.gov/climate-change/international-climate-partnerships-0> (accessed on August 11, 2022)

Another example is a bilateral cooperation between the US Department of Energy and EU countries on energy and climate change. In September 2022, the US Secretary of Energy, Jennifer M. Granholm, and the Minister of Energy of Lithuania, Dainius Kreivys, signed a Memorandum of Understanding (MoU) on enhanced cooperation of energy security and the transition to a climate-neutral energy sector.⁵⁵ During the signing ceremony, Secretary Granholm stated:

“The US Department of Energy truly values a strong and consistent partnership with Lithuania, and this MoU further solidifies our collaboration with European allies at this critically important moment in history... We are excited for Lithuania to take advantage of our National Lab expertise to chart their own course towards clean energy and energy independence. This work, like our Net Zero World initiative with a number of other countries, will provide a roadmap to growing thousands of clean energy jobs and strengthening our economies.”

The Minister of Energy of Lithuania, Dainius Kreivys, highlighted:

“This agreement, signed together with the Secretary Granholm, is not the beginning of energy cooperation between Lithuania and the United States, but the outcome of consistent and intensive cooperation lasting for several years. It represents a shared commitment by both countries to continue to work closely together to achieve the same energy policy goals, one of the most important of which is the historic and inevitable transformation of our energy sectors.”

⁵⁵ The US Department of Energy. The United States of America to Cooperate with Lithuania on Developing its Clean Energy Plan <https://www.energy.gov/articles/united-states-america-cooperate-lithuania-developing-its-clean-energy-plan> (accessed on September 16, 2022)

Therefore, considering the above, most bilateral cooperative initiatives between states are developed and implemented through informal, non-legally binding agreements (soft law). Aust (1986) defines informal agreement as “an instrument which is not a treaty because the parties to it do not intend it to be legally binding” (p. 787). Aust points out that informal agreements supplement treaties, and countries commonly use this instrument because of confidentiality; there is no obligation to publish and register the agreement. They are also easier to amend if needed. This view is supported by Lipson (1991: p. 501), who suggests the main reasons why states choose informal agreements: 1) the desire to avoid formal and visible pledges, 2) the desire to avoid ratification, 3) the ability to renegotiate or modify as circumstances changes, and 4) the need to reach agreements quickly.

Lipson (1991) also notes that the informality of agreements varies along two dimensions. The first dimension is the government level at which the agreement is made. The agreements made by the head of state have a more visible impact on the national reputation than agreements made by the low bureaucracy. A second dimension is a form by which an agreement is expressed. It could be expressed in the form of various written documents, less formal notes of exchange, joint statements, or even oral bargains. Lipson argues that international law ignores distinctions between various types of informal agreements, and it misses not only the political dimension of these agreements (e.g., status as domestic policy) but also any explanation of why states choose different types of agreements for their international cooperation.

Recently, the EU, the US, and China signed bilateral informal agreements on climate change and clean energy cooperation at the national level. In addition, many

countries announced their policies and targets for achieving climate neutrality by 2050 under the Paris Agreement. Indeed, negotiations and cooperation among 200 nations would be challenging under the Paris Agreement. Most serious international efforts are more likely to result from bilateral cooperation between major global players such as the EU, US, and China (Andresen et al., 2021; Victor, 2016).

Furthermore, subnational public actors are increasingly important occupants of the international arena in the Paris regime (Keohane & Oppenheimer, 2016). As a subnational leader on climate change, California currently has 21 bilateral informal agreements with several Chinese provinces and 18 bilateral agreements with EU countries, including Denmark, Germany, the Netherlands, Sweden, and others.⁵⁶ Changes in principles, norms and rules in the Paris regime gave space to subnational actors to enter the international arena. Therefore, new cooperative bilateral arrangements between state and subnational actors are developing through informal agreements. It means that state and subnational actors must find a cooperative approach to climate change decision-making and problem-solving in the diagonal dimension of interaction (state to non-state actors). In this case, we need to understand the reasons behind this cooperation, the type of agreements actors have chosen to sign, and how state and subnational stakeholders arrange the decision-making process to implement those agreements and evaluate outcomes under the Paris Agreement.

⁵⁶ California Energy Commission, Climate Change Partnerships
<https://www.energy.ca.gov/about/campaigns/international-cooperation/climate-change-partnerships>
(accessed on August 20, 2022)

Because of the complexity of new principles, norms, and rules in the Paris regime, the decision-making process and actors' behavior cannot be predicted just by calculating costs and benefits in achieving emissions reduction (rational decision-making theory). The existence of the external elements (uncertainty, time, availability of resources, observations, experiences, organizational culture, etc.) for implementing the Paris Agreement requires consideration of bounded rationality theory. The concept of bounded rationality was invented by American political scientist Herbert A. Simon as a critique of entirely rational decision-making. Simon emphasized the importance of psychological processes and how human choices are made in the organizational context: "Human beings, viewed as behaving systems, are quite simple. The apparent complexity of our behavior over time is largely a reflection of the complexity of the environment in which we find ourselves" (Simon et al., 1987). In the case of the Paris Agreement, the complexity of the environmental regime includes uncertainty in implementing NDCs, availability of resources (financial and human), and new institutional culture that includes subnational actors involvement. Also, the complexity involves a new observational phenomenon when state and subnational actors started to cooperate bilaterally in the multilateral world.

According to Simon et al. (1987) and Schwenk (1984), a process of making decisions and solving problems includes five stages: 1) setting agenda (problem identification), 2) goal formulation, 3) designing actions (alternative generation), 4) evaluation and 5) selection (outcome). The first three stages relate to problem-solving, and science less understands these stages. The last two steps are called decision making, and usually, the approach of rationality is here applied to make a final choice.

The above discussion suggests that regime theory (changing principles, norms, rules, and decision-making procedures), cooperation theory (subnational actors entering the international arena), law theory (cooperation through informal agreements), and decision-making theory (bounded rationality) provide a foundation for a new *translateral cooperation theory* that could explain bilateral interactions between state and subnational actors in the multilateral world under the new climate regime.

2.3 Conceptualization of Translateral Cooperation

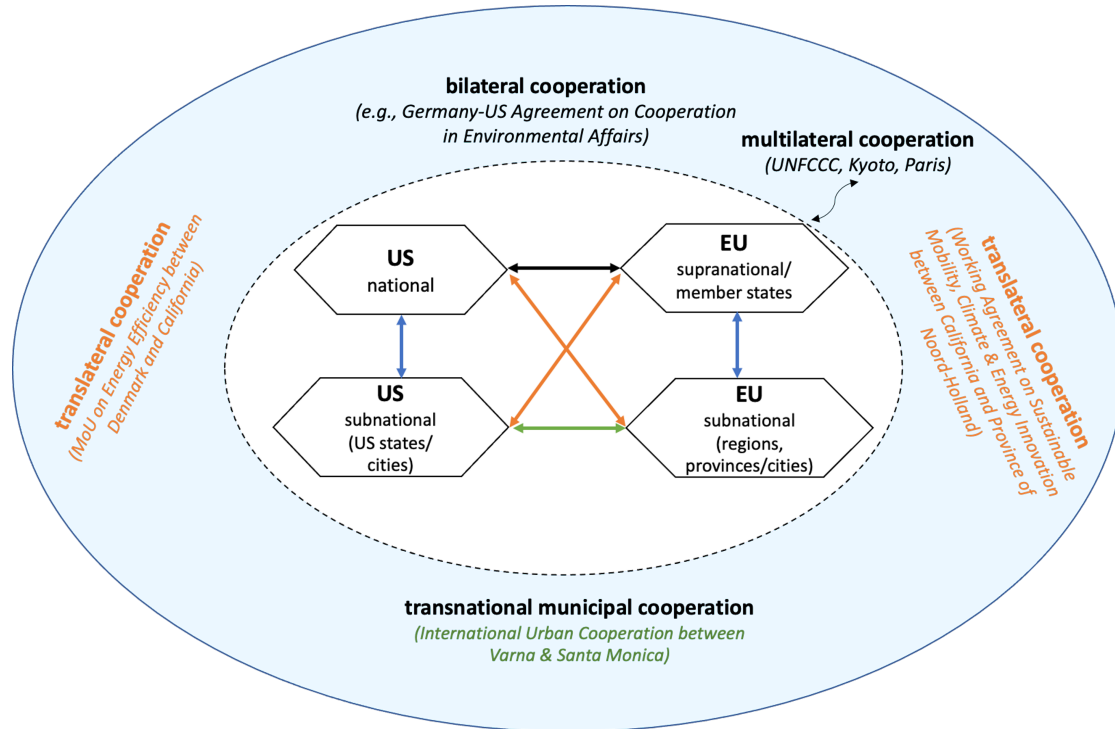
The involvement of subnational actors in international relations and foreign policy is not a new phenomenon. Indeed, international relations scholars have dedicated significant efforts to studying the concept of paradiplomacy (subnational diplomacy), which involves subnational actors – e.g., the international activities of individual US states (e.g., California), provinces (Quebec in Canada), lands (Baden-Württemberg in Germany), and regions (Scotland and Catalonia). For instance, Duchacek (1984), Soldatos (1990), Kuznetsov (2014), and Lequesne & Paquin (2017) explain the reasons for such international activities and highlight national governments' fears regarding the involvement of subnational actors in international relations. In addition, recent studies analyze paradiplomacy in selected countries and emphasize gaps in policies and resources at the subnational level (Liu & Song, 2020; Nganje, 2016; Schiavon, 2018; Tavares, 2016). However, despite this literature, researchers have not theorized about paradiplomacy in much detail. For example, the paradiplomacy literature does not examine different types of informal agreements that actors prefer to sign to establish cooperation. Also, it does not explain the decision-making process between actors and

how they choose their counterparts for cooperation. Finally, paradiplomacy does not address the impact of bilateral cooperation on multilateral and vice versa.

This dissertation acknowledges that the intensification of international relations and cooperation between national and transnational subnational actors in the diagonal dimension of interactions led to an increasing number of informal, non-legally binding bilateral agreements (soft law) between these actors. Such a phenomenon requires scientific explanation and conceptualizing “diagonal” cooperation between actors. My research addresses the above aspects and introduces the concept of *translateral cooperation* and *translateral agreements* in a new climate regime.

Traditionally, regime theory, cooperation theory, law theory, and decision-making theory conceptualize bilateral relations as applying only to sovereign states, not transnational non-state actors. These theories assume that bilateral cooperation in a multilateral setting occurs only in horizontal and vertical dimensions of global governance by signing bilateral legally binding agreements. *My research argues that a period of transformation from Kyoto to Paris intensified informal cooperation between state and non-state actors in a diagonal dimension.* I present the new cooperative concept in global climate governance in Figure 2.4. For the sake of this study, non-state actors include only subnational public actors (individual US states, provinces, and cities) in the transnational context. This dissertation employs Slaughter’s (2004) concept about government officials performing both a domestic and an international role at national and subnational levels.

Figure 2.4 New Cooperative Concept in Global Climate Governance



Bilateral cooperation occurs between EU and US national and subnational actors in horizontal, vertical, and diagonal dimensions of interactions. The horizontal dimension covers bilateral cooperation between two national actors (states) and two transnational subnational actors (individual US states, provinces, and cities). The vertical dimension covers bilateral cooperation and policy coordination between national and subnational levels in one state. The diagonal dimension covers cooperation between two actors, a supranational/national actor in one state and a subnational actor in another. In addition, bilateral cooperation could be shaped by negotiations and events in the international multilateral arena.

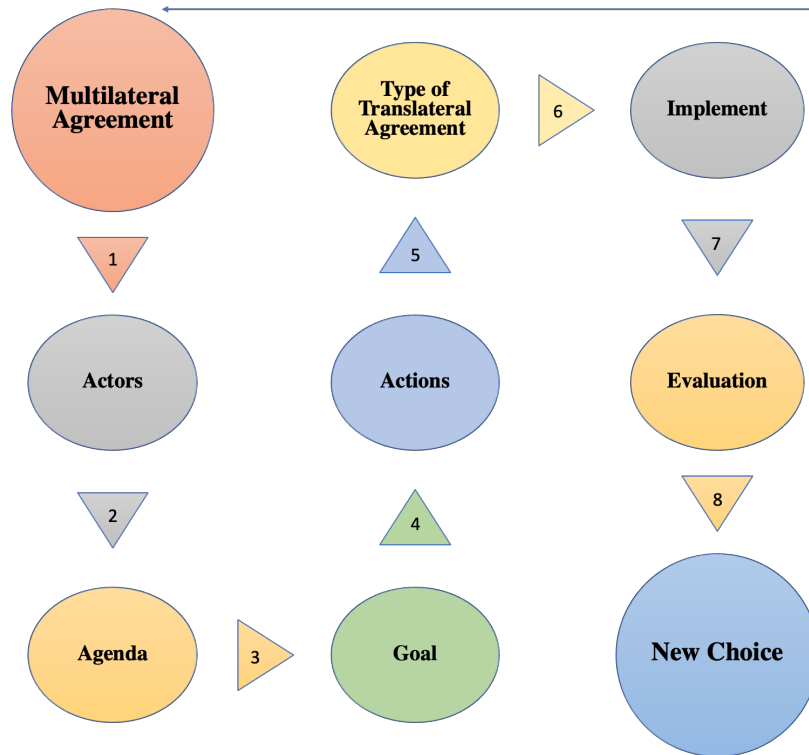
Thus, the questions arise: Why do state and non-state subnational actors decide to cooperate bilaterally? What type of agreements do these actors prefer if they choose to cooperate? How do they choose their partners? And how do state and subnational actors arrange a decision-making process to implement agreements and evaluate outcomes?

Bilateral cooperation in the diagonal dimension has not received much attention in international relations scholarship. Also, the term *bilateral cooperation* has typically been used exclusively for cooperation between states. Thus, I introduce the term *translateral cooperation* to refer to this “diagonal” dimension of actors’ interactions. I define *translateral cooperation* as:

A process of policy dialogue, establishing common ground, knowledge sharing, and transnational coordination of goals, actions, challenges, and solutions between a national actor in one state and a subnational actor in another state. *Translateral agreement* is a mode of translateral cooperation with a flexible form of coordination using “soft law” instruments.

Considering this definition and the above-established theories, the translateral cooperation theory is presented in Figure 2.5.

Figure 2.5 Translateral Cooperation Theory



The established new climate regime and the signed Paris Agreement with new norms, rules, and procedures (1) determine the type of actors involved in transnational cooperation (2). In this framework, public actors include one counterpart from the national level and another from the subnational level. The public actors could be represented by the Ministry, State Agency/Department, Governor’s Office, Head of Government of Province/Land, and others. Two actors negotiate and work together toward solving a particular problem at the domestic level that would also contribute to the agenda and goals established by the multilateral agreement. The actors formulate the problem and set agenda for cooperation through information gathering, recognizing their needs, challenges, policy gaps, knowledge, and experience (3). After establishing agenda, actors set up goals that need to be achieved in a specific period and areas of cooperation

(e.g., renewable energy, transportation, agriculture, etc.) (4). After establishing goals, specific actions must be discussed and generated (5). At this stage, both actors consider domestic circumstances (level of bureaucracy, internal coordination, legal aspects, etc.) and availability of resources. At the next step, actors decide and choose a type of informal agreement (6) they ought to sign (e.g., a letter of cooperation or memorandum of understanding) as an outcome of the problem-solving stage (agenda, goals formulation, and actions designed). Once actors sign an agreement, the implementation phase begins (7) according to provisions admitted in the informal agreement. Next, the evaluation process of achieved results (8) is performed once the agreement approaches its expiration date, if applicable. At this stage, actors assess the achieved results compared to the established goals, re-evaluate further needs, challenges and interests, and review cooperation mechanisms, costs, and benefits. The Evaluation stage is also crucial regarding interconnection to the multilateral agreement and observation of what is happening in the international arena. For instance, international climate change negotiations and NDCs implementation could lead to the adjustment of some priorities for countries at the national and subnational levels. Also, new rules, implementation mechanisms, and involvement of new actors under the Paris Agreement could be agreed to by countries. All these elements would guide actors to make new choices and decisions. The new choices may include continuing cooperation under the same agreement (extension), signing another type of agreement focusing on different areas of cooperation, deepening the current cooperation with the involvement of new domestic actors, or stopping cooperation.

The new choice starts a new cycle in relation to the multilateral agreement. Thus, bilateral cooperation could be shaped by the dynamic of multilateral cooperation in the international arena. On the other hand, multilateral negotiations could be shaped by the dynamic of multiple bilateral cooperation. In this regard, my research applies the bi-multilateral framework proposed by Smith (2005) to analyze EU-US relations (Appendix A), which can help us to understand the effect of bilateral and multilateral cooperation/agreements on each other. However, Smith applies this framework only to relations between state actors. My dissertation applies his framework to cooperation between the EU and the US state and non-state actors.

According to Smith, the bi-multilateral framework includes six features of the negotiation process and a list of questions to which EU-US negotiations give rise. The six features of the bi-multilateral negotiation process include 1) occasions (why negotiate?), 2) contexts (what opportunities are built into the negotiation context?), 3) participants (who participates?), 4) agendas (what are the negotiations about, how are agendas set?), 5) strategies (how do participants make choices, what goals do they set?), and 6) outcomes (what formal agreements result, what informal outcomes implemented?). As one can see, these six features reflect the five stages of the decision-making process proposed by Simon et al. (1987) and Schwenk (1984). Thus, they were considered in designing the translateral cooperation framework. The list of Smith's research questions is presented in Appendix A. Some of those questions are only relevant to state-to-state cooperation. However, in general, his research questions are associated with the impact of bilateral negotiations between the EU-US actors on multilateral

negotiations and vice versa. Therefore, I incorporated his research questions into my interview questions discussed in Chapter 3.

Chapter 3. Research Design and Methods

In this chapter, I outline the design and methods for my research guided by the theoretical framework. The chapter consists of four sections: research questions and hypotheses, research approach and design, data collection, and data analysis.

3.1 Research Questions and Hypotheses

This research examines the emerging role of bilateral cooperation on climate change in the context of multilateral negotiations under the new climate regime. In particular, this dissertation aims to unravel some of the mysteries surrounding bilateral informal cooperation between state and transnational subnational actors. To do so, this study addresses four research questions:

Research Question 1:

Why do national and subnational public actors in global climate governance cooperate bilaterally in a setting in which multilateral cooperation already exists?

Considering the regime theory and cooperation theory discussed in Chapter 2, I propose three hypotheses to answer this question.

H1: Differences in goals, rules, obligations, and approaches to emissions reduction under the Kyoto Protocol and the Paris Agreement led to bilateral cooperation between national and subnational actors.

H2: A lack of US federal leadership and support on climate policy intensified bilateral cooperation between national and transnational subnational actors to solve climate change problems.

H3: A desire to achieve specific outcomes more quickly and implement certain technical projects at the domestic level motivated national and subnational actors to cooperate bilaterally in the diagonal dimension of interaction.

Research Question 2:

What type of cooperative agreements do these actors prefer, and why?

Considering the legal theory and cooperation theory discussed in Chapter 2, I came up with two hypotheses to answer this question.

H1: Memorandum of Understanding (MoU) is the most common agreement to sign between national and subnational actors. However, other informal agreements could be preferred, for instance, a letter of cooperation and a joint statement. Actors choose different types of agreements based on goals, preferences, and level of cooperation.

H2: Actors prefer informal agreements because of legal aspects, uncertainty, the possibility of modifying the agreement under changing conditions, and the willingness of actors to generate specific outcomes much quicker than legally-binding cooperation.

Research Question 3:

What challenges do European and US actors meet in building a cooperative partnership, and what opportunities do they discover through their bilateral informal cooperation?

Considering the cooperation and decision-making theories discussed in Chapter 2, I suggest two hypotheses to answer this question.

H1: Challenges may include finding a partner for cooperation, and implementing specific actions because of resource availability (e.g., human, financial).

H2: Opportunities may include learning, knowledge and experience sharing, access to international resources, and networks.

Research Question 4:

How does bilateral cooperation impact multilateral negotiation and vice versa?

To answer this question, I consider Smith's bi-multilateral framework discussed in Chapter 2 and propose two hypotheses.

H1: Bilateral cooperation can intensify multilateral negotiations by bringing subnational positions to the international arena.

H2: Multilateral negotiations could be a meeting platform for actors to start bilateral cooperation.

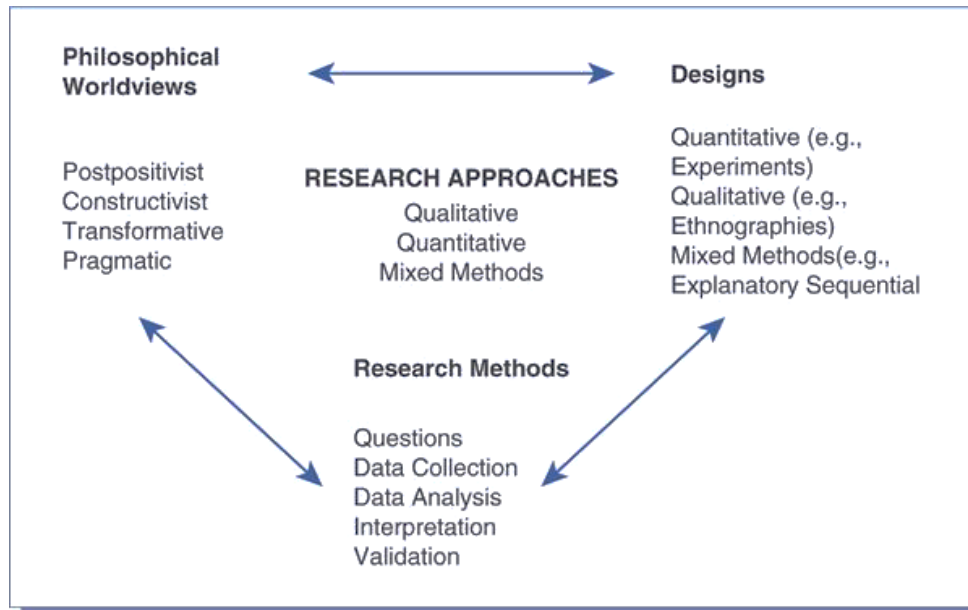
3.2 Research Approach and Design

The literature on research design mainly highlights the works and approaches proposed by Earl R. Babbie (2004), John W. Creswell (2014), and Elizabethann O'Sullivan et al. (2016). Multiple approaches to the research design formulation may confuse scholars in choosing the proper technique. The choice of my research design is based on the comparative analysis of each of the three author's approaches conducted by Abutabenjeh and Jaradat (2018). By analyzing three different approaches, I have chosen to adopt the qualitative approach for research design proposed by John Creswell (2014) to answer my research questions.

According to Creswell (2014), a research approach is a plan or proposal to conduct research that involves three components: philosophical worldview, research

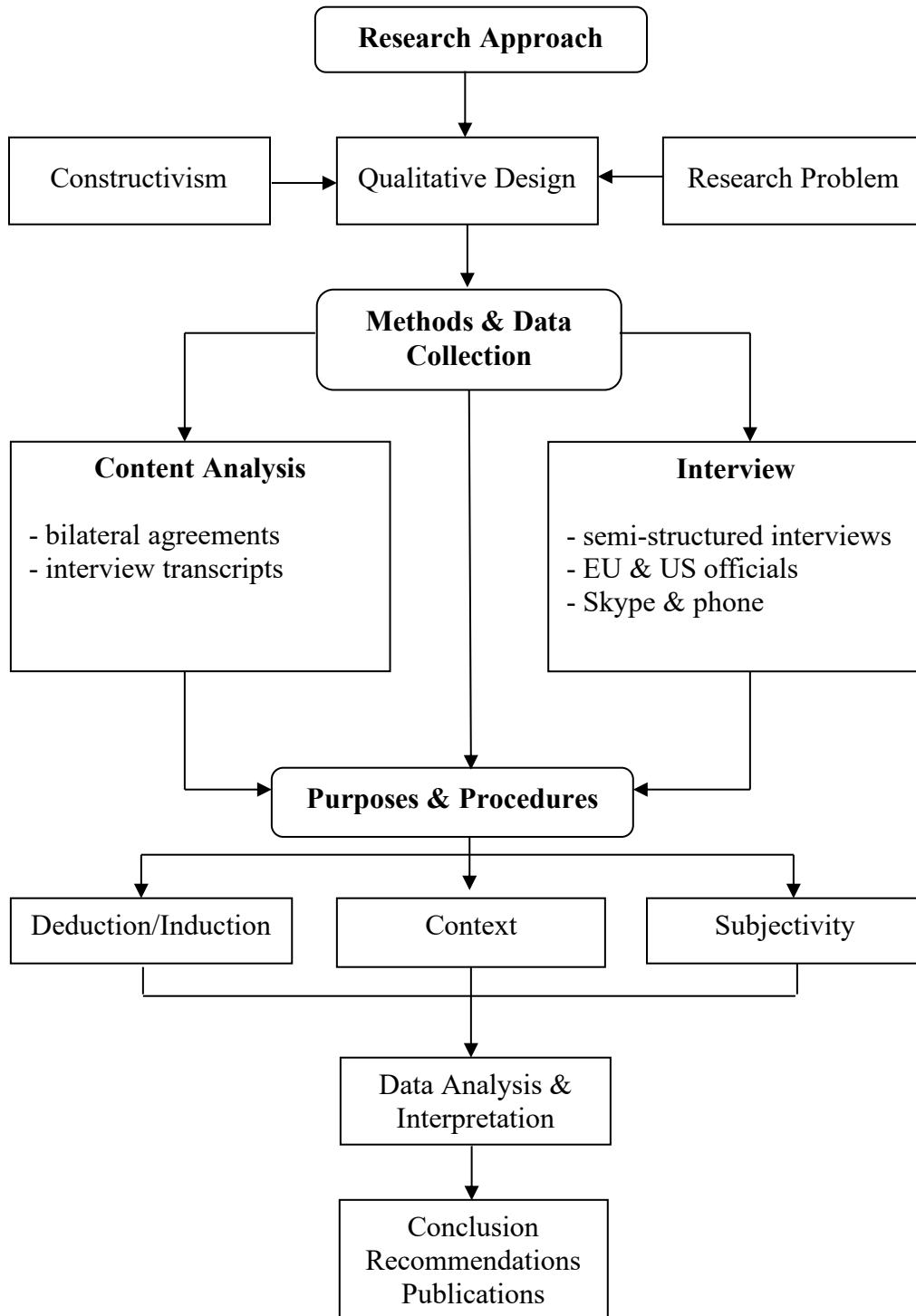
design related to the worldview, and the specific methods or procedures of research that translate the approach into practice (Figure 3.1).

Figure 3.1 Research Approach Proposed by Creswell (2014)



The philosophical worldview refers to a set of beliefs that guides actions. Other scholars call them paradigms, epistemologies and ontologies, or research methodologies (Creswell, 2014). My research is guided by the social constructivist worldview with qualitative research design and methods (Figure 3.2).

Figure 3.2 Research Design of the Study Process



Social constructivism is based on beliefs that individuals explore the understanding of the world, situation, or phenomenon through the process of interaction among participants, their experiences, and social and historical norms. According to this philosophical viewpoint, the researcher interprets the meanings other people have about a particular situation. The researcher uses open-ended questions to listen to what other people say and do in their life or work settings. Opposite to postpositivist, who starts with a theory, a social constructivist researcher inductively develops a new theory or pattern of meaning based on collected data (Creswell, 2014). Social constructivism is typically seen as an approach to qualitative research compared to other philosophical worldviews that apply the quantitative or mix-methods approach.

To understand the strengths of the qualitative approach, Morgan (2013) provides a comparison of research design purposes and procedures in qualitative and quantitative research (Table 3.1).

Table 3.1 Qualitative and Quantitative Research Comparison (Morgan, 2013: p. 48)

Qualitative Research	Quantitative Research
Induction	Deduction
Purposes <ul style="list-style-type: none"> • Generate theory from observations. • Oriented to discovery, exploration. Procedures <ul style="list-style-type: none"> • Emergent design. • Merges data collection and analysis. 	Purposes <ul style="list-style-type: none"> • Test theory through observations. • Oriented to cause and effect. Procedures <ul style="list-style-type: none"> • Predetermined design. • Separates data collection and analysis.
Subjectivity	Objectivity
Purposes <ul style="list-style-type: none"> • Emphasizes meanings, interpretation. • Tries to understand others' perspectives. Procedures	Purposes <ul style="list-style-type: none"> • Emphasizes things that can be measured. • Results do not depend on beliefs. Procedures

<ul style="list-style-type: none"> • Researcher is involved, close to the data. • Researcher is the “research instrument.” 	<ul style="list-style-type: none"> • Researcher is detached, distant from the data. • Relies on standardized protocols.
<p style="text-align: center;">Context</p> <p>Purposes</p> <ul style="list-style-type: none"> • Emphasizes specific depth and detail. • Analyses holistic systems. <p>Procedures</p> <ul style="list-style-type: none"> • Uses a naturalistic approach. • Relies on a few purposively chosen cases. 	<p style="text-align: center;">Generality</p> <p>Purposes</p> <ul style="list-style-type: none"> • Emphasizes generalization and application. • Analyses variables. <p>Procedures</p> <ul style="list-style-type: none"> • Uses experimental and statistical controls. • Works across a larger number of cases.

In addition to Morgan’s systematic comparison, Creswell (2014) suggests three criteria for selecting a research approach: (1) research problem, (2) personal experience of the researcher, and (3) the audience for whom the report will be written.

Considering the above, my study uses a qualitative research approach and methods with interview and thematic content analysis. Using Creswell’s criteria for selecting a research approach, my study identifies (1) a “real-life” problem regarding a trend of bilateral cooperation between national and subnational actors that has been neglected in the literature and needs to be explored and understood (see Chapter 1). In this case, the qualitative approach is especially useful because this research is exploratory in nature, and I, as the researcher, seek to listen to participants (government officials) and build an understanding of this problem based on what is heard from their professional experience. At the same time, (2) my personal experience as a government official who was involved in international climate change negotiations also influences the choice of qualitative approach. It allows me room to be innovative, to interact with people through interviews, and pursue the topic of my interest, which relates to developing a better global climate governance system and international climate policy. Finally, my personal

experience as a government official and researcher determines (3) the audience for whom the report will be written. This audience includes decision-makers at the national and subnational levels and academic scholars who work in the area of international relations and international law.

Using Morgan's systematic comparison (Table 3.1), my qualitative research starts with the deductive approach by testing theories, then moves to inductive, subjective, and contextual. *Inductive* purposes start with observations of the increased number of bilateral cooperation and signed informal agreements between the EU and US national and subnational actors over time. These observations are used to create a theory of translateral cooperation and generate hypotheses. Inductive purposes correspond to an emergent approach to a research design. For example, my decision to conduct follow-up interviews with California and EU member states was based on data collection and analysis of existing bilateral agreements between these actors.

My research captures a set of purposes associated with the meaning and interpretation of bilateral cooperation on climate change between national and subnational actors. This emphasis on *subjectivity* applies to both how I do my research and what I study – acknowledging my own interpretation as a researcher and government official as well as the importance of meanings in the services of participants (government officials) I study. I acknowledge that my own beliefs and experience will affect the conclusions I draw from what I see and hear from the participants.

The emphasis on *context* in my qualitative research generates a detailed understanding of bilateral cooperation in the diagonal dimension of interactions between national and subnational actors in a chosen single EU-US case study. In-depth interviews

with open-ended questions allow me to study a wide range of factors that influence my research topic, particularly reasons for bilateral cooperation in a transatlantic context, types of bilateral agreements that actors prefer to sign, challenges and opportunities in their cooperation, and the impact of bilateral and multilateral cooperation on each other.

Thus, qualitative research is the most appropriate approach to answer my research questions and confirm or reject hypotheses proposed in Chapter 3.1.

For this research, California was chosen for more detailed analysis because it is the US subnational actor that demonstrated long-term leadership on climate change with increasing agreements over time with foreign countries.

California has established the Intergovernmental Climate Action Team (ICAT) for cooperative initiatives with foreign countries. Participating agencies in the ICAT include the Governor's Office, the Governor's Office of Planning and Research, the California Environmental Protection Agency, the California Air Resources Board, the California Energy Commission, the California Natural Resources Agency, and the Governor's Office of Economic Development, and others. The California ICAT constantly updates the existing list of bilateral and multilateral agreements signed with various countries and agencies. Besides, the European Union opened an office in San Francisco, to strengthen transatlantic cooperation on technology and climate change.

Based on the proposed theoretical framework, this study considers EU-US bilateral cooperation to occur at three stages: (a) negotiation, (b) signed agreements, and (c) implementation. Bilateral cooperation is the dependent variable in this study. The independent variables are actors, agenda setting, goal formulation, designed actions, type of informal agreements, implementation, evaluation, and policy choices.

The levels of analysis take place at the international (the EU and the US), national and subnational (US states and EU member states) levels. The units of analysis are government officials and bilateral and multilateral agreements.

3.3 Data Collection

Bilateral Agreements

For this research, I collected a number of bilateral agreements between California and foreign countries. I initially reviewed 18 bilateral informal agreements on the environment, climate change, and energy between California and eight European countries: Denmark, France, Germany, the Netherlands, Norway, Scotland, Spain, and Sweden. These bilateral agreements are available on the ICAT website⁵⁷ and listed in Appendix C.

I also sent letter requests to identify bilateral informal agreements to 27 EU member states, Norway, Scotland, and the UK, during my visiting research fellowship at the Europa-Kolleg Hamburg-Institute for European Integration at the University of Hamburg (Germany) in January-March 2020. The letters were sent to the ministries of foreign affairs, ministries of environmental protection, and embassies in the EU countries. The letter requested information about existing bilateral agreements with the US individual states, type of agreements, year of signature, name of national and

⁵⁷ California Intergovernmental Climate Action Team (ICAT). Through the ICAT partnership, California works with international partners on developing climate actions <https://www.energy.ca.gov/about/campaigns/international-cooperation/climate-change-partnerships> (accessed on September 18, 2022)

subnational actors (individual US states, provinces, and cities) who signed these agreements and sectoral climate thematic areas of cooperation.

In addition, requests about existing bilateral agreements between the US and European countries were sent to 50 US states in May-July 2021. The official letters were sent to the Governor's office, Department of Energy, and Department of Environment in each US state. The Letter of request for bilateral agreements is provided in Appendix D. Collected data were used for the mapping of bilateral agreements. This approach allowed me to answer my second research question about the types of cooperative agreements.

Interviews

Data gathered about the structures and content of bilateral agreements helped in the preparation for detailed interview questions. These interview questions were designed to answer the first, third and fourth research questions about reasons for bilateral cooperation, challenges and opportunities encountered by European and US actors during cooperative partnerships, and the impact of bilateral and multilateral cooperation on each other. The interview guide is provided in Appendix E.

Eleven semi-structured qualitative interviews were conducted with EU and US government officials by phone and Skype at the supranational (European Commission), national (EU countries), and subnational (US states and EU provinces) levels. Of the eleven interviews, four (36%) were government officials at the supranational level, four (36%) covered officials at the national level, and three (28%) included government officials at the subnational level. The list of stakeholders for these interviews is provided in Appendix F. The EU and US government officials were interviewed in February–August 2020. Each interview lasted 30–45 minutes and was structured with five to eight

open-ended questions that allowed me to gather data about the broadest possible range of issues associated with the phenomenon of this research (Appendix E).

The participants for the interviews were selected by using “snowballing” criteria, whereby one contact helps to recruit another contact, who in turn put the researcher in touch with someone else. An explanation was given to the participants about the current research. The participants were informed about and agreed to the interview’s recording, and they were allowed to ask questions before the interview began.

3.4 Data Analysis

This study uses a thematic content analysis proposed by Braun and Clarke (2006) to analyze the text of bilateral agreements and interview transcripts. Braun and Clarke (2006: 79) refer to thematic analysis as “a method for identifying, analyzing and reporting patterns (themes) within data. It minimally organizes and describes your data in (rich) detail. However, frequently it goes further than this and interprets various aspects of the research topic.”

I choose this method of analysis because, compared to other analytic methods (e.g., grounded theory, discourse analysis, or interpretative phenomenological analysis), this method is theoretically flexible and allows researchers to make active choices and reflects on the assumptions underpinning their reading of data. The thematic content analysis does not fully subscribe to the theoretical commitments within the realist paradigm (e.g., grounded theory analysis). Instead, it seeks to theorize the socio-cultural contexts and structural conditions (Braun and Clarke, 2012). Themes are generated by the researcher and do not passively emerge from the data like in grounded theory analysis

(Strauss and Corbin, 1998). Also, thematic content analysis mostly focuses on ‘latent’ themes rather than ‘semantic’ themes. According to Braun and Clarke (2006: 84), “With a semantic approach, the themes are identified within the explicit or surface meanings of the data, and the analyst is not looking for anything beyond what a participant has said or what has been written... The latent approach goes beyond the semantic content of the data, and starts to identify or examine the underlying ideas, assumptions, conceptualizations, and ideologies that are theorized as shaping or informing the semantic content of the data.” ‘Latent’ themes mainly refer to the constructivist philosophical worldview that guides my research design.

In my study, the thematic content analysis allows me to examine not only the text of bilateral agreements and what government officials had said, but also consider changes in external circumstances such as multilateral negotiations on climate change, changes in rules, norms, the decision-making process in the climate regime, national conditions, policies and subnational ideas and practices on climate change. Moreover, as a government official and researcher, I worked with participants as collaborators to produce qualitative analysis suited to inform climate policy development. Other analytic methods would not give me such flexibility and the possibility for data interpretation.

Thematic content analysis includes six phases presented in Table 3.2.

Table 3.2 Six Phases of Thematic Analysis (Braun & Clarke, 2006, 2012)

	Phase	Description of the Process
1	Familiarizing yourself with the data and identifying items of potential interest	Transcribing data (if necessary), reading and rereading the data, noting down initial ideas.

2	Generating codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code
3	Generating initial themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4	Reviewing initial themes	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic map of the analysis.
5	Defining and naming themes	Ongoing analysis to refine the specifics of each theme and the overall story the analysis tells, generating clear definitions and names for each theme.
6	Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Bilateral Agreements

Before conducting thematic analysis, I collected bilateral agreements from the US and the EU government officials in the form of numbers. Such a quantitative approach allowed me to show statistical visual data and draw general conclusions about the rising trend of bilateral cooperation. Also, visually represented data in the form of graphs allowed me to see a fluctuation of a number of agreements in different periods of climate regimes (see Chapter 4).

The thematic analysis of bilateral agreements began with data familiarizing and developing the list of initial codes. I read the text of each bilateral agreement and made notes about things of potential interest and ideas. Codes captured what is analytically interesting about the data and what could be helpful to answer research questions. I did not use software to manage the coding process; instead, I highlighted text with different pencil colors, and stickers, and created a hard copy of file cards. This coding strategy

allowed me to simultaneously do coding and collating codes into the potential themes that helped me to answer my research questions. After reviewing themes, I refined the specifics of each theme, named them and report the results in Chapter 4.

The examples of the codebook for agreements analysis are presented in Table 3.3.

Table 3.3 Examples of Codebook for Bilateral Agreements Analysis

Theme	Codes	Example of Data Excerpt
Climate change as a problem	GHG emissions concentration, temperature and precipitation changes, adaptation, human and economy wellbeing	<p>“...global greenhouse gas emissions are increasing due to human activities, causing irreversible climate change, including sea level rise, local changes in temperature, as well as changes in the amount and timing of rainfall and snowfall, length and character of seasons, and frequency of extreme storms, floods, droughts, directly influencing wellbeing of people through damaging their livelihoods, property, and health...”</p> <p>“...the impact of climate change imposes a grave danger to the natural resources in France and California, threatens human health and public safety, as well as agriculture and food security, and threatens economic prosperity...”</p>
Area of cooperation	Renewable energy, energy efficiency, transport, water, agriculture	<p>“...discussing challenges and effective solutions associated with energy efficiency in residential buildings...”</p> <p>“...organize exchange meetings between California and the Province of Noord-Holland experts to learn about best practices and to develop case study briefs on the following topics: Public Private Partnership models for charging infrastructure, fast charging infrastructure, and engaging local stakeholders on Zero-Emission Vehicles infrastructure...”</p>
Importance of subnational actors	Jurisdictions, provinces, states, cities, leadership	<p>“...despite limited progress in cooperation among nations, subnational jurisdictions have led the world in setting ambitious climate targets and taking actions to reduce GHG emissions... Subnational governments, together with interested nations, can help to accelerate the world’s response to climate change and provide a model for broader international cooperation among nations...”</p>

		“Scotland and California will work individually and together to raise international attention to the actions and ambitious reduction goals of climate leaders at a subnational level around the globe...”
Goals to be achieved	Emissions reduction, adaptation, resilience, sustainable development goals	“...California and Scotland have set ambitious climate and clean energy goals; both jurisdictions seek to cut greenhouse gases by 80% by 2050...” “...promote efficient wastewater and water use technologies in view of the need to reduce greenhouse gas emissions from the water sector to further the mitigation of climate change...”
Instruments to achieve goals	Policies, regulations, economic incentives, financial mechanisms, new technologies, research	“...to support and encourage cooperation on regulations, policies, incentives, and trade and investment opportunities to reducing greenhouse gas emissions and promoting low carbon development...” “...work together to establish project-specific applied research programs around smart growth, sustainable urban infrastructure technology and policy development...”
Cooperative mechanisms	Exchange information, best practice, workshops, trainings, initiatives, field visits, research, pilot projects	“...joint organization of and participation in workshops, and meetings to share information and practices, and to educate key stakeholders, including stakeholders within the supply chain for offshore wind energy...” “... sharing policy initiatives and providing capacity-building and technical support to develop and implement climate change policies, including emission trading programs...”

Interviews

I audio-recorded eleven interviews and transcribed them using Olympus Sonority and Express Scribe software. Numerical codes were applied to each participant (range from 1 to 11).

After listening to and transcribing interviews, I began to analyze my data by employing Braun and Clarke’s thematic analysis method. Based on the interview guide

(Appendix E), I generated five themes and managed the coding process with the similar approach I used for the thematic analysis of bilateral agreements.

The examples of the codebook for interviews analysis are presented in Table 3.4.

Table 3.4 Examples of Codebook for Interviews Analysis

Theme	Codes	Example of Data Excerpt
Introduction and experience	Position, time frame, area of expertise	<p>“...I have been with the agency for five years. I am working in the Department that is responsible for cooperation with countries on different energy topics. My specialty is off-shore wind. It’s based on my past work, where I was a part of team of building 600 megawatts off-shore wind power plant... We start a fourth year of cooperation with energy advisors in Washington DC working on off-shore wind together with me, and energy advisor in California working on energy efficiency...”</p> <p>“...I have been working for the agency about four years now. My section is called Climate Intergovernmental Relations that includes subnational and national levels...I manage international relations and climate more broadly...”</p>
Role of bilateral and multilateral cooperation	Cooperation definition, pros & cons of bilateral and multilateral agreements	<p>“...Cooperation is really working together to share the challenges you are facing and then also share the solutions to those challenges...”</p> <p>“...We used to do everything not just choose one path. Pro for doing multilateral is that you have a number of different countries who are interested in the same topic, and you can learn from each other and share information which is very helpful. Pro for bilateral is that you can focus on one or two very specific things that two countries shared. So, it’s more focused. Cons is that you have one group and then you find that there is another which works on the same things...”</p>
Negotiations, type, and implementation of bilateral agreements	Establishing partnership, choosing partners, choosing the type of agreement, challenges & opportunities	<p>“...Minister visited California in 2014 and 2015 and was impressed by the progress of this state, e.g., in terms of the use of renewable energies. He and the Governor had a similar mindset about climate protection... they found out that the two</p>

		<p>states had a lot in common: being technically very advanced and on the forefront of new developments due to their innovative strength...”</p> <p>“...It’s a traditional good way of framing cooperation in broader way. So, if you do a Letter of Intent, it would be much too specific or way too broad. When we do a Letter of Intent, it is because we are short in time and we don’t have time to do an MoU...”</p>
Bilateral cooperation in multilateral settings	Participation in multilateral initiatives, differences between bilateral and multilateral	<p>“...Once you go to a multilateral setting, you know for a fact that you can come up with the least common denominator that can be very basic and be in a position very far from any country. The multilateral negotiations do have a dynamic to develop something that is beyond the position of parties. This is what we have seen for example with the Paris Agreement...”</p> <p>“...In a multilateral setting it is helpful to have a kind of facilitator who is managing the organization and is not so much involved in the content. From our experience, a multilateral agreement also needs more governance and should be more formalized to be successful...On the other hand, a bilateral agreement could also mean more efforts because you can’t ‘hide’ behind other active parties...”</p>
Lessons learned from the Kyoto and Paris challenges	Impact of Paris agreement on the bilateral initiative, support to Paris agreement	<p>“...the Paris Agreement is forcing us to act and to strengthen our commitments to achieve a climate-friendly future world-wide... we need to integrate environmental and climate considerations in all our bilateral and multilateral partnerships...”</p> <p>“...we see bilateral agreements as a tool to increase global ambitions and strengthen the international dialogue on climate and environmental issues, including the Paris Agreement commitments ...”</p>

To ensure the credibility of study findings, I used two strategies. The first approach included triangulation of data during the analysis phase in order to reduce “the

potential bias that comes from a single person doing data collection” (Patton, 1999: p.1193). I asked two colleagues who work in the graduate school and have experience with conducting qualitative research to review my transcripts and give me feedback regarding the coding process and theme generating. Both educators agreed with the data interpretation and result reporting. Second, I asked three educators to review my interview questions before going to the field and communicating with the practitioners. The educators gave me feedback about clarity, timing, and relevance to my research questions. Based on their comments, I reviewed and updated my interview guide.

During the interview process, I participated in the interview as a facilitator through interaction and conversation with the participants. I identified myself as a white woman researcher who is enrolled in a Ph.D. program and has previous experience as a government official in the negotiation process on climate change. Because of the same professional identity and environment, it was easy for me to understand the participants regarding their professional experience without possible assumptions. Any biases that might shape the analysis (e.g., emotional reactions and judgments) were decreased by recording the interviews and listening to them several days after the initial conversation to look at them calmly and rationally without any emotions. Also, qualitative interviews were conducted with EU and US government officials recommended by international climate experts. I selected interviewees who were knowledgeable, experienced, and respected in their organizations and the international arena to ensure the evidence collected was credible and reliable.

Chapter 4. Results and Discussion

The material in this Chapter draws heavily on my article “Global climate governance: rising trend of translateral cooperation” published in the Journal of International Environmental Agreements: Politics, Law and Economics.⁵⁸

4.1 Rising Trend of Bilateral Cooperation

This chapter visualizes a number of collected bilateral informal agreements between California, other US states and foreign countries, including EU member states. Such visualization is needed to see a trend of bilateral cooperation in the period of construction of the new climate regime. Moreover, it is an essential setting for further discussions to answer my research question regarding types of bilateral agreements (see Chapter 4.3).

As shown in Figure 4.1, during the 2008–2022 period, California signed 94 bilateral informal (translateral) agreements on climate change with foreign countries. These agreements are signed in various forms: Memorandum of Understanding (MoU), Letter of Cooperation, Joint Statement, Letter of Intent, Joint Declaration, Declaration of Intent, and Working Agreement. Examples of such agreements between California and EU member states are presented in Appendix G.

Interestingly, Figure 4.1 shows that a bilateral trend of cooperation in the diagonal dimension started emerging in the post-Kyoto period when the construction of a new international climate regime was taking place. The number of agreements peaked in

⁵⁸ Stranadko, N. (2022). Global climate governance: rising trend of translateral cooperation. *International Environmental Agreements: Politics, Law and Economics*, 1-19.

2014-2015, when the Paris Agreement was adopted, and in 2017 when President Trump announced a withdrawal from the Paris Agreement. The graph shows a decline since 2019, attributed to COVID-19-related travel restrictions and border closures. Despite this, California signed 12 agreements between 2019 and 2022.

Figure 4.1 Number of Translateral Agreements Signed between California and Foreign Countries during 2008–2022

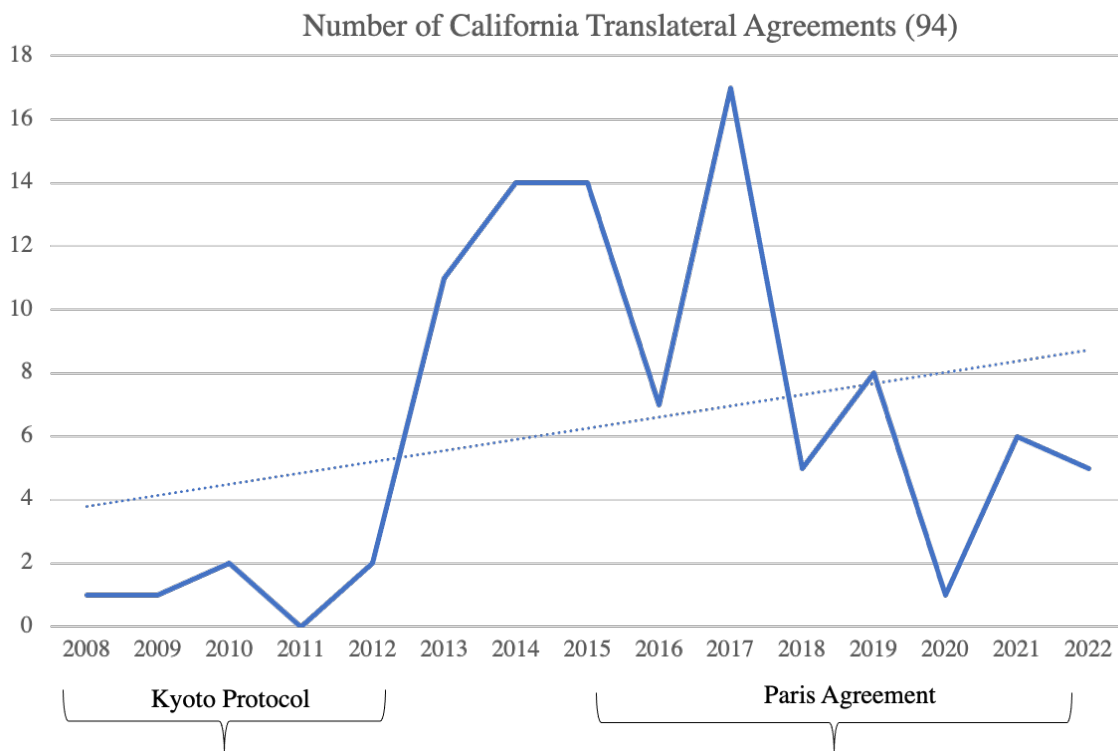
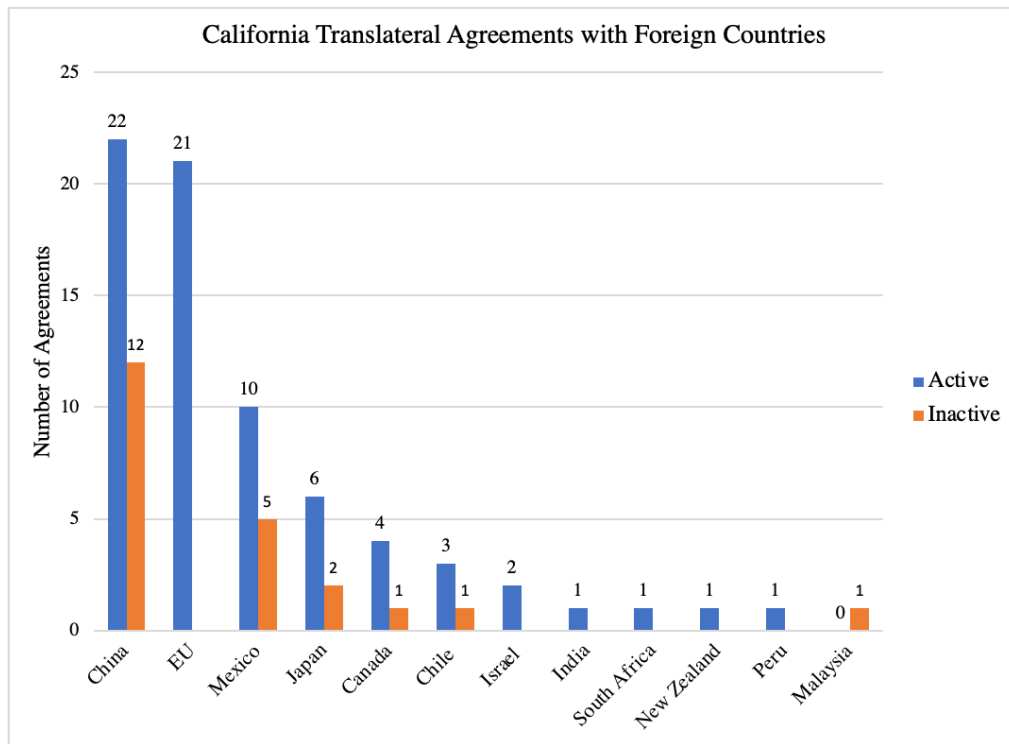


Figure 4.2 compares the number of agreements signed by California with different countries. China and the EU are the main bilateral partners for California. However, this figure also reveals several additional facts. First, California signed 34 translateral agreements with China between 2008 and 2022. Thirty-five percent (35%) of these

agreements became inactive during this period. Also, China prefers only one type of informal agreement: a Memorandum of Understanding (MoU). These two aspects make US-China climate cooperation an interesting case study for further research and require investigating why China strongly prefers MoUs over other forms of translateral cooperation, and why 35% of these agreements became so quickly inactive.

Second, California signed 21 translateral agreements with the EU between 2008 and 2022 (Appendix C). In contrast to China, all these agreements are still active, and interviewees identified several additional agreements currently under negotiation. EU-US translateral agreements also exhibit far more variation in the types of agreements signed with subnational actors compared to China’s focus on MoUs.

Figure 4.2 Current Translateral Agreements, California-Foreign Countries



Starting with California as a case study, I was interested to know if other US individual states also have bilateral informal agreements with EU member states. Thus, I sent letter requests (Appendix D) to identify bilateral informal agreements to 27 EU member states, Norway, Scotland, and the UK during my visiting research fellowship at the Europa-Kolleg Hamburg-Institute for European Integration at the University of Hamburg (Germany) in January-March 2020. With a response rate of 72%, a total of fifty agreements were reported (Table 4.1).

I also sent requests to identify bilateral informal agreements to 50 US states (Governor offices, Environment Departments, and Energy Departments) in May-July 2021. By the end of December 2021, with a response rate of 58%, a total of thirty agreements were reported (Table 4.2). Sending requests to both US and EU sides allowed me to double-check if the same number of agreements would be reported.

Table 4.1 Responses from 27 EU member states, Norway, Scotland, and the UK

Sent to	Received from	Number of agreements/answers	US states
Austria	<input checked="" type="checkbox"/>	1	California
Belgium	<input type="checkbox"/>		
Bulgaria	<input type="checkbox"/>		
Croatia	<input checked="" type="checkbox"/>	Refer to federal	
Cyprus	<input checked="" type="checkbox"/>	No agreements	
Czechia	<input checked="" type="checkbox"/>	2	Louisiana, Nebraska
Denmark	<input checked="" type="checkbox"/>	11	California, New York, New Jersey, Washington DC
Estonia	<input checked="" type="checkbox"/>	1	Federal on oil shale research
Finland	<input checked="" type="checkbox"/>	2	Maine, Michigan
France	<input type="checkbox"/>		
Germany	<input checked="" type="checkbox"/>	4	California, Minnesota, Virginia
Greece	<input type="checkbox"/>		

Hungary	<input checked="" type="checkbox"/>	No BA in agriculture	
Ireland	<input checked="" type="checkbox"/>	3	With city sisters: Chicago, Cleveland, Boyne city
Italy	<input type="checkbox"/>		
Latvia	<input checked="" type="checkbox"/>	3	With city sisters: Dallas (Texas), Bellevue and Shelton (Washington)
Lithuania	<input checked="" type="checkbox"/>	No agreements	
Luxembourg	<input checked="" type="checkbox"/>	No agreements	
Malta	<input checked="" type="checkbox"/>	Link to federal	
Netherlands	<input type="checkbox"/>		
Poland	<input checked="" type="checkbox"/>	2	Federal level
Portugal	<input type="checkbox"/>		
Romania	<input checked="" type="checkbox"/>	2	Federal level (NOAA, Army Corps of Engineers)
Slovakia	<input checked="" type="checkbox"/>	No BA on transport	
Slovenia	<input type="checkbox"/>		
Spain	<input checked="" type="checkbox"/>	7 (Catalonia too)	Federal level, California & Catalonia
Sweden	<input checked="" type="checkbox"/>	1	California
United Kingdom	<input checked="" type="checkbox"/>	5	California, Washington, New York, Michigan
Norway		3	California
Scotland		3	California

Table 4.2 Responses from 50 US states

Sent to	Received from	Number of agreements/answers	EU Member States
Alabama	<input checked="" type="checkbox"/>	Not aware of any agreements	
Alaska	<input checked="" type="checkbox"/>	Not aware of any agreements	
Arizona	<input checked="" type="checkbox"/>	No jurisdiction on this matter	
Arkansas	<input type="checkbox"/>		
California	<input checked="" type="checkbox"/>	19	

Colorado	<input checked="" type="checkbox"/>	Not aware of any agreements	
Connecticut	<input type="checkbox"/>		
Delaware	<input type="checkbox"/>		
District of Columbia	<input checked="" type="checkbox"/>	2	Denmark
Florida	<input type="checkbox"/>		
Georgia	<input type="checkbox"/>		
Hawaii	<input type="checkbox"/>		
Idaho	<input checked="" type="checkbox"/>	Not aware of any agreements	
Illinois	<input type="checkbox"/>		
Indiana	<input checked="" type="checkbox"/>	Not aware of any agreements	
Iowa	<input type="checkbox"/>		
Kansas	<input checked="" type="checkbox"/>	No agreements	
Kentucky	<input checked="" type="checkbox"/>	1 collaboration agreement	Netherlands
Louisiana	<input type="checkbox"/>		
Maine	<input checked="" type="checkbox"/>	3 MoU	Finland, Iceland, UK
Maryland	<input checked="" type="checkbox"/>	Not aware of any agreements	
Massachusetts	<input checked="" type="checkbox"/>	Not aware of any agreements	
Michigan	<input checked="" type="checkbox"/>	3 MoU	Poland, UK, Finland
Minnesota	<input type="checkbox"/>		
Mississippi	<input type="checkbox"/>		
Missouri	<input checked="" type="checkbox"/>	No agreements	
Montana	<input type="checkbox"/>		
Nebraska	<input type="checkbox"/>		
Nevada	<input checked="" type="checkbox"/>	No agreements	
New Hampshire	<input type="checkbox"/>		
New Jersey	<input checked="" type="checkbox"/>	1	Denmark
New Mexico	<input type="checkbox"/>		
New York	<input checked="" type="checkbox"/>	1	Denmark
North Carolina	<input type="checkbox"/>		
North Dakota	<input checked="" type="checkbox"/>	No agreements	
Ohio	<input checked="" type="checkbox"/>	Not aware of any agreements	
Oklahoma	<input type="checkbox"/>		
Oregon	<input checked="" type="checkbox"/>	Not aware of any agreements	
Pennsylvania	<input type="checkbox"/>		

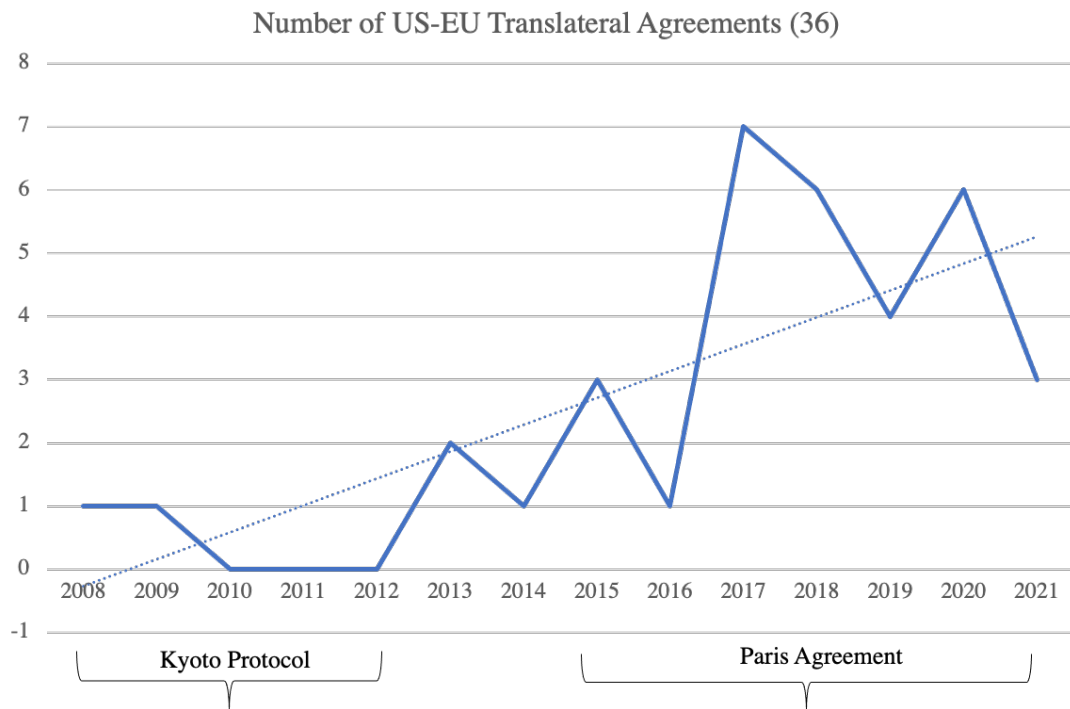
South Carolina	<input type="checkbox"/>		
South Dakota	<input type="checkbox"/>		
Tennessee	<input checked="" type="checkbox"/>	No agreements but several international collaborations	
Texas	<input checked="" type="checkbox"/>	Not aware of any agreements	
Utah	<input checked="" type="checkbox"/>	No agreements	
Vermont	<input checked="" type="checkbox"/>	No agreements but several international partnerships	
Virginia	<input checked="" type="checkbox"/>	No agreements	
Washington	<input checked="" type="checkbox"/>	1	UK
West Virginia	<input type="checkbox"/>		
Wisconsin	<input checked="" type="checkbox"/>	No agreements	
Wyoming	<input checked="" type="checkbox"/>	No agreements	

As one can see from Tables 4.1 and 4.2, the EU reported 50 bilateral agreements, and US individual states reported only 30 agreements. For instance, Virginia responded with no agreements with EU member states. However, Germany replied that the country had one agreement signed with Virginia. Minnesota did not respond to the request letter. But Germany confirmed that the country has a cooperation agreement with Minnesota. Such responses could be explained by the fact that different agencies inside the US states are not aware of each other's agreements. There is no coordination between agencies, and there is no single database of bilateral informal agreements signed by individual US states. Several US agencies responded: "We are not aware of any agreements signed between our state and EU countries" or "Our agency has one bilateral agreement on energy cooperation with the EU member state. However, we are not aware of any agreements other state agencies may sign with European countries. Requests to other agencies should be sent separately." Considering such responses, it is likely that other US individual states have signed more agreements that are not identified here. Some US

states responded that they do not have any agreements with the EU members. But they asked if I was aware of such agreements signed by other US states.

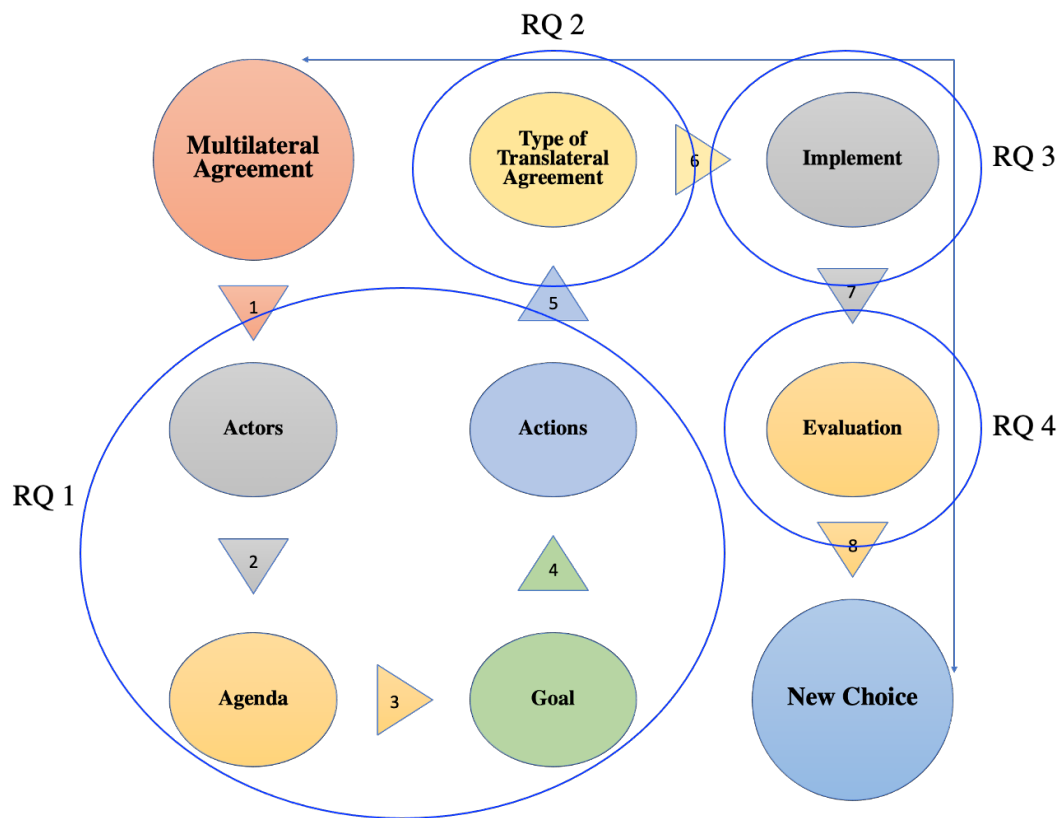
Thus, comparing responses from the US and EU sides, California has 21 translateral agreements with Europe, and other US individual states have 15 agreements at the subnational level. In total, the US states signed 36 translateral agreements with the EU member states (Appendix C). Figure 4.3 represents a number of these agreements signed by each year. One can see that the number of agreements peaked in 2015 with the Paris regime approved, and it reached its highest point in 2017 when President Trump announced a withdrawal from the Paris Agreement.

Figure 4.3 US-EU Translateral Agreements Signed Each Year



The visualization of these data led to my further research questions and hypotheses discussions within translateral theoretical framework (Figure 4.4). Notably, four research questions address a specific part of this framework and help to generate translateral cooperation theory.

Figure 4.4 Translateral Cooperation Theory and Research Questions (RQs)



Research Question 1 (RQ1) (why national and subnational actors cooperate bilaterally) examines a problem-solving stage discussed in Chapter 2.3, which includes actors involved, establishing agendas, formulating goals, and designing actions. RQ2 explores (what type of agreements actors prefer) different types of informal agreements

that actors have chosen to sign as an outcome of the problem-solving stage. RQ3 (what challenges and opportunities actors meet during the implementation phase) covers the implementation of an informal agreement. Finally, RQ4 (impact of external events on bilateral cooperation) looks into the evaluation of the achieved results compared to the established goals and how external events in the multilateral arena impact a new choice.

To answer these research questions, I designed an interview guide around four main topics. First, it was necessary to understand what cooperation means for transatlantic partners at different levels of governance (i.e., how they define cooperation). Second, I inquired into the participants' views on the role, advantages, and disadvantages of bilateral and multilateral cooperation in the transatlantic context. Third, I sought to understand the necessity of aligning bilateral cooperation with the Paris Agreement. Finally, I sought to identify how European and US actors implement their agreements, look at challenges, and view cooperation opportunities.

4.2 Why Do National and Subnational Actors Cooperate Bilaterally?

Research Questions 1: Why do national and subnational public actors in global climate governance cooperate bilaterally in a setting in which multilateral cooperation already exists?

Considering the regime and cooperation theories discussed in Chapter 2, three hypotheses are associated with this question.

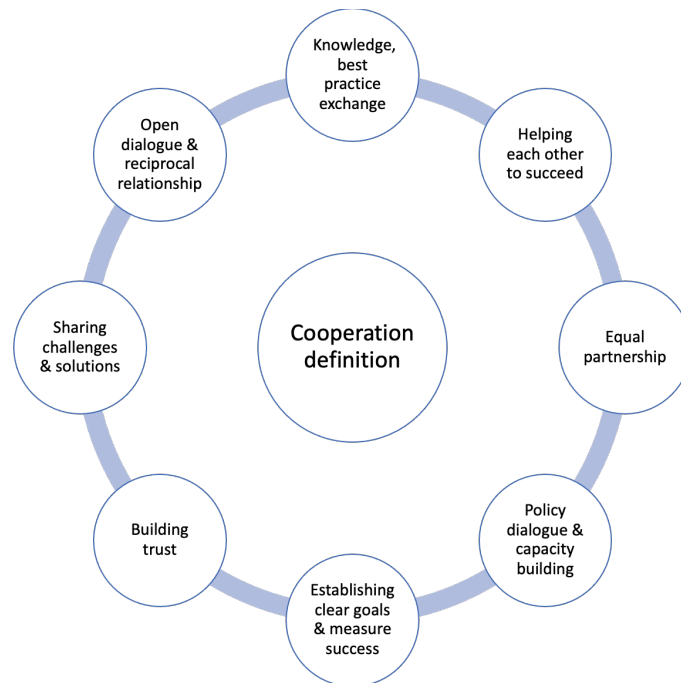
H1: Differences in goals, rules, obligations, and approaches to emissions reduction under the Kyoto Protocol and the Paris Agreement led to bilateral cooperation between national and subnational actors.

H2: A lack of US federal leadership and support on climate policy intensified bilateral cooperation between national and transnational subnational actors to solve climate change problems.

H3: A desire to achieve specific outcomes more quickly and implement certain technical projects at the domestic level motivated national and subnational actors to cooperate bilaterally in the diagonal dimension of interaction.

To answer this research question, confirm or reject hypotheses, and discuss a problem-solving stage of the theoretical framework (agenda, goals, and actions), first, it is crucial to understand what cooperation means for transatlantic partners. Thus, my interview guide (Appendix E) included the following questions: “What does cooperation mean for you?” and “How would you define successful cooperation?” Based on participants’ responses, Figure 4.5 reflects a definition of cooperation.

Figure 4.5 Participants’ Definition of ‘Cooperation’



European and US public officials define cooperation as an opportunity to share values, knowledge, and best practices and a chance to help each other succeed. Interestingly, transatlantic partners are convinced that successful cooperation can be achieved if both sides have similar goals, common interests, equal rights, and responsibilities. Both sides are open to sharing challenges and solutions and are committed to implementing specific policies and creating reciprocal relations. This is the only way to build trust in bilateral cooperation and establish an equal partnership.

The definition of cooperation expressed by the US and EU officials gives a roadmap to choosing partners for cooperation (for example, based on trust, similar interests, challenges, and goals), establishing agenda (e.g., problem identification, common grounds, and responsibilities), formulating goals (e.g., emission reduction targets, policy, regulations, capacity building), and designing actions (e.g., area of renewable energy cooperation, level of involvement, and form of cooperation).

The results of this research confirmed Hypothesis 1 that differences in goals, rules, obligations, and approaches to emissions reduction under the Kyoto Protocol and the Paris Agreement gives a “green light” to subnational actors to develop and implement cooperative climate initiatives across borders. Indeed, the role of subnational actors is highlighted in the text of bilateral informal agreements and expressed by interviewees. For instance, a text of the California-Scotland bilateral agreement includes the following: “Scotland and California will work individually and together to raise international attention to the actions and ambitious reduction goals of climate leaders at a subnational level around the globe...”

Construction of the Paris climate regime brought national and subnational actors together to solve domestic problems and contribute to the global emissions reduction target. For instance, one of the participants said: "...international agreements like the Paris Agreement are forcing us to act and to strengthen our commitment to achieve a climate-friendly future worldwide. Therefore, we need to integrate environmental and climate considerations in all our bilateral partnerships...." Another participant noted:

Once you go to a multilateral setting, you know for a fact that you can come up with the least common denominator that can be very basic and be in a position of very far from any country. The multilateral negotiations do have a dynamic to develop something beyond the parties' position. This is what we have seen, for example, with the Paris Agreement.

Visualization of US-EU informal agreements (Figure 4.3) in Chapter 4.1 shows that the number of informal agreements reached its highest point in 2017. Thus, one can explain the growing number of bilateral agreements between California and European countries through President Trump's announcement in 2017 to withdraw from the Paris Agreement and his administration's inaction on climate change at the international and national levels. Furthermore, interviews confirmed that this announcement accelerated intensive partnerships between national and subnational actors (Hypothesis 2 confirmation), contributing to agenda setting, goals formulation, and designing actions for bilateral cooperation.

For example, one interviewee from the EU side stated:

We want to assist some of the countries struggling with their emissions and how they can lead from our experience. When it comes to the US, it is another story. It

would never work for Trump because the motivation from the American side is job creation and cheap energy. This is motivation basically from the federal level. It's not a secret that Trump is not too much in the green agenda. But we see the political resistance. The individual states do not have it. This is a paradox of the US. The states do support the green transition, and they are completely on another track.

The US participant mentioned the established US Climate Alliance under California leadership – a group of states cooperating on climate change: “...that evolved after President Trump’s election to show that individual states are working towards the Paris Agreement...” In September 2018, California organized the first Climate Action Summit⁵⁹ to encourage all countries to accelerate emissions reduction actions and commitments under the Paris Agreement. It brought together about 5000 participants from around the world in San Francisco. The goal of this Summit was to show climate actions at the subnational level to encourage national governments to increase their Nationally Determined Contributions (NDCs).

Furthermore, national and subnational actors strongly desire to contribute to global climate solutions through bilateral informal cooperation in the diagonal dimension of interactions. For instance, such willingness is reflected in bilateral agreements. The following quotes reflect the actors’ enthusiasm:

- a) “Despite limited progress in cooperation among nations, subnational jurisdictions – including provinces, states, and cities – have led the world in

⁵⁹ Climate Action Summit 2018 <https://www.connect4climate.org/event/global-climate-action-summit-san-francisco-2018> (accessed on August 12, 2022)

setting ambitious climate targets and taking actions to reduce GHG emissions and protect against climate impacts.”

- b) “By working together and building on agreements, subnational governments, together with interested nations, can help to accelerate the world’s response to climate change and provide a model for broader international cooperation among nations.”

I also want to mention one of the interviewees’ quotes: “All actions that take place on a subnational level, even if it’s not reflected in the NDC, are still contributing to those. It’s essential to meet the Paris Agreement goal.” On top of that, the Californian representative stated: “...we attended and participated in the UNFCCC Conference of Parties. We highlighted there a subnational leadership...”

The desire to be a part of global climate solutions helps actors to find partners for cooperation. For example, the EU participant stated: “...Minister visited California in 2014 and 2015 and was impressed by the progress of this state, e.g., in terms of the use of renewable energy. He and the Governor had a similar mindset about climate protection... they found out that the two states had a lot in common...”

To confirm or reject the Hypothesis 3 regarding a desire to achieve specific outcomes more quickly and implement certain technical projects through bilateral cooperation, I asked the participants about the advantages and disadvantages of bilateral and multilateral cooperation (Appendix E).

The advantages of bilateral informal interactions are expressed by the participants at all levels of cooperation (supranational, national, subnational) in horizontal and diagonal dimensions of interactions (Table 4.3). First, bilateral cooperation is much easier

to implement because only two partners have a high interest in making progress in a specific policy area. Second, bilateral cooperation allows the parties to generate outcomes and reach established goals much quicker than multilateral cooperation involving several partners. Third, bilateral cooperation is deeper and more technical and focuses on specific topics (e.g., offshore wind energy, green infrastructure, net-zero emissions vehicles). Finally, bilateral cooperation is seen as helping increase global climate ambitions, strengthen the implementation of the Paris Agreement, and achieve climate neutrality. Table 4.3 shows the advantages and disadvantages of bi- and multilateral cooperation expressed by participants. The results of the interviews confirmed Hypothesis 4.

Furthermore, a common view among interviewees was that bilateral informal cooperation also complements multilateral negotiations. The evidence for this statement is the example of establishing the Under2 Coalition that started from bilateral cooperation between California and the state of Baden-Württemberg in 2015, and later grew to a multilateral platform. Another example is the creation of the US Climate Alliance in 2017 in response to President Trump's decision to withdraw from the Paris Agreement. Today, this alliance unites 25 governors committed to reducing GHG emissions to support the US NDC to the Paris Agreement. The alliance represents 55% of the US population and its \$11.7 trillion economy⁶⁰. It is more likely that the Under2 Coalition and the US Climate Alliance will proliferate under the Biden administration.

Interviewees did not express any disadvantages of bilateral cooperation. However, compared with bilateral cooperation, in the participants' view, multilateral cooperation has both advantages and disadvantages. In terms of advantages, the multilateral setting

⁶⁰ US Climate Alliance, <http://www.usclimatealliance.org> (accessed on November 19, 2022).

and cooperation provide an opportunity to look broadly at global challenges and solutions, and to find matching topics and partners for bilateral cooperation. In this case, subnational actors feel themselves to be a part of global solutions through their regional and local contributions. Multilateral cooperation also helps to create a network and fosters voices heard in the international arena. Regarding disadvantages, according to respondents, the multilateral setting and cooperation take longer to reach an agreement and generate results because actors have diverse interests and beliefs. A multilateral setting also does not focus on a specific topic or project; instead of covering broad areas and high-level talks. Nevertheless, all interviewees agreed that multilateral and bilateral cooperation complement each other.

Table 4.3 Results of the Interviews on Bilateral and Multilateral Cooperation

Level	Cooperation	Bilateral Cooperation	Multilateral Cooperation
Supranational	<ul style="list-style-type: none"> -sharing values, knowledge, and best practices -mutual interest -achievement of objectives and targets -responsibility, trust, and openness 	<ul style="list-style-type: none"> -generating outcomes much quicker - can provide examples for other parties -good for a specific area where both partners have strengths to share -soft law -complements multilateral cooperation 	<ul style="list-style-type: none"> -global scope but takes longer to generate results -complements bilateral cooperation
National	<ul style="list-style-type: none"> -knowledge sharing -helping each other to succeed -similar challenges 	<ul style="list-style-type: none"> -useful to foster dialogue on specific topics -helpful before multilateral negotiations to understand partners' priorities 	<ul style="list-style-type: none"> -more broad -supports bilateral cooperation

	<ul style="list-style-type: none"> -common interests -trust -varies depending on partners' interests -capacity building 	<ul style="list-style-type: none"> -a tool to increase global ambitions and strengthen the implementation of a multilateral agreement -way to follow up on a multilateral platform -complements multilateral cooperation 	
State	<ul style="list-style-type: none"> -learning from each other -sharing experience and best practice -equal partnership -same rights -responsibility -can be different depending on partners and interests 	<ul style="list-style-type: none"> -advantage of having only one partner -high level of interest from both sides -easy to handle in terms of interactions -more focus on specific topics 	<ul style="list-style-type: none"> -an opportunity to find matching topics -more broad topics -making the voice heard -helping to find a partner for bilateral cooperation, and vice versa - more diverse -creates a network -needs more governance and needs to be formalized
City	<ul style="list-style-type: none"> -learning from each other -same goals -sharing challenges and solutions -reciprocal relations -sparking new ideas 	<ul style="list-style-type: none"> -more detail and deep cooperation -more technical -clear goals -making more progress 	<ul style="list-style-type: none"> -hard to cooperate because of multiple actors -more obstacles -high level and more talking -building network -stronger voice

Furthermore, European and US actors stated that bilateral transatlantic cooperation should be necessary for international, national, and subnational strategies.

Cooperating bilaterally at all levels of climate governance provides an opportunity to understand transatlantic partners' preferences, motives, and policies, to meet challenges together, as well as to find solutions and strengthen power, position, and voice during multilateral negotiations. Therefore, by choosing a partner for cooperation, both actors set up agendas, formulate goals and design specific actions based on each other domestic preferences, specific interests, challenges they both meet, and climate positions in the international arena. These components of the problem-solving stage are reflected in different types of bilateral agreements, which are discussed in Chapter 4.3.

4.3 Types of Bilateral Informal Agreements

Research Question 2: What type of cooperative agreements do the actors prefer, and why?

Considering the legal theory and cooperation theory discussed in Chapter 2, there are two hypotheses associated with this question.

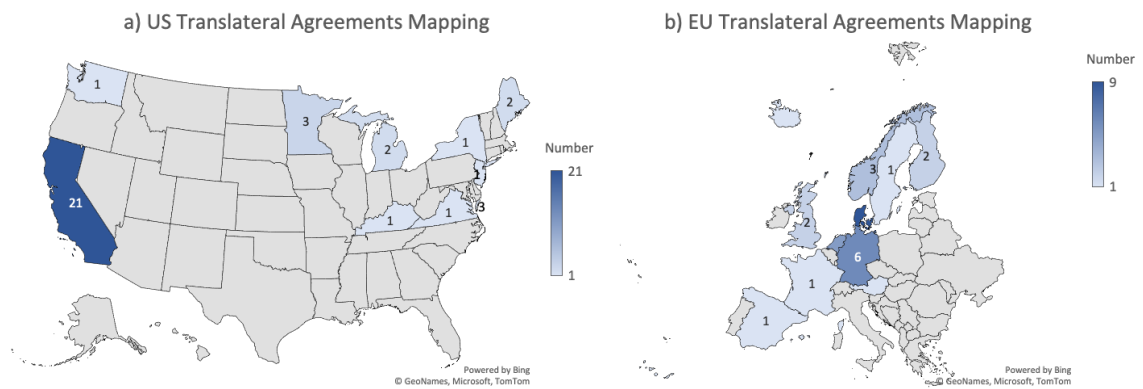
H1: Memorandum of Understanding (MoU) is the most common agreement to sign between national and subnational actors. However, other informal agreements could be a preference, for instance, a Letter of Cooperation and a Joint Statement. Actors choose different types of agreements based on goals, preferences, and level of cooperation.

H2: Actors prefer informal agreements because of legal aspects, uncertainty, the possibility of modifying the agreement under changing conditions, and the willingness of actors to generate specific outcomes much quicker than legally-binding cooperation.

As seen in Figure 4.6, between 2008 and 2022, nine US states (California, Kentucky, Maine, Michigan, Minnesota, New Jersey, New York, Virginia, and

Washington) signed 36 translateral agreements on climate change with twelve European countries: Austria, Denmark, Finland, France, Iceland, Germany, the Netherlands, Norway, Scotland, Spain, Sweden, and the United Kingdom (UK). California has the largest number of agreements from the US side, and Germany has the largest number of agreements from the EU side. On the other hand, Denmark, the Netherlands, and Scotland have more translateral agreements signed with California than other European countries. This could be explained by geographical location and a joint interest in sharing knowledge, technologies, and experience in the energy sector, particularly offshore wind energy production.

Figure 4.6 Geographical Representation of Translateral Cooperation and Agreements Signed between the US States and European Countries, 2008–2022



California has 21 translateral agreements with European countries, and other US individual states have 15 agreements at the subnational level. In total, the US states signed 36 translateral agreements with Europe (Appendix C). In addition, California actively participated in international climate negotiations and announced strong

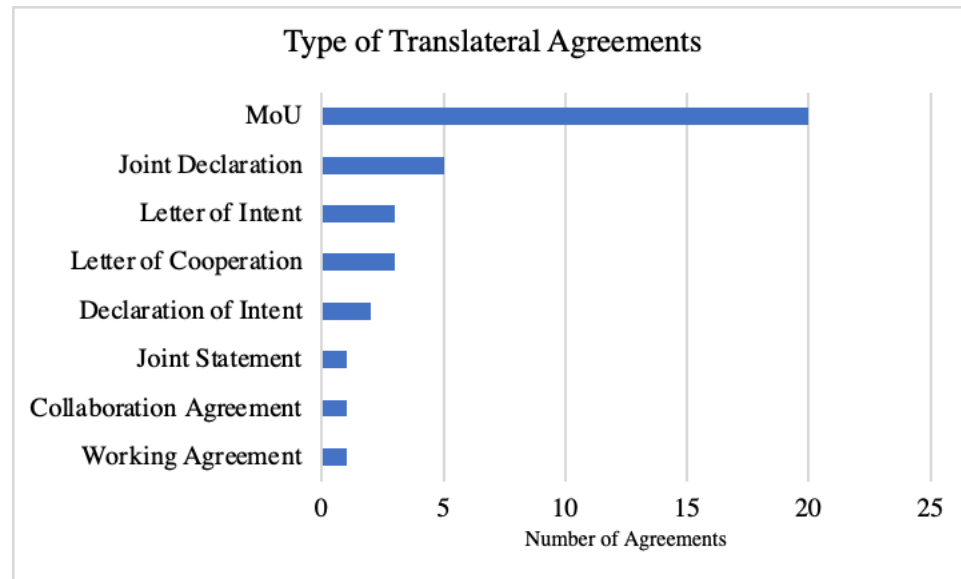
commitments to the Paris Agreement in the absence of federal support. California, with other states, also established the US Climate Alliance and, for the first time in history, hosted the Global Climate Action Summit in 2018. During the interviews, participants mentioned California as a long-term leader in climate cooperation with transnational subnational actors, particularly through the Under2 Coalition⁶¹ jointly created by California and Germany through signing the Subnational Global Climate Leadership Under2 Memorandum of Understanding (MoU) (Appendix H). California representative noted: “The Under2 Coalition was founded to support negotiations in Paris in the run-up to COP 21. This was intended to show greater commitment on the part of the subnational level, which until then had escaped public attention.”

Today, the Under2 MoU is opened for signature to any states, regions, provinces, and other subnational governments committed to achieving net zero emissions by 2050. The Under2 MoU is reviewed by members every five years, in line with the Paris Agreement’s five-year cycle of increasingly ambitious climate action. The last revision of the Under2 MoU was done in 2021.

The analysis of bilateral informal agreements showed eight types of agreements that partners prefer to sign (Figure 4.7).

⁶¹ Under2 Coalition <https://www.theclimategroup.org/under2-coalition> (assessed on November 28, 2022)

Figure 4.7 Type of Translateral Agreements Signed with European Countries



As seen in Figure 4.7, MoU is the most common form of translateral cooperation that covers 56% of all agreements. This finding is consistent with Slaughter (2004), who noted that the MoU is a preferable means of bilateral cooperation. Such results also empirically confirmed Hypothesis 1.

Two factors appear to explain the choice of MoU as the common form of translateral cooperation. First, MoU dominates at the state level of cooperation when two or more unitary actors prefer to agree on non-legally binding rules and commitments to avoid disputes in the international courts. Thus, subnational stakeholders adopt MoU because they are international law's commonly recognized soft-law instrument. The text of the MoU has a separate statement: "This MoU is neither a contract nor a treaty...and does not include any legally binding rights or obligations."

Second, MoU is similar in structure to international legally binding treaties (agreements, pacts, protocols, etc.) with a preamble, sections devoted to objectives, priorities, mechanisms of cooperation, financial obligations, liability, dispute resolution,

modification procedure, and final provisions. The MoU refers to multilateral agreements/arrangements, e.g., Paris Agreement, Under2 Coalition, etc. It could also mention the previously signed Letter of Cooperation as a first step for collaboration (if present) – for instance, the MoU between California and Scotland references a Letter of Cooperation. The MoU could also mention previous high-level official visits where initial interest was expressed in establishing cooperation. Also, it could cite a passed resolution at the subnational level to support expanding the bilateral relationship (e.g., MoU between California and the Land Baden-Wurttemberg). Finally, it could mention past cooperative initiatives between non-government stakeholders (e.g., industries, research institutes, cities, etc.).

The MoU usually has a paragraph that states: “...the Participants reached the following understandings...” It means that actors agreed on specific goals, actions, areas, and forms of cooperation. Some MoUs can include sections: *Encouragement of Participation* (welcoming other non-government actors in support of the objectives of the MoU), *Interpretation and Application of MoU*, and *Notices*. This agreement usually relates to a specific area of cooperation (e.g., energy efficiency) and the identification of high-priority areas of cooperation (e.g., focusing on energy-intensive industries and residential buildings). It is opened for involvement and collaboration with other than government stakeholders (business, academia) if there are opportunities for common interest (Section *Third Party Participation*). Each agency has a focal point and regular meeting intervals.

In the *Financial obligation* section, the MoU has a clear statement that “...there is no commitment or exchange of funds...” and “...all activities under the MoU are subject

to the availability of each Participant’s resources.” The *Modification Procedure* section states: “This MoU may be modified at any time by the mutual written consent of the Participants.” The *Duration* section has a statement for a specific period of cooperation and extension. The text of the MoU usually mentions 3-6 months following the date of notification if a party wants to discontinue activities under the MoU.

Thus, if, for some reason, there is no federal or national support for implementing climate actions at the highest level, subnational actors can enter into informal cooperation by signing an agreement that has international parallels. Simultaneously, a non-binding agreement allows subnational actors to protect themselves from legal disputes under national law and regulations. For example, one of the interviewees explained a choice of MoU in the following way: “The MoU...this is a legal framework that government prefers.” Another respondent indicated: “...template for MoU...it was just a matter of language. But it depends on partners....” So, the MoU provides subnational actors with a way to cooperate effectively at different levels of governance if they lack support for their actions at federal or national levels.

However, even if the MoU covers 56% of all bilateral informal agreements, other forms of translateral cooperation cover 44% of US–European translateral agreements. These forms include Joint Declaration (14%), Letter of Intent (8%), Letter of Cooperation (8%), Declaration of Intent (5%), Joint Statement (3%), Collaboration Agreement (3%), and Working Agreement (3%).

The content analysis of these agreements demonstrates a different level of cooperation, the partnership’s readiness, and provisions (Table 4.4).

Table 4.4 Comparative Content Analysis of Translateral Agreements

Provisions	Letter of Cooperation	Joint Statement	Letter of Intent	MoU	Joint Declaration/Declaration of Intent	Working Agreement	Collaboration Agreement
Number of pages	2 or 3	2 or 3	2 or 3	3 or 5	4 or 5	2 or 3	5 or 7
Signatures	Minister and Governor/Secretary	Minister and Governor/Secretary	Minister and Governor/Secretary	Minister and Governor or Authoritative representative of specific agency (e.g., Energy Commission)	Minister and Governor/Secretary	Governor and Authoritative representative of specific agency (e.g., Energy Commission)	Minister and Governor/Secretary and other partners
Under2 Coalition	X	X	X		X		
No provisions naming/dividing	X	X					
Section: Objective	X	X	X	X	X	X	X
Section: Areas of Cooperation	X	X	X	X	X	X	X
Section: Cooperative Mechanisms			X	X	X	X	X
Section: Third Party Participation			X	X	X		X
Section: Financial Arrangements			X	X	X		
Section: Liability				X			
Section: Dispute Resolution				X			
Section: Modification Procedure				X	X		
Section: Duration/Term			X	X	X	X	
Section: Final Provisions				X	X		
Section: Additional Cooperation					X		
Section: Parties to the Agreement							X

The agreements in the forms of a Letter of Cooperation and a Joint Statement have more general unstructured provisions and tend to identify broader areas for climate cooperation (Appendix G). These agreements do not have any provisions dividing, for example, sections or articles. In a Letter of Cooperation and a Joint Statement, actors recognize climate change as a global problem, highlight a need for international cooperation and ambitious actions to reduce emissions, and refer to the importance of leadership at national and subnational levels. The text of such agreements mentions commitments under various multilateral initiatives, such as the UNFCCC, Paris Agreement, Under2 Coalition, and Zero-Emission Vehicle Alliance. In these agreements, actors also call for the importance of the voice of non-state actors and emphasize sharing ideas and best practices, research, and innovation as areas of cooperation in general.

For example, a Letter of Cooperation between Sweden and California contains the following statement:

Sweden and California furthermore recognize the value of existing initiatives aiming for radically reduced emissions from transportation, such as the Zero-Emission Vehicle Alliance. There is potential for Sweden and California to support, through this and other initiatives, the efforts of other state, regional, and city signatories to share ideas and best practices on the reduction of greenhouse gases and to promote the development and expansion of renewable energy. In addition, Sweden and California recognize the pivotal role of research and innovation and will strive to further develop ongoing cooperation in these areas...Sweden and California will explore further ways to materialize the ambitions set out in this Letter of Cooperation.

The example of a Joint Statement between California and Germany includes the following: “Signatories agree that the work of the Under2 Coalition is critical and still growing, and now brings together more than 175 states, regions and cities around the world that are committed to limiting global warming by implementing ambitious measures of climate action.”

Therefore, these two types of agreements appear to be preferred when transatlantic partners are at the initial stage of cooperation. They learn each other’s preferences, policies, and behaviours before entering another stage of cooperation involving more specific areas and commitments.

A Joint Declaration or a Declaration of Intent, and a Letter of Intent follow the main structural elements and provisions of the MoU. Still, they rarely include clauses addressing dispute resolution or modification procedure. Therefore, it is likely that transatlantic partners using these agreements are in the middle stage of their cooperative

relationship, although these agreements have their specific. For instance, a Joint Declaration or a Declaration of Intent has a list of cooperative areas where follow-up is needed for further cooperation under each area. A Joint Declaration between California and France could be an example to demonstrate this statement. In this agreement, a list of the specific cooperative area includes climate change mitigation, carbon pricing, adaptation and resiliency, water management, transportation, sustainable building and cities, and clean energy. In addition, the Working Group is established under this agreement for the further specific area of cooperation. Finally, an illustration of a Letter of Intent provides a follow-up action to cooperation in a particular area. For example, a Letter of Intent between California and the Netherlands talks about the possibility of setting up a Transatlantic Sustainable Investment Finance Program (C2C SIF) to stimulate smart transportation for both partners: “The Minister of Economic Affairs has decided to make 10 million euros available for the next 14 years for the C2C SIF to be matched by at least 10 million euros from the private Dutch Investors, a total at least 20 million euros to be available for California and Dutch businesses active in California and the Netherlands on Smart and e-mobility.”

Another type of agreement is the Working Agreement, which has very specific and narrow areas of cooperation that reflect past joint activities under Letters of Cooperation, Letters of Intent, and MoU. For instance, this is the case for the Working Agreement between the California Energy Commission and Noord-Holland Province. This bilateral agreement involves cooperation on specific pilot projects or public-private partnerships (e.g., SolaRoad, Coast e-mobility program) that require further monitoring, evaluation, and reporting. This type of agreement has clear goals and results to be

achieved. The following clause from the Working Agreement demonstrates the above statement: “1. Determine after two years of SolaRoad in the Netherlands if a demo project in California could be initiated...2. Organize exchange meetings between experts to learn about best practices and to develop case study briefs on the following topics: Public Private Partnership models for Charging Infrastructure, Fast Charging Infrastructure, and Engaging Local Stakeholders on ZEV Infrastructure and Vehicles... 5. New related policy developments will be included in the annual report....”

Finally, a Collaboration Agreement is based on past long-term cooperation under the above-mentioned informal agreements. This agreement is signed for a specific project in the area of cooperation to be implemented with the involvement of different internal stakeholders from both partners. For example, a Collaboration Agreement on Agriculture Technology Ecosystem between Kentucky and the Netherlands included not only government representatives who signed this agreement but also involved private and public companies and universities. In this case, such an agreement consists of the section *Parties of the Agreement* with a list of all companies and universities involved. This type of agreement has targeted objectives: “... Opening a Dutch representative office in Kentucky for the Dutch companies... Crafting government policies to spur the development of the AgTech ecosystem in Kentucky... Launching an education/research/exhibition center....”

Thematic content analysis of translateral agreements shows that transatlantic partners cooperate in the areas of energy (solar energy, offshore wind, and energy efficiency), transportation (mobility and zero-emission vehicles), and urban infrastructure (Figure 4.8). In their agreements, partners identify a vulnerability to climate change and

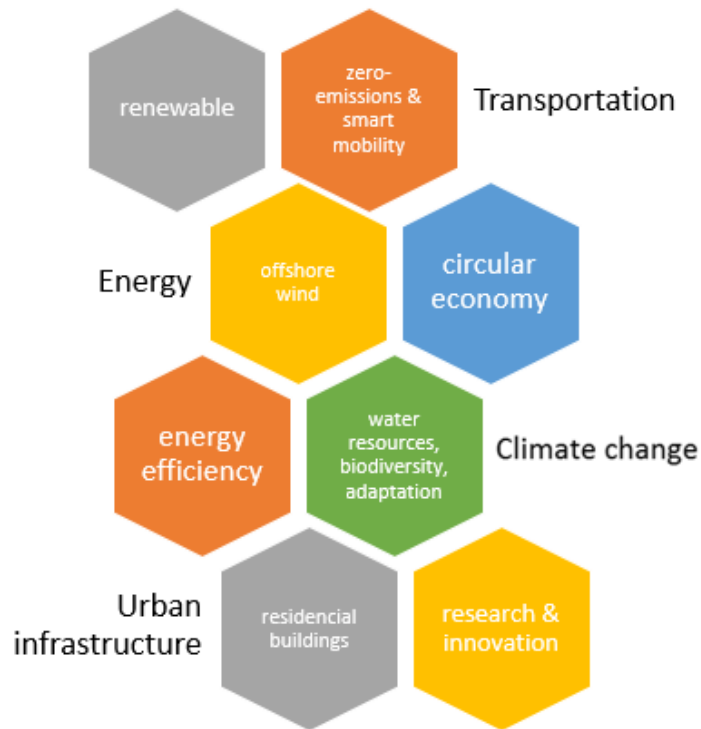
the connection of climate mitigation and adaptation actions at the subnational level with the goals of the Paris Agreement and SDGs.

Actors choose the area of cooperation based on similar interests and gaps in policy, industry priorities for emissions reduction, best practices availability, and past cooperation in similar or other areas. For instance, one of the interviewees expressed:

...even we have a long off-shore wind history, we need to adapt the wind industry to the demand of the wind industry. And that's the same that happened in the US. So, that's where we see the cooperation is very useful for both parties because we also learn from their way of proceeding, even if we have 25 years of track-recording in the country.

By choosing the area of cooperation, actors establish specific goals and design actions. A choice of area of cooperation also contributes to the further type of agreement that partners want to sign. For instance, if actors are at the beginning stage of cooperation and want to focus on renewable energy in general, they may want to sign a Letter of Cooperation with broad goals. At the later stage, actors may develop their cooperation further, focusing on just solar or off-shore wind energy. In this case, their goals and actions would be more specific and focus on particular outcomes, which could be achieved through signing and implementing an MoU and Working Agreement.

Figure 4.8 Areas of Cooperation Covered by Translateral Agreements between the US States and European Countries, 2008–2022



Furthermore, transatlantic agreements demonstrate that the actors involved are convinced that climate actions have significant economic and scientific benefits regarding job creation, investments, growth and trade, research, and innovation.

Depending on the type of agreement, US–European actors prefer to cooperate by sharing knowledge, experience, and best practices and by conducting policy and research initiatives, visits, workshops, pilot and flagship projects, public-private partnerships, and innovation hubs. In some cases, the area of cooperation and actions that partners designed under the translateral agreement could lead to the next stage of cooperation at a different

level (e.g., city level). For example, in 2013, Minnesota and Germany signed an agreement on renewable energy and energy efficiency. The implementation of this agreement led to the creation of the Climate-Smart Municipalities Partnership, where six German cities paired with six Minnesota cities in the areas of sustainability, climate adaptation, renewable energy, and energy efficiency. The statement of this Partnership reflects the meaning and results of bilateral informal cooperation: “Together, we command deeper expertise, are able to look at things from a much broader range of perspectives and create better and more imaginative solutions. Having the opportunity to discuss approaches in a binational group is invaluable. Turning those conversations into inclusive projects at multiple levels and witnessing how quickly and reliably such parallel diversity produces measurable results is inspiring. And it builds additional momentum.”⁶²

The results of this research supported Hypothesis 2. Actors prefer informal agreements because of their non-legally binding nature, the possibility of modifying the agreement, and the willingness of actors to generate specific outcomes much quicker than legally-binding cooperation. Each type of informal bilateral agreement includes the following paragraph or similar statement: “The Participants acknowledge that this agreement is only intended to provide for cooperation between the Participants and does not create any legally binding rights or obligations.” It is also “...subject to any changes in policy that they may adopt, and subject to the governing laws where the activities will be carried out.” Such statements allow participants to have flexibility in their actions but also acknowledge and consider domestic circumstances and legislative aspects.

⁶² Climate-Smart Municipalities Partnership <https://www.climatesmart-mn.org> (accessed on March 4, 2022)

Bilateral informal cooperation allows for generating outcomes much quicker and easier. For instance, one interviewee noted: "...bilateral is easier to organize, to define the problems and challenges to be solved and finally to achieve results..." Another respondent also expressed a similar view: "...bilateral cooperation has the advantage that you only have to deal with one other partner, so communication and coordination are much easier. You can also focus on issues where you know they are relevant for both sides, and you can work towards certain results..."

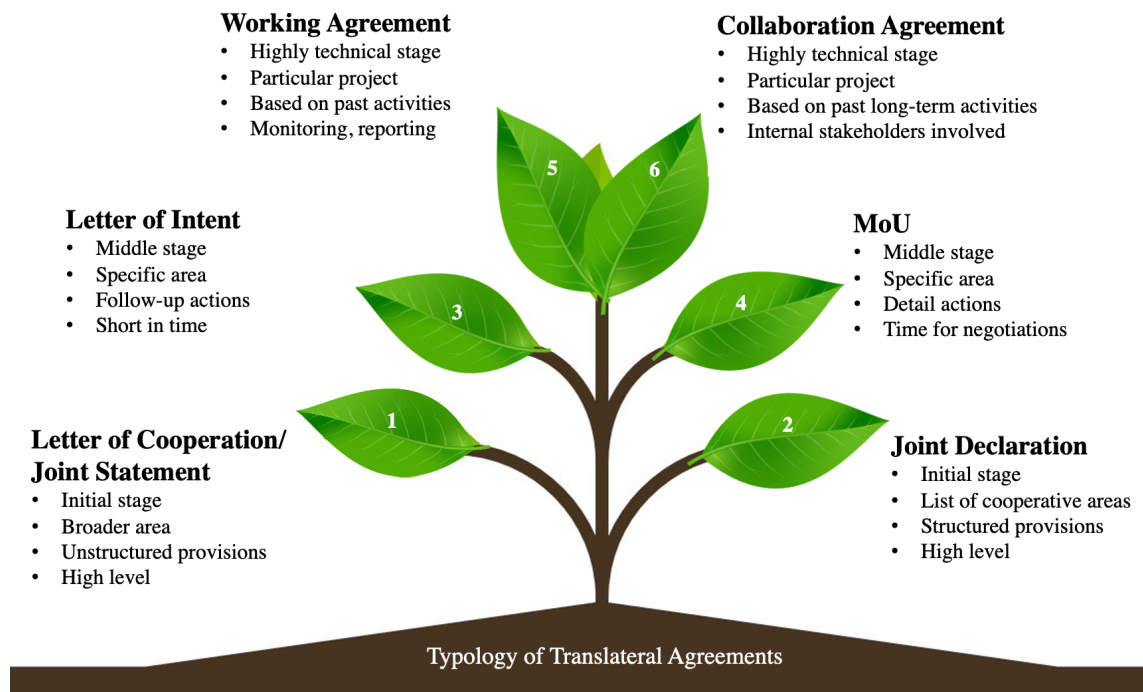
My research also reveals that actors choose different types of agreements based on the time they have, their level of cooperation, and the area of cooperation. For example, one of the participants explained a choice of the MoU:

It's a traditional good way of framing cooperation in a broader way. So, if you do a Letter of Intent, it would be much more specific or way too broad. When we do a Letter of Intent, it is because we are short in time, and don't have time to do an MoU. So, a Letter of Intent is a transition path... But this is also a legal framework before an MoU that government prefers. So, it's more at the higher level, and broader.

Another respondent highlighted: "We may intend an MoU in the energy sector, and then we can implement it in a different way by different programs and agreements..." Another interviewee justified the choice of the MoU in this way: "...it was chosen because we need to deliver concrete partnership with real things to do on water issues instead of the Letter of Intent in general without specific things to do..." Accordingly, my research findings show that depending on the context of the problem-solving components (agenda, goals, and actions), translateral cooperation is implemented

through different types of agreements. Therefore, based on the above discussions and findings, I propose a typology of translateral agreements presented in Figure 4.9.

Figure 4.9 Proposed Typology of Translateral Agreements



This typology would be helpful for public officials regarding what type of agreements to sign. Also, academia must recognize such typology in international relations and international law disciplines. Recognizing the typology of bilateral informal agreements would allow actors to track these agreements and create a single database in each country and US individual state for cooperation and coordination purposes. Knowing about the existence of such agreements at each level of governance would give the possibility to account for GHG emissions at the subnational level and include these emissions in the NDC of each country to show progress under the Paris Agreement.

Introducing this typology does not mean that actors should follow 1,2,3,4,5,6 stages. Indeed, they can choose to sign a type of agreement for each particular situation. Choosing a type of agreement also depends on national legal preferences, level of cooperation and signatures, time available for detailed negotiation, and past activities and signed agreements. Also, it depends on available financial resources for implementing the specific technical project. If there is no funding now, actors can choose an agreement with a broader area of cooperation that involves only knowledge exchange and learning each other's policies.

4.4 Challenges and Opportunities in the US-EU Bilateral Cooperation

Research Question 3: What challenges do European and US actors meet in building a cooperative partnership, and what opportunities do they discover through their bilateral informal cooperation?

Considering the cooperation and decision-making theories discussed in Chapter 2, I suggest two hypotheses.

H1: Challenges may include finding a partner for cooperation and implementing specific actions because of resource availability (e.g., human, financial).

H2: Opportunities may include knowledge and experience sharing, access to international resources, and network.

Once national and subnational actors establish an agenda, identify goals and actions, and sign a preferred agreement, they start implementing planned activities. However, challenges may appear at the implementation stage, and new opportunities may be opened. Thus, my interview guide (Appendix E) included a particular question to

participants about implementation, challenges, and opportunities under the signed agreement.

In terms of the implementation of agreements, there is a positive trend to move forward, as evidenced by the organization of several successful events, although COVID-19 led to some being postponed. For instance, Denmark signed an MoU on off-shore wind energy with California in 2018. Both sides have visited each other's facilities, exchanged knowledge and information, and are preparing a regulatory policy framework for combining solar and off-shore wind energy production in California.

One of the interviewees shared their experience:

We had exchanging visits, and we had a series of meetings and tours showing our experience. We had webinars, and then we went to the facilities... So, the in-person learning exchange was so valuable for us. You cannot learn so much from reading and seeing photos. But to really be there and feel... That was a wonderful experience and helped to conceptualize what we were talking about before.

Another participant noted: "We had technical visits, and planning engineers were able to learn some specific things, where to locate different facilities. So, we plan to incorporate it...."

The Transatlantic Climate Bridge MoU signed between Germany and some US states has established a working group on subnational engagement and expanded efforts to implement long-term low-carbon strategies. In addition, an online forum was organized in March 2021 to discuss further perspectives and alliances and to prepare for COP 26 in Glasgow.

The participants mentioned the following challenges with EU–US bilateral cooperation: differences in time zones, communication problems in terms of language (not everyone can speak English fluently), and COVID-19. For instance, one public official expressed a challenge in the time difference between Europe and the US:

Some of the challenges now, it's traveling, it's difficult, we try to do only essential traveling. But teleconferencing is challenging because of different time zones. When you need to gather technical experts, it's hard to get involved with everyone at the same time. So, doing things virtually can be challenging. But you can set up a bi-weekly call to get an update.

Another participant mentioned the language barrier:

Another challenge could be communication. Sometimes language is a barrier. In our case, English is obviously the main language, and we need people to know English, but sometimes English is not at the highest level you wish to be. Or you may have with different agencies two people who speak well in English, and then we have the others who do not. So, when they get invited to come to the learning exchange, it's a little bit of a challenge. I don't mean it's not useful because, in the end, it is, but it requires a little bit more effort for everyone so that it is successful.

The COVID-19 challenge interrupted many activities and plans. Even so, the participants found opportunities in this challenge: cancelled flights themselves reduced GHG emissions; participants found a way to be more innovative in terms of remote and online communications; and the remote meetings saved time that would have been spent

on participants' travel. For example, the COVID challenge was mentioned by the respondent as part of project implementation:

We had developed the conversation about the climate, which specifically deals with climate resilience and adaptation. We had our first workshop last year in Washington DC. People flew from all sides of Europe and the US, even from Hawaii. So, we underlined several resilience topics on which we will be working more on an expert level. We plan to do this cooperation in the next 1-2 years. With the COVID crisis, we don't meet in person for some time, but we want to continue once it is over.

Another participant stated: "Due to the Coronavirus outbreak, we already had a successful video call to facilitate a first 'get together.' The experience was quite positive, so this might also be a useful tool for further cooperation...."

The above challenges were not initially expressed in my Hypothesis 1. Thus, this hypothesis is partially confirmed. Indeed, finding a partner for cooperation and implementing specific actions because of financial resources availability could be challenges too. However, these challenges were expressed only in a couple of cases because partners are usually prepared for some financial costs if they decide to sign an agreement. Also, they have already found a partner for cooperation. Anyway, two participants mentioned such challenges: "...we need partners who speak the same languages – energy efficiency, district heating, offshore wind. If they don't speak the same languages, it's useless...." In this case, the participant talked about technical language and expertise to implement a specific project. In addition, a challenge regarding financial resources was highlighted about inactive agreements: "...we have many MoUs

that are inactive. Because if you have an official visit, you would like to advertise something, but maybe partners don't have resources for official visits, and then it just stays there inactive.”

On another side, my research results confirmed Hypothesis 2. The participants look at California–European bilateral cooperation as an opportunity to learn from each other; share knowledge and best practices; and contribute to achieving the goals of the Paris Agreement and the SDGs. For instance, one of the US participants stated about learning:

Europe is definitely ahead when it comes to urban sustainable mobility because we are so car-centric here. Italians might think that they are car-centric, but no. It was interesting to see tram infrastructure; we got to talk about how they power the trams and how that works. I was like oh my God, we are struggling to have our bus system work here. So, we have a lot to learn.

The European representative noted about the opportunity to share knowledge through new topics to achieve the Paris Agreement goals:

I would say despite the fact of our differences with the US when it comes to the Paris Agreement, we do continue looking into opportunities about topics that each of us consider important. Thus, such industry areas as offshore wind simply could not be disregarded...Another aspect is innovation, research, new technologies, and everything related to the energy transition. It has a lot of potential. In the US, there is a lot of business interest in renewable, transport battery cars – all new topics – emerging areas for cooperation.

The EU Green Deal was also considered as an opportunity for translateral cooperation: “There are other topics that drive agenda now because of the EU Green Deal...That opens some opportunities as well. Methane emissions, where we can be pragmatic in cooperation. Another topic is around raw materials for the energy transition....”

The access to international resources and networks during the UNFCCC Conference of Parties (COP) is also an opportunity for subnational actors: “We met many people during the COP. So, we do a lot of bilateral meetings there where we can see if it would be useful for us to work together, and we have common interests. So, a lot of relations started there....”

Subnational actors expressed that federal support would help them to align policies inside the country. However, without such support, they plan to continue informal transatlantic cooperation at their levels, having their climate policies in place and joint leadership and goals at the state and city levels to achieve emissions reduction targets.

Additionally, partners look at bilateral cooperation as an opportunity to create a model for others in energy efficiency, renewable energy, sustainable transport, resilience to climate change, sustainable use of land and nature-based solutions, urban innovation, and the circular economy.

To sum up, I would like to conclude this chapter with a quote from an interview with Artur Runge-Metzger, Director of DG Climate Action at the European Commission: “Not challenges, but also opportunities to look at every bilateral cooperation in view of accomplishment of objectives of the Paris Agreement.”

4.5 Impact of Bilateral and Multilateral Cooperation on Each Other

Research Question 4: How does bilateral cooperation impact multilateral negotiation and vice versa?

For this question, I consider Smith's bi-multilateral framework discussed in Chapter 2 and propose two hypotheses.

H1: Bilateral cooperation can intensify multilateral negotiations by bringing subnational positions to the international arena.

H2: Multilateral negotiation could be a meeting platform for actors to start bilateral cooperation.

To answer this research question, I asked the respondents why they participate in both bilateral and multilateral negotiations, and how bilateral and multilateral cooperation impact each other. All participants stated that bilateral cooperation complements multilateral cooperation. Also, participants' responses confirmed my two hypotheses. First, bilateral cooperation, indeed, intensifies multilateral negotiations by allowing voices of subnational actors to be heard at the international level.

For instance, one interviewee said: "...anyhow bilateral cooperation is always important in the international negotiations. Before we go to any negotiations at the multilateral stage, we reached out bilaterally to different partners basically to prepare the conversation on bilateral basis before we actually enter into the multilateral conversation."

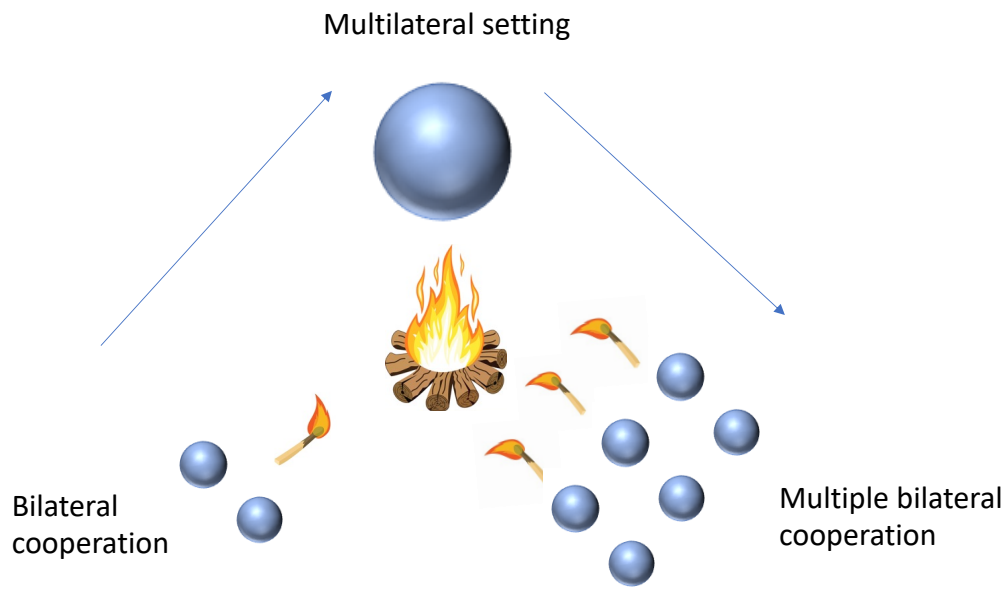
Other participants stated: "...bilateral agreement is a tool to increase global ambitions and strengthen the international dialogue on climate and environmental issues, including the Paris Agreement commitments..." and "...bilateral agreements can be

useful to foster dialogue on specific topics of interest to both parties as well as strengthen implementation of multilateral agreements....”

At the same time, multilateral negotiation could be a platform to meet other actors and start bilateral cooperation. For example, the US representative explained it in this way: “...multilateral cooperation offers opportunities to find matching topics and partners for bilateral... As subnational actors, we are always dependent on measures taken at higher levels. For actions to go in the direction we want, we often need a number of partners to make our voices heard. This is also one the reasons why we want to intensify commitments within the Under2 Coalition.” Other representatives highlighted: “...multilateral trigger bilateral cooperation, it’s a part of this....” and “...bilateral could be a start for standards that later can become multilateral....”

Therefore, one of the findings to emerge from this research is the discovery of an interesting phenomenon that I call the “bi-soft effect” in international relations. “Bi” means bilateral cooperation at any level of governance, which may include state and non-state actors. “Soft” implies the mode of this cooperation based on the soft-law (non-legally binding) instrument, which is a bilateral informal agreement. “Effect” means the reciprocal impact of bilateral cooperation on the multilateral setting, and vice versa. In other words, bilateral informal cooperation is a match that sparks a multilateral fire. In its turn, this multilateral fire provides light for multiple bilateral cooperation (Figure 4.10).

Figure 4.10 “Bi-Soft Effect” in Global Climate Governance



The Under2 Coalition initiative demonstrates the phenomenon of the “bi-soft effect.” This coalition started from the bilateral informal partnership between California and Baden-Württemberg by signing the Global Climate Leadership MoU (Appendix H) and the establishment of the Under2 Coalition multilateral platform. In its turn, this multilateral setting provided an opportunity for multiple bilateral cooperation through various types of informal agreements (MoU, Letter of Intent, Letter of Cooperation, Joint Declaration, and Working Agreement). Almost each bilateral informal agreement analyzed in my research mentioned leadership and commitments within Under2 Coalition.

Therefore, considering the above, international relations and international law disciplines must be revised to take into account the “bi-soft effect.” The conventional

international relations discipline should apply a concept of bilateral relations not only to sovereign states but also to transnational non-state actors. International law should pay attention to the informal bilateral agreements signed between transnational actors and recognize a typology of these agreements proposed in Chapter 4.3.

I would like to conclude this chapter with a quote from an interview with Dagmara Koska, Counselor on Climate and Energy at the Delegation of the EU to the United States: “By aligning positions in the bilateral and presenting them into the multilateral format, we basically increase our firepower and our convincing power.”

Chapter 5. Conclusion

As discussed in Chapter 2.1, the literature emphasizes the key differences between two climate regimes. First, the Paris Agreement applies a bottom-up approach with country-driven voluntary actions instead of top-down legally binding commitments under the Kyoto Protocol (Aldy & Stavins, 2009; van der Gaast, 2017; Buchholz et al., 2018). Second, the Paris Agreement promotes voluntary emissions reduction activity through the Nationally Determined Contributions (NDCs) from both developed and developing nations, while the Kyoto Protocol only obligated the developed states to reduce GHG emissions. Third, the Paris Agreement introduces the system of measuring, reporting and verification (MRV) that allows reviewing the pledges (NDCs) every five years regarding emissions scenarios that countries have (Sweet, 2016). Finally, the Paris Agreement modifies and adds to “common but differentiated responsibilities” the phrase “...and respective capabilities, in the light of different national circumstances”, and allows countries to use voluntary market and non-market-based cooperative initiatives to reduce GHG emissions reduction. Also, the UNFCCC Secretariat recognized the importance and involvement of subnational non-state actors by launching a global climate action portal called the Partnerships for the Non-State Actor Zone for Climate Action (NAZCA).

The complex and cross-cutting nature of the climate change problem, together with fragmentation, lack of coordination, and escalation of non-state actors in a state-centric system, pose significant obstacles to successful global climate governance.

However, these obstacles and lessons learned from the Kyoto regime gave each country

and the global community opportunities to influence the current international system and adjust their policy options to identify innovative solutions suitable for all parties.

Notably, a fragmentation obstacle provides an opportunity for multiple bilateral cooperation between state and transnational non-state actors, especially in the transformation from the Kyoto regime to Paris. A lack of coordination during the Kyoto regime provided an opportunity for intensive cooperation through bilateral informal agreements in the post-Kyoto period. Moreover, the escalation of non-state actors in a state-centric system created an opportunity for the vital role-playing of subnational actors. States are no longer the only actors in global climate governance, and subnational stakeholders have begun to occupy the international arena of climate negotiations and collaborate across borders.

Cooperation on climate change between the EU and the US deserves special attention from the perspectives of international relations and international law disciplines. This research shows that traditional international relations theory should apply a concept of bilateral relations not only to sovereign states but also to transnational non-state actors. International law theory should concentrate its attention not only on the analysis of international legally-binding agreements between states but also on informal bilateral agreements between state and transnational actors. Finally, transnational governance theory should not ignore *bilateral cooperation between state and transnational actors in the diagonal dimension of interaction*, one of the more significant findings to emerge from my research. The term *bilateral cooperation* is historically reserved for cooperation between states as unitary actors. Thus, *this dissertation has introduced and defined a new term for the diagonal dimension of interactions called translateral cooperation.*

The analysis of translateral cooperation between US states and European countries shows that national and subnational actors cooperate through eight types of agreements. The non-binding nature of these agreements allows subnational actors to protect themselves from legal disputes under national law and regulations. The phrase “non-binding agreement” is included in the text of any bilateral informal agreement. Simultaneously, subnational actors find a way to cooperate more effectively at different levels of governance if they do not have support for their actions at the federal or national level.

The Interview results clearly show that US and European public actors at the national and subnational levels are convinced that bilateral informal cooperation in multilateral settings is essential. Cooperating bilaterally at all levels of climate governance provides an opportunity to understand transatlantic partners’ preferences, motives, and policies, to meet challenges together, to find solutions, and to strengthen power, position, and voice during multilateral climate negotiations. Moreover, bilateral informal cooperation is a way to follow up on issues raised on a multilateral platform, thereby complementing multilateral negotiations.

Paradoxically, the US federal government’s historic inaction created a legal space that allowed many US states and cities to adopt climate laws and policies that support the Paris Agreement’s goals and emissions reduction targets even without federal engagement. California is one of the examples of state leadership in developing and implementing climate regulations. Today, this state has 71 active informal bilateral agreements with other countries on climate and energy cooperation, 21 of which are with Europe. Eight other US states signed fifteen agreements with European countries.

In summary, the results of my research provide important insights into understanding key reasons for the growth of translateral cooperation. First, ending the Kyoto regime with legally-binding obligations provided a space for national and subnational actors to explore various forms of informal cooperation giving uncertainty about reaching a new multilateral treaty. Second, lessons learned from the Kyoto Protocol showed that a top-down approach with legally-binding targets for states did not work effectively, and that subnational actors could play an essential role in achieving emissions reduction targets through their informal non-legally binding cooperation and participation in the international climate negotiations. Third, the adoption of the Paris Agreement in 2015 with its bottom-up approach, new norms, and rules gave a green light for the involvement of subnational actors in international climate activities based on the soft-law instruments. Finally, scientific evidence on climate change and the announcement by President Trump to withdraw from the Paris Agreement in 2017 allowed subnational actors to bring their voices to the international negotiations and accelerate transatlantic climate actions.

Therefore, using regime theory, legal theory, cooperation, and decision-making theories as foundations, I proposed a new theory - translateral cooperation theory, which covers the relationship between national and subnational actors. I also introduced a typology of translateral agreements and demonstrated a 'bi-soft' effect in international relations.

The EU and China will likely remain key partners for the US in translateral cooperation in coming years. Furthermore, it seems likely that translateral agreements will continue to increase for the foreseeable future. There are several reasons for this.

First, newly elected President Biden supports climate and energy cooperation at the national level by returning the US to the Paris Agreement. Second, adopting the Paris Rulebook on Article 6 provides an opening for international, regional, and national carbon markets and linking the emission trading schemes (ETS) among different stakeholders. Thus, ETSs could become a new area of translateral cooperation between the US (e.g., California) and European countries, which have already established cap-and-trade systems, and China, which plans to activate its ETS. However, it could also bring a challenge to the Paris Agreement. One of the interviewees expressed the view regarding ETS in the following way: “You probably have heard about negotiations under Article 6 that deal with the carbon market. That can be a case where one can say if we adopt certain rules or principles under the Paris Agreement when it comes to carbon markets, bilateral arrangements have to adhere to the principles of the Paris Agreement. So, there is an issue of accountability. If we go to engage those, then there are responsibilities for those parties taking such bilateral agreements. That’s why it’s important to have progress when it comes to Article 6 to avoid the situation when there can be certain bilateral agreements that can challenge the Paris Agreement.”

Considering the above, it is crucial to recognize translateral cooperation as a new theory and adopt a typology of translateral agreements. In this case, each US individual state and country will be able to create a database of translateral agreements and make emissions reduction contributions to the NDCs. Such an approach will cover accountability issues.

Lastly, the European Green Deal, carbon border adjustment mechanism, the establishment of an office of subnational diplomacy within the US Department of State,

and the EU office on transatlantic technological cooperation in San Francisco, California, as well as announcements by several nations to achieve climate neutrality will change the rules of the game for international activities and will open up yet more possibilities for translateral cooperation among national and subnational actors.

Finally, I want to recognize that this research has several limitations. First, *the sample size* for the interview process includes only 11 practitioners, which limited the diversity of standpoints about the research phenomenon. Although selected professionals represent different levels of climate governance (supranational, national, and subnational), a larger sample size would give an opportunity to cover and study climate policy and bilateral cooperation with the EU in different US states (not only California). However, California was purposely chosen as a long-term US leader on climate change and the participant in many international initiatives on GHG emissions reduction. Curiosity about other US states and mapping bilateral agreements appeared after the analysis of the California case study. Further detailed research is needed to study the specifics of bilateral cooperation on climate change between other US states and foreign countries.

The second limitation relates to *personal biases*. My experience as a practitioner on climate change policy and as a participant in this research project may bias how I gathered and interpreted the data. As a practitioner, I have access to information and contacts that other researchers may not have. I believe that representing myself as an ex-government official involved in the climate change negotiation process created an opportunity to build trust and understanding during the interview process and provide insights that other researchers may not have to contribute. At the same time, I am aware

that such a relationship could impact the individual's responses and my assumptions about this study. To address these biases, I used the validation process in Chapter 3 and allowed participants to confirm or reject my interpretation of their experience and responses. Also, asking participants open-ended questions during the interview process allowed them to express and elaborate on their views based on their own experiences.

The third limitation relates to *time constraints and resources*. Limited time for doctoral research allowed focusing only on the US-EU case study and limited data collection about bilateral informal agreements from all 50 US states and EU countries. In some cases, it took several months before receiving requested information from government officials and to organize interviews because of their busy schedules and bureaucratic procedures. Also, in many cases, government agencies are aware of bilateral agreements only in their own organizations. Therefore, there is a lack of coordination and information sharing between different agencies. For instance, the Governor's Office is not aware of international cooperation and signed agreements with the Department of Energy or Department of Transportation in the same US state. Thus, more time is needed to acquire detailed information associated with the research phenomenon from different state agencies. However, even so, a response rate of 72% was obtained from the EU countries regarding existing bilateral agreements, and 58% was received from the US states.

Considering the above limitations, further research is needed to analyze profoundly and cover the existing translateral agreements in each US individual state. Also, the potential for translateral cooperation research and signed agreements on climate

change is laid down in cooperation between the US individual states and other leading GHG emitters such as China and India.

To conclude this Chapter, I want to return to John Kerry's quote at the beginning of Chapter 1. I believe that the concept of translateral cooperation and the introduced typology of translateral agreements should be used as a "...tool we have to get where we have to go."

I also believe that my work can contribute to the development of translateral agreements to address not only the climate change problem but also other environmental challenges (e.g., air and water pollution, waste recycling, etc.).

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Appendix A: Bi-Multilateral Framework for Analysing the EU-US Relations

According to Smith (2005), the six features of bi-multilateral negotiation process include:

- occasions (why negotiate, and why negotiate on a given subject at a given time?)
- contexts (what are the constraints and opportunities built into the negotiation context, including institutional, resource, cultural and other features?)
- participants (who participates, what assumptions are made about agency?)
- agendas (what are the negotiations about, how are agendas set and changed?)
- strategies (how do participants make choices, how do they communicate, how do they conceive of the negotiation process, what goals do they set?)
- outcomes (what formal agreements result, what informal outcomes in the shape of learning or understanding implemented?)

The key research questions to which EU-US negotiations give rise:

- What influence do EU–US bilateral negotiations have on the occurrence of key multilateral negotiations, and on the willingness of the EU and the US to commit to those negotiations? Conversely, what influence do processes of multilateral negotiation have on the occurrence of EU–US bilateral negotiations, and on the willingness of the EU and the US to commit to those negotiations?
- What influence do EU–US bilateral negotiations have on their participation in multilateral negotiations and on their aims in those negotiations? Conversely, what influence do multilateral negotiations involving the EU and the US have on their participation in bilateral negotiations, and on their aims in those negotiations?

- Do EU–US bilateral negotiations increase agenda complexity in multilateral negotiations, or do they reduce that complexity? Conversely, does EU and US involvement in multilateral negotiations increase agenda complexity in their bilateral negotiations, or do they reduce it?
- Do EU–US bilateral negotiations facilitate coalition management in multilateral negotiations or act as an obstacle to it? Conversely, does EU and US involvement in multilateral negotiations involving coalition management increase or reduce their capacity to undertake bilateral negotiations?
- Do EU–US bilateral negotiations facilitate leadership and consensus building in multilateral negotiations, or do they make it more difficult? Conversely, does EU and US involvement in multilateral negotiations involving leadership and consensus building facilitate or make more difficult their capacity to engage in bilateral negotiations?
- Do EU–US bilateral negotiations facilitate outcomes for multilateral negotiations, or are they a barrier to agreement? Conversely, does EU and US involvement in multilateral negotiations facilitate outcomes in their bilateral negotiations, or is it a barrier to bilateral agreement?
- Can the EU and US involvement in bilateral negotiations act as a management device, a displacement device or an incentive to agreement in the multilateral arena? Conversely, does EU and US involvement in multilateral negotiations act as a management device, a displacement device or an incentive to agreement in bilateral negotiations?

Appendix B: The Bill to Establish an Office of Subnational Diplomacy

116th CONGRESS
2d Session
S. 4426

To establish an Office of Subnational Diplomacy within the Department of State, and for other purposes.

IN THE SENATE OF THE UNITED STATES
August 4, 2020

Mr. Murphy (for himself and Mr. Perdue) introduced the following bill; which was read twice and referred to the Committee on Foreign Relations

A BILL

To establish an Office of Subnational Diplomacy within the Department of State, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the “City and State Diplomacy Act”.

SEC. 2. FINDINGS.

Congress finds the following:

The supremacy clause of the United States Constitution (article VI, clause 2) establishes that the Federal Government has the primary role in conducting diplomacy on behalf of the United States; in turn, the Department of State, which was created pursuant to statute by Congress in 1789, has the lead role in formulating and implementing United States foreign policy.

(2) The growth of subnational cooperation has enabled States, counties, and municipalities to play an increasingly significant role in foreign policy and complement the efforts of the Department of State by—

supporting exchanges and cooperation agreements between elected leaders and officials of State, county, and municipal governments and those of international cities, regions, and countries;

(B) promoting United States exports to foreign markets and foreign direct investment into the United States; and

I sharing best practices and striking agreements with foreign counterparts on a wide range of topics, including facilitating trade and investment, protecting the health and safety of their respective citizens, cooperating on energy and the environment, and promoting people-to-people exchanges.

(3) Global networks made up exclusively of local government officials are at the forefront of harnessing the power of cities to advance international cooperation.

(4) In 2010, the Department of State appointed the first-ever Special Representative for Global Intergovernmental Affairs, who led efforts to build strategic peer-to-peer relationships between the Department of State, State and local officials, and their foreign counterparts.

SEC. 3. SENSE OF CONGRESS.

It is the sense of Congress that it is in the interest of the United States to promote subnational engagements, align such engagements with national foreign policy objectives, and leverage Federal resources to enhance the impact of such engagements.

SEC. 4. ESTABLISHMENT OF THE OFFICE OF SUBNATIONAL DIPLOMACY.

Section 1 of the State Department Basic Authorities Act of 1956 (22 U.S.C. 2651a) is amended by adding at the end the following new subsection:

“(h) Office Of Subnational Diplomacy.—

“(1) IN GENERAL.—There shall be established within the Department of State an Office of Subnational Diplomacy (in this subsection referred to as the ‘Office’).

“(2) HEAD OF OFFICE.—The head of the Office shall be the Ambassador-at-Large for Subnational Diplomacy (in this subsection referred to as the ‘Ambassador’). The Ambassador shall—

“(A) be appointed by the President, by and with the advice and consent of the Senate; and

“(B) report directly to the Under Secretary for Political Affairs.

“(3) DUTIES.—

“(A) PRINCIPAL DUTY.—The principal duty of the Ambassador shall be the overall supervision (including policy oversight of resources) of Federal support for subnational

engagements by State, county, and municipal governments with foreign governments. The Ambassador shall be the principal adviser to the Secretary of State on subnational engagements and the principal official on such matters within the senior management of the Department of State.

“(B) ADDITIONAL DUTIES.—The additional duties of the Ambassador shall include the following:

“(i) Coordinating overall United States policy and programs in support of subnational engagements by State and municipal governments with foreign governments, including with respect to the following activities:

“(I) Coordinating resources across the Department of State and throughout the Federal Government in support of such engagements.

“(II) Identifying policy, program, and funding disputes among relevant Federal agencies regarding such coordination.

“(III) Identifying gaps in Federal support for such engagements and developing corresponding policy or programmatic changes to address such gaps.

“(ii) Promoting United States foreign policy goals through support for subnational engagements and aligning subnational priorities with national foreign policy goals, as appropriate.

“(iii) Maintaining a public database of subnational engagements.

“(iv) Providing advisory support to subnational engagements, including by assisting State, county, and municipal governments to—

“(I) develop, implement, and, as necessary, adjust global engagement and public diplomacy strategies, particularly for States and cities with limited international outreach staff;

“(II) implement programs to cooperate with foreign governments on policy priorities or managing shared resources; and

“(III) understand the implications of foreign policy developments or policy changes through regular and extraordinary briefings.

“(v) Facilitating linkages and networks between State and municipal governments and their foreign counterparts, including leveraging of State and municipal government expertise in United States foreign assistance programming.

“(vi) Overseeing the work of Department of State detailees assigned to State and municipal governments pursuant to this subsection.

“(vii) Negotiating agreements and memoranda of understanding with foreign governments to support subnational engagements and priorities.

“(viii) Promoting United States trade and foreign exports on behalf of United States businesses through exchanges between the United States and foreign state, municipal, and provincial governments, developing resource lists for subnational actors’ international outreach, creating a platform for subnational actors and small and medium businesses to request support or submit feedback, and by establishing a more enduring relationship overall between subnational governments.

“(ix) Promoting public health and public safety areas like road safety, through exchanges between the United States and foreign state, municipal, and provincial governments, conferences to capture best practices and assure future planning, and by establishing enduring relationship between subnational governments.

“(x) Coordinating subnational engagements with the associations of subnational elected leaders, including the United States Conference of Mayors, National Governors Association, National League of Cities, National Association of Counties, Council of State Governments, National Conference of State Legislators, and State International Development Offices.

“(4) STATE, COUNTY, AND MUNICIPAL FELLOWS PROGRAM.—

“(A) IN GENERAL.—Under the Fellowship Program, the Secretary of State, acting through the Ambassador, is authorized to detail no fewer than 30 total Foreign Service officers and members of the civil service each year to State, county, and municipal governments on a reimbursable or nonreimbursable basis. Such details shall be for a period not to exceed two years, and shall be without interruption or loss of Foreign Service or civil service status or privilege.

“(B) RESPONSIBILITIES.—Detailees under subparagraph (A) shall carry out the following duties:

“(i) Supporting the mission and objectives of the Office.

“(ii) Coordinating activities relating to State and municipal government subnational engagements with the Department of State, including the Office, Department leadership, and regional and functional bureaus of the Department, as appropriate.

“(iii) Engaging the Department of State and other Federal agencies regarding security, public health, trade promotion, and other programs executed at the State or municipal government level.

“(iv) Advising State and municipal government officials regarding questions of global affairs, foreign policy, cooperative agreements, and public diplomacy.

“(v) Any other duties requested by State and municipal governments and approved by the Office.

“(5) REPORT AND BRIEFING.—

“(A) REPORT.—Not later than one year after the date of the enactment of this subsection, the Ambassador shall submit to the Committee on Foreign Relations of the Senate and the Committee on Foreign Affairs of the House of Representatives a report that includes information relating to the following matters:

“(i) The staffing plan (including permanent and temporary staff) for the Office.

“(ii) The funding level provided to the Office for the Office, together with a justification relating to such level.

“(iii) The status of filling the position of Ambassador-at-Large for Subnational Diplomacy.

“(iv) A strategic plan for the Office, including—

“(I) how to better integrate United States cities, counties, and States into United States foreign policy, such as through the provision of trainers;

“(II) how partnerships with subnational entities can enhance citizen involvement in the foreign policy making process; and

“(III) how partnerships can be used to increase public understanding and awareness of United States diplomatic efforts.

“(v) A plan for better targeting foreign subnational governments through State and United States Agency for International Development foreign assistance and diplomatic engagement, including an assessment of existing efforts and best practices, recommendations for expansion and new initiatives to better leverage subnational governments to improve United States foreign policy effectiveness including public diplomacy, and emphasizing governance and public health.

“(vi) Any other matters as determined relevant by the Ambassador.

“(B) BRIEFINGS.—Not later than 30 days after the submission of the report required under subparagraph (A), and annually thereafter, the Ambassador shall brief the Committee on Foreign Relations of the Senate and the Committee on Foreign Affairs of

the House of Representatives on the work of the Office and any changes made to the organizational structure or funding of the Office.

“(6) DEFINITIONS.—In this subsection:

“(A) MUNICIPAL.—The term ‘municipal’ means, with respect to the government of a municipality, a municipality with a population of not fewer than 100,000 people.

“(B) STATE.—The term ‘State’ means the 50 States, the District of Columbia, and any territory or possession of the United States.

“(I) SUBNATIONAL ENGAGEMENT.—The term ‘subnational engagement’ means formal meetings or events between elected officials of State or municipal governments and their foreign counterparts.”.

Appendix C: List of California–Europe Bilateral Agreements⁶³

EU Country	Name of Agreement	Year of Signature
Austria	Memorandum of Understanding regarding Cooperation in the field of Environmental Protection between the Ministry of Agriculture, Forestry, Environment and Water Management of Austria and the Secretary of Environmental Protection and Secretary of Resources of the State of California	2008
Denmark	Memorandum of Understanding between Ministry of Food, Agriculture and Fisheries of Denmark and the California Department of Food and Agriculture of the State of California of the United States of America	2021
	Continuation and Renewal of Memorandum of Understanding on the Development of Offshore Wind between the Government of Denmark and the California Energy Commission	2020
	Memorandum of Understanding for Strengthening Cooperation on Energy Efficiency Policies and Practices between the Kingdom of Denmark and the California Energy Commission of the State of California	2019
	Memorandum of Understanding between the Government of Denmark and the California Energy Commission	2018
	Memorandum of Understanding between the Government of the Kingdom of Denmark and the Government of California to Strengthen Cooperation on Water Issues	2017
France	Joint Declaration to Support Sustainable Economic Development, and the Exchange and Application of Mutually Beneficial Sustainable Urban Infrastructure, water Management, Biodiversity, Transportation, Applied Science, Energy and Climate Change Technologies and Policies between the State of California of the United States of America and the Government of the French Republic	2015

⁶³ California Intergovernmental Climate Action Team (ICAT). Through the ICAT partnership, California works with international partners on developing climate actions <https://www.energy.ca.gov/about/campaigns/international-cooperation/climate-change-partnerships> (accessed on December 8, 2022)

Germany	Joint Statement on Climate Action between German Federal Minister for the Environment, Nature Conservation, Building and Nuclear Safety and Governor of California	2017
Germany (Baden Württemberg)	Memorandum of Understanding to Establish a Partnership between the State of California, United States of America and the Land Baden-Württemberg, Federal Republic of Germany	2018
Netherlands	Letter of Intent between the State of California, the United States of America and the Kingdom of the Netherlands on Sustainable Mobility, Circular Economy, Climate change and Resiliency (Ministry of Infrastructure and Water Management of the Netherlands)	2019
	Letter of Intent between the State of California, and the Government of the Kingdom of the Netherlands (Ministry of Economic Affairs of the Netherlands)	2017
	Letter of Intent on Environmental Cooperation between the Environmental Protection Agency of the State of California, and the Ministry of Infrastructure and the Environment of the Kingdom of the Netherlands	2017
	Working Agreement (GHG reduction and sustainable energy generation, Province Noord-Holland, Netherlands)	2015
Norway*	Memorandum of Understanding between Innovation Norway and the Governor's Office of Business Economic Development of the State of California of the United States of America	2021
	Declaration of Intent between the Ministry of Climate and Environment Norway and California Environmental Protection Agency	2021
	Declaration of Intent between the Ministry of Climate and Environment Norway and California Environmental Protection Agency	2017
Spain (Catalonia)	Memorandum of Understanding between the State of California (USA) and Catalonia (Spain) (economic and trade cooperation, clean and sustainable mobility, water resource management, environmental protection, agriculture and food technologies)	2015
Sweden	Letter of Cooperation between the Ministry of Environment and Energy of the Kingdom of Sweden and the State of California on Cooperation in the Field of Climate Change	2017
Scotland*	Memorandum of Understanding between Historic Environment Scotland and California State Office of Historic Preservation	2019

	Memorandum of Understanding between the Government of Scotland and the California Energy Commission	2018
	Letter of Cooperation between the Government of California Founder of the Under2 MOU and the Government of Scotland on Ambitious Actions on Climate Change and the Low Carbon Economy	2017

* Norway and Scotland are not members of the European Union

List of Other US States–Europe Bilateral Agreements⁶⁴

US State	European Country	Name of Agreement	Year of Signature
Kentucky	Netherlands	Collaboration Agreement on Agricultural Technology Ecosystem	2020
Maine	Finland	Memorandum of Understanding concerning Cooperation in Forestry between the Ministry of Agriculture and Forestry of Finland and Maine Department of Agriculture, Conservation and Forestry	2019
Maine	Iceland	Memorandum of Understanding (environmental security, energy, transport, economic development)	2014
Michigan	Finland	Memorandum of Understanding between the Ministry of Economic Affairs and Employment of Finland and the State of Michigan concerning Cooperation on Clean Technology	2020
Michigan	United Kingdom	Memorandum of Understanding regarding the Transport Industries of Michigan and the United Kingdom of Great Britain and Northern Ireland	2018
Minnesota	Germany (North-Rhine Westphalia)	Joint Declaration of Intent on Environmental Protection, Sustainable Development and Climate Adaptation	2020
Minnesota	Germany (North-Rhine Westphalia)	Joint Declaration (energy)	2018
Minnesota	Germany (North-Rhine Westphalia)	Cooperation Agreement (renewable energy and energy efficiency)	2013
New Jersey	Denmark	Memorandum of Understanding between New Jersey and Danish Energy Agency on Offshore Wind	2020

⁶⁴ Requests about existing bilateral informal agreements were sent to 50 US states in May-July 2021. By the end of December 2021 with a response rate of 58%, a total of fifteen agreements were reported.

New York	Denmark	Memorandum of Understanding between New York State Energy Research and Development Authority and Danish Energy Agency on Offshore Wind	2018
Virginia	Germany (federal)	Joint Declaration to Support the Exchange and Application of Mutually Beneficial Sustainable Energy and Climate Change Policies (Transatlantic Climate Bridge)	2009
Washington	United Kingdom	Joint Declaration between the State of Washington and the Department of Energy and Climate Change Concerning Strengthening Co-operation on Low Carbon Policies	2013
Washington DC	Denmark	Memorandum of Cooperation between The Washington DC Department of Energy & Environment and The Danish Ministry for Energy, Utilities and Climate, the Danish Energy Agency	2017
Washington DC	Denmark	Memorandum of Cooperation between The Washington DC Department of Energy & Environment and The Danish Ministry for Energy, Utilities and Climate, the Danish Energy Agency	2020
Washington DC	Denmark	Memorandum of Cooperation between The District of Columbia Department of Energy and Environment and the City of Copenhagen, Technical and Environmental Administration and District of Columbia Water and Sewer Authority	2016

Appendix D: Letter of Request for Bilateral Agreements

Dear [Name of the Participant],

My name is Nataliya Stranadko. I am a Ph.D. Candidate in Public Affairs and Policy at the Hatfield School of Government, Portland State University, Oregon.

I am conducting research on US-EU bilateral cooperation in the environment, climate, and energy areas. The purpose of this research is to explore the nature of bilateral informal cooperation at the level of US individual states and European countries to understand the role of soft law (non-binding agreements) in complementing and strengthen transatlantic relations.

The part of my research is creating a mapping of informal, non-binding bilateral agreements (memorandum of understanding, partnership agreement, letter of intent, etc.) between the EU member states and the individual US states on the environment, climate, and energy cooperation.

I would appreciate it if you can provide me with a list of existing bilateral informal agreements between [Name of the US State] and European countries in the area of environment, climate, and energy.

For my research, I need the following information:

1. Sector of cooperation (air, water, wastes, climate change, disaster risk management, energy, sustainability, etc.)
2. Agency/Signatory in [Name of the US State]
3. Agency/Signatory in Europe
4. Full name of bilateral informal agreement
5. Year of signing

Thank you so much for your cooperation and contribution to my research!

I am looking forward to hearing from you.

Sincerely,

Nataliya Stranadko
PhD Candidate in Public Affairs and Policy
Hatfield School of Government
Portland State University, Portland, OR, USA
Email: stran@pdx.edu

Appendix E: Interview Guide Questions (California example)

Part I: Introduction and Experience

- Would you so kind to introduce yourself (name, position, and job responsibilities)?
- How long have you been working at this position, and how did you develop this area of expertise?

Part II: Role of Bilateral and multilateral cooperation

- You manage intergovernmental climate and energy cooperation on the ground between California state and other countries, including EU member states and European countries. What does cooperation mean for you? How would you define successful cooperation?
- California is a state leader on climate actions and has signed bilateral and multilateral agreements with national and subnational actors. From your experience, what are the pro and cons of bilateral and multilateral cooperation? How do they affect each other?

Part III: Negotiation, Type and Implementation of Bilateral Agreements

- Can you tell me more about the Intergovernmental Climate Action Team initiative? When and why was established this climate change partnership? How do you choose national and subnational actors for partnership, particularly with Europe?
- California has 14 informal bilateral agreements with European countries (Denmark (3), France, Germany, Netherlands (4), Norway, Scotland (2), Spain, and Sweden). All these agreements are different in terms of legal form (MoU, letter of intent, working agreement). Why were different type of agreements signed with different countries? Are there any legal aspects that both partners prefer?
- How cooperation is going with European countries? What results were achieved or plan to be achieved? Would you share some challenges and opportunities within California-Europe cooperation on climate change and energy? How did you overcome these challenges?

Part IV: Bilateral Cooperation in Multilateral Settings

- Besides bilateral cooperation with foreign countries, California is also a part of the multilateral initiatives (e.g., Global Covenant of Mayors or Under 2 Coalition). Why does California have chosen to pursue both bilateral and multilateral initiatives?
- What would you say are the most important differences between bilateral and multilateral settings in terms of rules, norms, interactions, benefits, obligations, etc.?

Part V: Lessons Learned from the Kyoto & Challenges for the Paris Cooperation

- How do international agreements, such as the Paris Agreement and the Agenda 2030 (Sustainable Development Goals), influence California state to pursue, negotiate, and implement informal bilateral initiatives? What type of support would be useful for your state from the federal level (regulatory, institutional, technical, etc.)?
- In what way, informal bilateral initiatives can help to achieve the goals of the Paris agreement?
- What challenges does Paris pose to these bilateral agreements? What challenges to Paris do these bilateral agreements pose?

Part VI: Wrap-Up

Thank you for your participation in this interview and contribution to this research.

- Are there any other observations you would like to share? Are there any questions I didn't ask that you think are necessary to address?

Appendix F: List of Stakeholders for Interviews

Code	Stakeholders	Level	Number of Interviewees
001	European Commission, European External Action Service, Brussels	Supranational	1
002	Delegation of the EU to the United States, Washington, DC	Supranational	1
003-004	European Commission, DG Climate Action, Brussels	Supranational	2
005-006	Danish Energy Agency, Ministry of Climate, Energy, and Utilities, Copenhagen, Denmark	National	2
007	Ministry of Environment and Food, Copenhagen, Denmark	National	1
008	Ministry of Climate and Environment, Oslo, Norway	National	1
009	Ministry of Environment, Climate Protection, and the Energy Sector, Baden-Württemberg, Germany	Subnational (State)	1
010	California Environmental Protection Agency, Sacramento, California, US	Subnational (State)	1
011	Department of Environment & Conservation, Tennessee, US	Subnational (State)	1
Total			11

Appendix G: Examples of California-EU Bilateral Agreements

**LETTER OF COOPERATION
BETWEEN
THE MINISTRY OF THE ENVIRONMENT AND ENERGY
OF THE KINGDOM OF SWEDEN
AND
THE STATE OF CALIFORNIA
ON COOPERATION
IN THE FIELD OF CLIMATE CHANGE**

As recognized by the global community in the Paris Agreement, addressing climate change requires action by all countries at the national and sub-national level. With this in mind, Sweden and California have set ambitious climate and clean energy goals.

Sweden and California recognise the vital importance of leadership at all levels and support the Under2 Coalition – the ambitious commitment to bold and decisive climate action covering more than one billion people and one third of the global economy – as a key mechanism to guide deep, ambitious emission reductions to 2050.

Sweden and California furthermore recognise the value of existing initiatives aiming for radically reduced emissions from transportation, such as the Zero-Emission Vehicle Alliance. There is potential for Sweden and California to support, through this and other initiatives, the efforts of other state, regional and city signatories to share ideas and best practices on the reduction of greenhouse gases and to promote the development and expansion of renewable energy. In addition, Sweden and California recognise the pivotal role of research and innovation and will strive to further develop ongoing cooperation in these areas.

There has never been a greater need for international cooperation. In the coming years, Sweden and California will push for higher global ambitions on climate change through the UNFCCC and Under2 Coalition, and will work individually and together to link and align efforts between the two, as well as to draw more international attention to the actions and ambitious reduction goals that are needed. Furthermore, they will also support climate leaders at the national and sub-national level around the globe, including at key upcoming international climate and energy conferences and summits, in the run-up



to 2018 and beyond. Sweden and California will work to convey the outcomes of the 2018 Summit to other fora such as the UN General Assembly and the UNFCCC to ensure that the voices of non-state actors reach these important fora in the lead-up to COP24.

The cooperation between Sweden and California, as outlined in this letter, is a demonstration of the collective leadership and impact of commitments across states, regions, cities, and countries to combat climate change.

Sweden and California will explore further ways to materialize the ambitions set out in this Letter of Cooperation.

Signed on 19 April 2017 in Sacramento, in English.



Minister for International Development
Cooperation and Climate, and Deputy
Prime Minister
Kingdom of Sweden



Governor
State of California



**MEMORANDUM OF UNDERSTANDING
BETWEEN
THE GOVERNMENT OF SCOTLAND AND THE CALIFORNIA ENERGY
COMMISSION
hereby jointly referred to as “the Participants”**

WHEREAS,
Climate change represents an urgent and potentially irreversible threat to human societies, particularly the poor and vulnerable, as well as to the environment and our global economy;

WHEREAS,
Scotland and California have both committed to fighting climate change at the subnational level as part of the Under2 Coalition. The Coalition was formed in 2015 by the states of California and Baden-Württemberg, Germany to mobilize and galvanize bold climate action from like-minded city, state and regional governments around the globe. Coalition members pledge to limit greenhouse gas emissions to 2 tons per capita or 80 to 95 percent below 1990 levels by 2050. Scotland signed the Under2 MOU in July 2015;

WHEREAS,
The Government of California and Government of Scotland entered into a Letter of Cooperation on Ambitious Action on Climate Change and the Low Carbon Economy in April of 2017. The Letter of Cooperation supports the efforts of the Under2 MOU and both governments agreed to share ideas and best practices to reduce greenhouse gases, expand renewable energy development, plan for de-carbonization; and raise international attention on the action and ambitious reduction goals of climate leaders at a subnational level around the globe;

WHEREAS,
Scotland has experience and history in developing offshore wind energy facilities and California is exploring the feasibility, potential impacts, and appropriate locations of, and for, wind facilities offshore the California Coast;

NOW THEREFORE, the Participants have reached the following understanding:

SECTION 1. OBJECTIVE

The objective of this Memorandum of Understanding is to fulfill the tenets of the Letter of Cooperation and to share knowledge, experiences, data, and best practices relevant to the development of offshore wind energy.

SECTION 2. AREAS OF COOPERATION

The Participants intend to cooperate on the following priority areas:

1. Constraints and challenges of permitting and constructing offshore wind energy facilities;
2. Environmental challenges associated with offshore wind energy facilities;

3. Best practices, regulatory approaches and scientific models with regard to protection of the environment, including, but not limited to, the effects of offshore wind energy facilities on fish, marine mammals, migratory birds and cultural resources;
4. Impacts to commercial and recreation fishing industries from offshore wind energy facilities;
5. Sharing data and information on mitigation measures implemented for wind projects offshore Scotland;
6. Knowledge transfer and sharing on a wide range of offshore wind energy issues including supply chain, off take, grid integration/interconnection to optimize offshore wind energy deployment and data on the benefits and impacts of offshore wind; and
7. Workforce development and port development requirements/management issues.

SECTION 3. FORMS OF COOPERATION

Forms of cooperation under this Memorandum of Understanding may include, but are not limited to, the following:

1. Exchange of data, information, and documentation;
2. Intergovernmental and international visits involving policy makers, regulators, academic institutions, and businesses; and
3. Joint organization of and participation in seminars, workshops, and meetings to share information and practices, and to educate key stakeholders, including stakeholders within the supply chain for offshore wind energy.

SECTION 4. THIRD PARTY PARTICIPATION

If the Participants deem it helpful or convenient, by common decision of the Participants, individuals and entities from the private, public, academic, research, and other sectors may be invited to support the cooperative activities described herein, provided that they can directly and meaningfully contribute to achievements of the objectives of this Memorandum of Understanding.

SECTION 5. FINANCIAL ARRANGEMENTS

Nothing in this Memorandum of Understanding represents a commitment of funds by either of the Participants.

SECTION 6. DISPUTE RESOLUTION

Any differences arising from implementation of this instrument shall be resolved in good faith, through consultations between the Participants.

SECTION 7. MODIFICATION PROCEDURE

This Memorandum of Understanding may be modified at any time by mutual written consent of the Participants.

SECTION 8. DURATION

Cooperation under this Memorandum of Understanding is effective upon signature by the Participants and approval of this Memorandum of Understanding at an Energy Commission business meeting. This Memorandum of Understanding shall be in effect for five (5) years from the date of business meeting approval and may be renewed thereafter by mutual agreement of the Participants. Either Participant may discontinue this Memorandum of Understanding through written communication to the other Participant. Discontinuation shall take effect thirty (30) calendar days following the date of notification and should not affect activities already under implementation.

SECTION 9. FINAL PROVISIONS

The Participants acknowledge that this Memorandum of Understanding is only intended to provide for cooperation between the Participants and does not create any legally binding rights or obligations. To the extent that any other provision of this Memorandum of Understanding is inconsistent with this paragraph, this paragraph shall prevail.

The Participants commit themselves in good faith to implement this Memorandum of Understanding to the fullest extent possible, subject to any changes in policy that they may adopt, and subject to the governing laws where the activities will be carried out.

For the Scottish Government

For the California Energy Commission



CHRIS STARK
Director of Energy & Climate Change
Directorate

KAREN DOUGLAS
Commissioner
California Energy Resources Conservation
and Development Commission

Signed on 15 January 2018
in Glasgow, Scotland

Signed on 12/21/17
in sacramento, California



Working Agreement

Whereas:

California and The Netherlands are leading the way for sustainable mobility and climate & energy innovation, in terms of Plug-In Electric Vehicles (PEVs), number of chargers, favorable policies and incentive programs, vehicle R&D and energy innovation, as well as education and public awareness, and

California is leading the way in the United States and The Netherlands in Europe and both are considered to be gateways to their respective continents, and

Both states have committed themselves to stringent climate change action programs to meet 2050 goals in terms of greenhouse gas reductions and sustainable energy generation,

And whereas:

Past research missions (e.g. NSOB 2009, 2010 and 2011), knowledge missions (e.g. Technical Universities in the US and The Netherlands) as well as trade missions (e.g. EVS26 in 2012, AltCar Expo 2013 & 2014, Stella goes USA 2014) have demonstrated the great willingness to cooperate and exchange expertise and experience, and

Interest by industry and private organizations have led to mutually beneficial investments and long term commitments (e.g. Tesla and ZERO in the Province of Noord-Holland, The Netherlands; PROOV and Spijkstaal in California), and

Interest by governments and universities have led to mutually beneficial exchange programs and long term commitments in 2013 and 2014 e.g., Governor's Office of Planning & Research (OPR) at the Province of Noord-Holland and MRA-Electric; Dutch Consulate General in California and OPR; but also, smart mobility research initiatives between the Province of Noord-Holland and CA organizations,

And whereas:

In 2013, Minister Mansveld of the Dutch Ministry of Infrastructure and Environment and Secretary Rodriguez of the California Environmental Protection Agency, signed a Letter of Intent on Environmental Cooperation regarding Sustainable Mobility and Climate & Energy, and

In 2013, The California Plug-In Electric Vehicle Collaborative and the Coast to Coast e-Mobility Connection agreed to a partnership to achieve tangible results to move the PEV market forward by working together on activities such as information sharing, project development and joint presentations at International Conferences,

The sustainable transportation and energy innovation must continue to meet the 2050 greenhouse gas and energy goals, and continued investments by government and the private sectors are necessary,



And whereas:

Commissioner Scott of the California Energy Commission visited the Netherlands in October 2014 and specifically met with Vice-Governor Post of the Province of Noord-Holland to exchange information, and

Commissioner Scott and Vice-Governor Post expressed mutual interest to develop a working agreement on sustainable transportation and energy innovation,

The California Energy Commission and the Province of Noord-Holland agree:

- 1) To exchange information on the following developments:
 - I. Integrating roadway infrastructure and solar energy (e.g. SolaRoad);
 - II. Public private partnership models for charging infrastructure (e.g. as applied by the Amsterdam Metropolitan Region);
 - III. Learning about ZEV infrastructure and vehicles (e.g. successful and economical installation of charging infrastructure in multi-unit dwellings, and what California is doing to engage local governments and stakeholders on ZEV topics);
 - IV. Zero emission public transportation (e.g. inductive charging, fuel cell, biofuel);
 - V. Autonomous connected e-vehicles (e.g. Connected Car in the Netherlands, Autonomous Health Care Car, Google Car);
 - VI. Smart mobility concepts (e.g. Amsterdam Practical Trial, Uber/Lyft, Public Transportation);
 - VII. Fast charging infrastructure (e.g. Concession Model, NRG settlement);
 - VIII. New related policy developments.
- 2) To start working together on the following tangible results/projects:
 1. Determine after two years of SolaRoad in the Netherlands if a demo project in California could be initiated;
 2. Organize exchange meetings (in-person or via web conference) between CA and PNH experts to learn about best practices and to develop case study briefs on the following topics: Public Private Partnership models for Charging Infrastructure, Fast Charging Infrastructure, and Engaging Local Stakeholders on ZEV Infrastructure and Vehicles;
 3. Organize a workshop during the planned Smart Mobility Mission to California (end of 2015) to learn about the interaction between ZEV and smart mobility concepts;
 4. A comparison study between CA and NL on role of the utilities in ZEV infrastructure deployment; the study will be executed by a Research Trainee sponsored by Coast to Coast e-Mobility.
 5. New related policy developments will be included in the annual report by Coast to Coast e-Mobility (see Article 4).



- 3) To assign the Coast to Coast e-Mobility program to be liaison between the California Energy Commission and the Province of Noord-Holland on these developments for at least three years (until end 2016 as part of the Government IB Program; if the Program is not extended the Consulate General intends to coordinate the last year), and
- 4) To require that the Coast to Coast e-Mobility program reports annually on the progress of the above and share the results with the e-Mobility community in California and The Netherlands.
- 5) That this Agreement does not create any legally binding obligations, and Agreement activities are governed by the law of the country in which the activity will be carried out.

Signed on March 11, 2015

Elisabeth Post
Vice Governor
Province of Noord-Holland

Janea A. Scott
Commissioner
California Energy Commission



Joint Declaration

To

*Support Sustainable Economic Development,
and the Exchange and Application of Mutually Beneficial
Sustainable Urban Infrastructure, Water Management, Biodiversity,
Transportation, Applied Science, Energy and Climate Change Technologies and
Policies*

between

The State of California of the United States of America

and

The Government of the French Republic

Joint Declaration

To

Support Sustainable Economic Development and the Exchange and Application of Mutually Beneficial Sustainable Urban Infrastructure, Water Management, Biodiversity, Transportation, Applied Science, Energy and Climate Change Technologies and Policies

Between

The Government of the French Republic

And

The State of California of the United States of America

This Joint Declaration is entered into by the Government of the French Republic ("France") and the State of California of the United States of America ("California").

WHEREAS, France and California are world-renowned for their natural beauty, as well as their rich agricultural lands and forests;

WHEREAS, these abundant natural resources have tremendous ecological value and provide numerous economic benefits;

WHEREAS, France and California are global leaders in the fields of communication and innovation, and home to internationally renowned urban centers, academic institutions, and hubs for advanced technology development;

WHEREAS, the impact of climate change imposes a grave danger to the natural resources in France and California, threatens human health and public safety, as well as agriculture and food security, and threatens economic prosperity;

WHEREAS, France and California face similar environmental challenges from the impact of climate change, including watershed management and supply, drought, flooding, wildfire, heat waves and coastal erosion;

WHEREAS France and California seek to enhance the development and commercialization of innovation through applied-research partnerships that build on the scientific and technical expertise of French and Californian advanced research institutions in the fields of Sustainable Urban Infrastructure, Water Management, Biodiversity, Transportation, Applied Science, and Energy and Climate Technologies and Policies;

1. PURPOSE

This joint declaration is being signed on the occasion and in the spirit of the COP21 international climate talks being held in Paris, France in December 2015, to promote cooperation on ambitious responses to climate change and related environmental issues, including Sustainable Urban Infrastructure, Water Management, Biodiversity, Transportation, Applied Science, Energy, and Climate Technologies.

2. AREAS OF COOPERATION

France and California agree to cooperate on these specific areas in consideration of the following premises and terms;

Climate change mitigation: France and California deem it necessary to escalate their response to the cause and consequences of climate change while supporting sustainable low carbon economic growth, including reporting of greenhouse gases emissions, developing carbon pricing systems and other market based instruments, promoting reductions of emissions from forest management, developing climate planning, promoting renewable energy, and cooperating to advance multilateral and subnational action on climate change. France acknowledges and endorses California's efforts to support subnational leadership on climate change through the Subnational Global Climate Leadership Memorandum of Understanding, known as the "Under2MOU," which seeks to limit global warming to 2°C or less in line with what a majority of scientists believe is necessary to avoid the most dangerous climate change impacts;

Carbon pricing: French President François Hollande and California Governor Edmund G. Brown Jr. are both members of the Carbon Pricing Panel, a group convened by World Bank Group President Jim Yong Kim and International Monetary Fund Managing Director Christine Lagarde to spur further, faster action on carbon pricing. France and California will work together to support efforts to impose a price on carbon;

Adaptation and resiliency: Climate change will subject areas across France and California to more intense and extreme weather events such as flooding and wildfires, and require new methods to adapt to changing conditions. To create opportunities that will strengthen and improve resiliency, France and California will work together to develop solutions that integrate applied science and result in collaboration with local and regional authorities and institutions of higher education through the sharing of successes and lessons learned;

Water management: France and California face challenges to their water resources, both in terms of quality and quantity. France and California will work together to share best practices on water resource management including agricultural supply, floodplain management and rising sea levels;

Transportation: France and California are global leaders in clean transportation technology and policy development, each specializing in specific areas of expertise including high-speed rail, zero emission vehicles and the supporting infrastructure, public transit, and coordination between transportation and land use planning. In addition, California is a founding participant of the International Zero Emission Vehicle Alliance (ZEV Alliance), a collaboration of world-leading jurisdictions taking action to accelerate the adoption of ZEVs. France and California will work together on local and regional transportation technologies and policies to advance electrification of the transportation sector;

Clean energy: France and California provide models of integrated and sustainable energy systems. France and California will share information on encouraging the development and deployment of renewable energy, as well as energy storage, smart grid solutions, and energy efficiency technologies and policies at the metropolitan and State level;

Sustainable building and cities: France and California are home to world-recognized energy efficient and sustainably built cities. France and California will work together to develop scientific cooperation, innovative multi-benefit projects, and new financial models in the design of building codes, energy efficiency, transit planning and other factors that lead to a sustainable metropolitan area;

Development of solutions at the regional and local level: France and California are home to world-class centers of innovation and institutions of higher education. France and California recognize that bilateral cooperation relies on outcome-oriented local and regional cooperation for effective climate change mitigation and adaptation. France and California will work together to establish project-specific applied research programs around smart growth, sustainable urban infrastructure technology and policy development, and to create stronger ties between local and regional authorities to promote mutually beneficial exchanges;

3. FORMS OF COOPERATION

BE IT NOW RESOLVED, that France and California jointly declare to support sustainable economic development and the exchange and application of mutually beneficial policies and technologies in the areas of sustainable urban infrastructure, water management, biodiversity, transportation, applied science, energy and climate change.

Forms of cooperation under this Joint Declaration may include the following:

- 1) Endorsing the Subnational Global Climate Leadership Memorandum of Understanding, known as the "Under2MOU;"
- 2) Sharing information and experiences about policies and programs that have effectively reduced greenhouse gas emissions and strengthened climate change mitigation and adaptation efforts, as well as efforts that have protected and enhanced human health and the environment;
- 3) Sharing policy initiatives and providing capacity-building and technical support to develop and implement climate change policies, including emissions trading programs;
- 4) Inviting the other Participant to comment on programs, policies and rule-making processes relevant to the agreed upon areas of cooperation;
- 5) Discussing the possibility of policy and program alignment for mutual environmental and economic benefits;
- 6) Facilitating the exchange and temporary assignment of relevant personnel between France and California;
- 7) Encouraging cooperative research on, and the development and deployment of projects related to clean, energy efficient and/or low carbon technologies;
- 8) Joining and participating in the International Zero Emission Vehicle Alliance;
- 9) Facilitating business-to-business networking, collaboration and partnerships;
- 10) Jointly organizing symposia, seminars, workshops, exhibitions, and training;
- 11) Building collaboration through California's "innovation hubs" (iHubs), which have been established to promote entrepreneurship, economic growth, and job creation through innovation; and

12) Cooperating in any other form that France and California consider may contribute to the goals of this Joint Declaration.

4. FOLLOW UP

France and California agree to establish a bilateral group or groups, led by officials representing France and California, to maintain coordination and communication in monitoring cooperation under this Joint Declaration. As part of their coordination, France and California intend to consider the need for in-person meetings, subject to available resources.

5. THIRD PARTY PARTICIPATION

If France and California agree to deem it helpful and feasible, individuals and entities from the private, public, academic, research, and other sectors may be invited to support the cooperative activities described herein, provided that they can directly and meaningfully contribute to the objectives of this Joint Declaration.

6. ADDITIONAL COOPERATION

This Joint Declaration may serve as reference for signing further collaborative instruments in the areas of cooperation provided in this Joint Declaration.

7. FUNDING

Neither France nor California is obligated to provide or allocate funding for any of the activities referred to in this Joint Declaration. France and California may utilize resources already allocated in their respective budgets, as these resources become available and as stipulated by their own legislation. Each Participant intends to pay for expenses related to its own participation, unless alternative financial mechanisms can be used for specific activities, as appropriate and as approved by their respective authority.

8. EXCHANGE OF INFORMATION

France and California agree, to the extent possible, that all useful, non-confidential information that supports the objectives of this Joint Declaration may be shared amongst them in order to achieve the objectives of this Joint Declaration.

10. AMENDMENTS

This Joint Declaration may be modified in writing by mutual consent of France and California.

11. DURATION

Unless otherwise extended in writing, this Joint Declaration is effective for a period of 4 years from the date of signing. Either France or California may discontinue its participation in this Joint Declaration, through written communication sent to the other Participant thirty (30) calendar days in advance. In this case, the ongoing cooperative activities that have been approved or initiated and that have not been concluded will continue, unless otherwise decided by France and California.

12. FINAL PROVISIONS

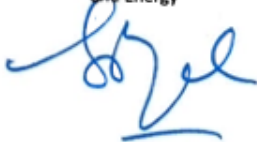
France and California acknowledge that this Joint Declaration is only intended to provide for cooperation between them and does not create any legally binding rights or obligations under national or international law. To the extent that any other provision of this Joint Declaration is inconsistent with this paragraph, this paragraph shall prevail.

France and California sign this Joint Declaration in good faith and declare their intention to develop cooperation to the fullest extent possible, subject to any changes in relevant policy that they may adopt.

This Joint Declaration is signed in Paris, France on December 7th, 2015 in two originals, with both the English and French language originals being equally valid.

For the Government of the French Republic

Ségolène Royal
Minister for Ecology, Sustainable Development
and Energy



For the State of California
United States of America


Edmund Gerald Brown Jr.
Governor

Declaration of Intent

Ministry of Climate and Environment Norway and California Environmental Protection Agency

Taking action on climate change is crucial to ensure sustainable development and safeguard the welfare of future generations. Failure to limit greenhouse gas emissions will increase the risk of serious adverse consequences for livelihoods, security and a stable and productive environment. At the same time, a transition to low emission societies provides benefits and opportunities.

Norway and California share the long-term goal of becoming low emission societies, both aiming to reduce greenhouse gas emissions by 80% or more as compared to their 1990 levels by 2050. Broader and stronger international partnerships can promote climate action at larger scales with lower costs, provide a catalyst for necessary technology development, and create markets for new climate solutions.

Through this Declaration of Intent, Norway, through its Ministry of Climate and Environment, and California, through its Environmental Protection Agency, seek to foster a closer working relationship to promote climate action at all levels.

Leading the charge on building a modern, low-emission economy, we will undertake the following efforts to address climate change:

- Confirm our commitment to holding the increase in global warming to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.
- Cooperate in combating the causes and consequences of climate change, through undertaking ambitious emission reductions based on the recognition that climate action is beneficial to the economy at large, while also building climate resilience.
- Pursue the perspective that we need to implement climate action at all levels of government and involve all sectors and stakeholders, and that broad, global cooperation is needed through initiatives like the Under2 Coalition.
- Strengthen the basis for implementation of the Paris Agreement through ambitious partnership and practical collaboration. Showcase practical and results-oriented cooperation at the national and subnational levels.
- Support the implementation of the Sustainable Development Goals¹ as the basis for sustainable, low emission and climate resilient societies, with special focus on Sustainable Development Goal 13, Climate Action.
- Promote the economic and social benefits created by the transition to low-emission, climate-resilient societies. Support and foster green competitiveness and the creation of green jobs, and seek active engagement by business and industry to promote a positive interaction between policy and low-emission technologies.

¹ <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

- Demonstrate results and solutions that can contribute to stronger international efforts in key areas, with emphasis on clean technology, carbon pricing, zero emission transportation, and reduced deforestation as essential areas of climate action.

We will engage in developing solutions and achieving results of international significance in the following areas:

1. Climate change policy

Enhance the knowledge and understanding of the opportunities and benefits of ambitious climate policies. In the longer term, the benefits of climate action far outweigh the costs of consequences of climate change. In the short term, climate policies can also have significant additional benefits in terms of economic growth and jobs, improved environment, health benefits, efficiency, and cost savings. Norway and California will, through the exchange of information, documentation, and analysis, share and disseminate results from an integrated approach to climate policy that includes both short-term and long-term benefits.

Action points:

- Exchange information on existing climate targets and policies, and share ideas on how to raise climate ambition globally.
- Promote a dialogue and exchange of experiences to increase efforts to reduce emissions of short-lived climate pollutants.
- Exchange ideas on policies to promote a just transition for fossil fuel industry workers.
- Promote cooperation and facilitate dialogue on clean technology innovation, technology development, and deployment of low emission solutions. Provide data and information on the results achieved for dissemination to a broader audience and encourage scientific analyses and studies.
- Collaborate to integrate lessons learned from California's market-based climate programs into the design of guidelines for implementation of market mechanisms under the Paris Agreement, based on the highest environmental integrity and respecting social and environmental safeguards.
- Support the implementation of the Under2 Coalition by sharing experiences of climate policy implementation, transparency of emissions reporting, and the development of long-term low-emissions pathways.
- Encourage strong and lasting partnerships between states, non-state actors, and the private sector for climate action at all levels.

2. Reduced deforestation

Conserving, restoring and sustainably managing the world's natural forests is critical to achieving a safe, secure and sustainable world. Sustainable forest management combined with biodiversity protection can enhance ecosystem resilience and provide long-term climate benefits. Economic growth and food security should benefit from, and support, efforts to conserve and restore natural forests and reduce land-based emissions. Norway and California will collaborate on efforts to reduce greenhouse gas emissions from deforestation and degradation, in particular in tropical forests, and to strengthen forest management. Shared experiences on designing and implementing incentives to reduce GHG-emissions from forests and land-use change will help us explore ways to drive large-scale performance based financing for tropical forest protection.

Action points:

- Work with partners in tropical countries to enhance relationships between jurisdictional forest/climate programs and the private sector, in order to promote deforestation-free supply chains at significant scales.
- Work with partners to facilitate and pilot long-term financing of reduced deforestation, including through the use of markets, provided that social and environmental safeguards are addressed and respected.
- Collaborate with Mexico to facilitate the implementation of the memorandum of understanding between California and Mexico to address climate change and reduce emissions from forests and land-use change.
- Share technology and scientific data regarding measurement, reporting and verification of forest carbon sequestration and emissions, including GHG inventory and forest monitoring design.
- Build technical, scientific and policy capacity to reduce GHG emissions from forests and land-use change, and to advance sustainable forest management.

3. Zero emission transportation

A low-emission world calls for zero emission transportation, including zero emission vehicles and zero emission transport solutions. Norway's goal is that all new passenger cars and light vans sold in 2025 shall be zero emission vehicles. California's goal is to have 1.5 million zero emission or near-zero emission vehicles in service by 2025. Through this leadership, Norway and California can serve as piloting experiences in advancing zero emission transport solutions. As piloting markets, we can facilitate the exchange and learning of business models, policy development, and technological solutions to catalyze the transition to zero emission, efficient transportation that meet society's needs.

Action Points:

- Share experiences on policy solutions and technologies to deliver the infrastructure and technologies for zero emission transportation systems.
- Strive to jointly work toward a global fleet of all zero emission vehicle car sales by 2050.
- Collaborate to develop a vision to similarly move heavy-duty freight vehicles toward zero emissions by 2050.
- Investigate, share experiences, and implement global best practices for electric vehicle charging and hydrogen vehicle infrastructure, including on timing of incentives and policies to strategically support the roll-out of next-generation zero emission vehicles.
- Support the International Zero Emission Vehicle Alliance.
- Share lessons learned with other aspiring governments around the world to develop similar zero emission vehicle policies to increase the global scale of zero emission vehicle deployment.

Share experiences and facilitate cooperation on green maritime transportation, engage the maritime industry in continued work on zero emission solutions. Promote public procurement policies related to the maritime sector.

4. A climate friendly energy system

Limiting global warming to well below 2°C will, dependent on national circumstances, require a transition in the production and use of energy. An increased share of renewable energy and increased efficiency in the use of energy are prerequisites for the transition to low-emission societies. Hydrogen and electrification based on renewable energy are essential parts of the transition to a zero emission transportation system. As frontrunners for sustainable climate friendly energy use and renewable energy production, Norway and California will promote technology development, ambitious policies, and a long-term perspective to become low emission societies.

Action points:

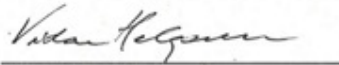
- Share policies and lessons learned for more effective energy use and sustainable climate-friendly energy solutions.
- Engage relevant ministries and agencies for the exchange of ideas and experiences in policies related to sustainable climate friendly energy technologies and infrastructure development.
- Share experiences on the role of carbon pricing in the transition to climate friendly energy solutions.
- Promote private sector engagement for sustainable climate friendly energy solutions.
- Promote development and deployment of sustainable climate friendly energy solutions.

Based on this Declaration of Intent, an operational work plan will be developed within 3 months from the date of signature, and updated annually.

An annual working level meeting will assess status of implementation of the work plan. Norway and California commit to reviewing this Declaration of Intent every 2 years, at which time each party can either confirm a continued intent to cooperate or terminate the Declaration.

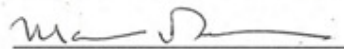
Nothing in this Declaration of Intent shall be read as to create any legally binding rights or obligations for either Party, and each party to this Declaration may terminate this Declaration by written notice thirty days in advance of termination.

Sacramento, August 2, 2017



Vidar Helgesen

Minister for Climate and Environment
Norway



Matthew Rodriguez

Secretary for Environmental Protection
California, United States



Kingdom of the Netherlands

LETTER OF INTENT

The State of California, represented by the Director of the Governor's Office of Business and Economic Development, Panorea Avdis,

and

The Government of the Kingdom of the Netherlands, represented by Minister of Economic Affairs Henk Kamp,

WHEREAS:

California and The Netherlands are leading the way for Zero Emission Transportation and Energy Innovation in terms of sales, charging installations, favorable policies, incentive programs, vehicle R&D and innovation, as well as education and public awareness;

California is leading the way in the United States and The Netherlands in Europe, and both are considered to be gateways to their respective continents; and

Both have committed themselves to stringent climate change action programs to meet 2030 goals in terms of greenhouse gas reductions and sustainable energy generation.

AND WHEREAS:

Over the past few years several California State and Dutch Agencies have signed various agreements to combat climate change (e.g. LOI on Environmental Cooperation, October 2013; MoU to enhance International Cooperation on Zero Emission Vehicles, May 2015);

The Netherlands and various subnational provinces have signed the Under2MoU, including the commitment to develop sustainable transportation and energy solutions like SolaRoad and Smart Mobility.

AND WHEREAS:

The California Energy Commission (CEC) and the Province of Noord-Holland have signed the Working Agreement MoU (March 2015) to archive tangible results related to Zero Emission transportation, Smart Mobility and SolaRoad;

The California Department of Transportation and the Province of Noord-Holland have signed a Letter of Intent to exchange information and understanding with respect to the use of SolaRoad in The Netherlands, to collaborate and realize options for the implementation of a Demonstration Project in LA/Ventura/Kern County.

AND WHEREAS:

Minister Ploumen and her counterpart spoke in 2015 about the possibility of setting up a Trans-Atlantic Sustainable Investment Finance Program (C2C SIF) for small and medium sized companies to stimulate further ZEV and Smart Mobility market deployment in both California and The Netherlands,



Kingdom of the Netherlands

AND WHEREAS:

The Governor's Office of Business and Economic Development (GO-Biz), the Ministry of Economic Affairs and the Coast to Coast Smart e-Mobility Program have been developing a rationale set up C2C SIF,

Officials from the Ministry of Economic Affairs and officials from the Governor's Office of Business and Economic Development spoke in October 2015 about the process for setting up C2C SIF,

Dutch Prime Minister Rutte and California Governor Brown, during their meeting in San Francisco (January 2016), have expressed with great satisfaction their cooperation between on ZEV's, Smart Mobility, SolaRoad and the intent to set up C2C SIF.

RESOLVED:

The State of California and the Government of the Kingdom of the Netherlands agree to:

1. Re-affirm their cooperation on Climate Change, Smart and e-Mobility and Energy Innovation;
2. To exchange information and understanding with respect to the stimulation of access to risk capital and debt finance for young innovative companies, and with respect to applying governmental financial interventions on the early stage venture capital market in The Netherlands; and, the Small Business Loan Guarantee Program in California;
3. GO-Biz through its program, the Infrastructure and Economic Development Bank will help facilitate access to the Small Business Loan Guarantee Program available for intermediary development corporations / banks and Californian and Dutch businesses active in California and The Netherlands on Smart and e-Mobility;
4. The Minister of Economic Affairs has decided to make 10 million euros available for the next 14 years for the C2C SIF to be matched by at least 10 million euros from the private Dutch Investors, a total of at least 20 million euros to be available for Californian and Dutch businesses active in California and The Netherlands on Smart and e-Mobility. This funding will be made available through a venture capital program based on the Seed Capital Scheme of the Dutch Government which has been active since 2004. This venture capital program has a governance structure with limited partners and a general partner.
5. Either party may terminate this Letter of Intent by providing a written notice thirty (30) days in advance of the termination.
6. Signing Authority. Each person signing this Letter of Intent represents and warrants that he or she is duly authorized and has legal capacity to execute and deliver on the requirements created in this Letter of Intent and that executing this Letter of Intent will not violate any other obligations or requirements previously made by the signing party.



Kingdom of the Netherlands

This Letter of Intent is effective as of January 9th, 2017 and shall remain effective for a period no longer than two years from the effective date and is done in duplicate.

Signed for and on behalf of
THE DIRECTOR OF THE CALIFORNIA
GOVERNOR'S OFFICE OF BUSINESS
AND ECONOMIC DEVELOPMENT

Panorea Avdis

Signed for and on behalf of
THE MINISTER-OF ECONOMIC AFFAIRS
OF THE KINGDOM OF THE NETHERLANDS

Henk Kamp



LETTER OF INTENT
ON ENVIRONMENTAL COOPERATION
BETWEEN THE ENVIRONMENTAL PROTECTION AGENCY OF
THE STATE OF CALIFORNIA
AND
THE MINISTRY OF INFRASTRUCTURE AND THE ENVIRONMENT OF
THE KINGDOM OF THE NETHERLANDS

The Environmental Protection Agency of the State of California of the United States and the Ministry of Infrastructure and the Environment of the Kingdom of the Netherlands (hereinafter referred to as "the Two Parties"), through friendly consultation, renew their intent to cooperate in the coming two years.

With great satisfaction, the Two Parties acknowledge the successful collaboration between their two governments. This collaboration has included the Letters of Intent between them signed October 30, 2013 in Sacramento, California and on March 3, 2015 in The Hague, The Netherlands; cooperation with other national and subnational jurisdictions on accelerating the electrification of transportation through the International Zero-Emission Vehicle Alliance (ZEV Alliance); and the Agreement to establish the Coast to Coast Sustainable Investment Finance Program on Smart and E-Mobility (C2C SIF).

The Two Parties note that successful collaboration has also enabled the Working Agreement between the California Energy Commission and the Province of Noord-Holland, the Netherlands; and the Agreement to collaborate on knowledge exchange and implementation of SolaRoad between the California Department of Transportation and the Province of Noord-Holland.

I. Sustainable Mobility and Zero-Emission Vehicles

The Two Parties note opportunities to continue and expand on their collaboration, such as continued participation in and support for the ZEV Alliance; and the exchange of information and best practices on zero-emission vehicle policies, investments, and infrastructure.

II. Climate Change Policies

The Two Parties affirm their continued commitment to leadership in combating climate change. They will continue to exchange information through their respective government channels with regard to climate policies; and to work together to strengthen the contributions of sub-national jurisdictions in the context of the international climate change negotiations. Specifically, the Two Parties agree to continue to work together



within the framework of the Subnational Global Climate Leadership Memorandum of Understanding (also known as the "Under2 Coalition") to elevate recognition within the UNFCCC of the importance of subnational governments in achieving countries' nationally determined contributions; to promote ambitious subnational climate leadership in line with keeping global warming well below 2°C; and to support member jurisdictions in the areas of action, coordination, and cooperation outlined in the Memorandum of Understanding.

As part of this, and to further strengthen the cooperation between the Ministry of Infrastructure and the Environment and California EPA, the Ministry is willing to support CalEPA by making available temporary staff support, the exact details of which will be mutually agreed upon.

In addition, parties agree to work together on appropriate follow-up based on the outcomes of the "Climate is Big Business" Conference of May 2017 and agree to work together towards the UNFCCC Conference of the Parties in Bonn.

III. Engagement with Other Parties in Furtherance of this LOI

If the Two Parties deem it helpful or convenient, by common decision of the Two Parties, individuals and entities from the academic, research, private, public, and other sectors, as well as other levels of government within the Netherlands and California, may be invited to support the cooperative activities described herein, provided that they can directly and meaningfully contribute to the achievement of the objectives of this Letter of Intent. In this regard, parties stress the importance of public-private partnerships. As a first action, parties will explore the possibility to set up a public private partnership on Circular Economy, similar to the Coast to Coast Smart e-Mobility program. As part of this, parties will examine opportunities for a circular economy mission to the Netherlands, hosted by the Ministry of Infrastructure and the Environment.

IV. Annual Meeting

The Two Parties agree to organize an annual high-level meeting of the two governments to take stock of the ongoing cooperation described in this Letter of Intent, and to make recommendations for further cooperation where deemed useful and necessary.

This Letter of Intent will become effective on the date of signature and is done in duplicate in the English language.

San Francisco, May 24, 2017

Matthew Rodriguez
Secretary for Environmental Protection
State of California, United States

Sharon Dijksma,
Minister for the Environment
The Kingdom of the Netherlands

**LETTER OF INTENT
BETWEEN
THE STATE OF CALIFORNIA, UNITED STATES OF AMERICA
AND
THE KINGDOM OF THE NETHERLANDS
ON
SUSTAINABLE MOBILITY, CIRCULAR ECONOMY, CLIMATE CHANGE, AND
RESILIENCY**

**Paragraph 1
Background**

WHEREAS, the State of California of the United States of America (“California”) and the Kingdom of the Netherlands (“Netherlands”) (hereinafter referred to as “the Parties”) share a strong commitment in addressing global climate change;

WHEREAS, California and the Netherlands have committed themselves to stringent climate change programs to meet 2030 goals in terms of greenhouse gas reductions, resulting in ambitious policies for zero emission transportation, energy innovation and zero waste initiatives;

WHEREAS, California and the Netherlands share the belief that the transition to a sustainable economy boosts economic growth and generates family-supporting jobs, and recognizing that innovation in both the public and private sectors are of great importance in this transition;

WHEREAS, California and the Netherlands acknowledge the successful collaboration between their two governments, including multiple visits, events and workshops, and the Letters of Intent signed;

WHEREAS, California and the Netherlands are committed to mutual support for organizing and developing the experiences, common activities, and future programs of their relationship on the basis of previous agreements of mutual cooperation and directions set forth by this declaration;

THEREFORE, in pursuit of these shared goals, California and the Netherlands shall work to further their relationship in the following areas:

**Paragraph 2
Areas of Cooperation**

Sustainable Mobility

California and the Netherlands shall continue cooperation on sustainable mobility, including smart charging, urban transportation planning and zero emission transportation, continue the joint efforts in the Zero Emission Vehicle (ZEV) Policy Lab and International ZEV Alliance, with an increased focus on the decarbonization of the heavy-duty transportation sector;

Circular Economy

California and the Netherlands shall explore cooperation and exchange on the transition to a circular economy, focusing on the further cooperation between the economic development agencies GO-BIZ and Holland Circular Hotspot to support our business communities, recognizing the importance of the role of the private sector in the transition to a circular economy, explore the possibility of a public-private partnership on circular economy;

Climate Change and Resiliency

California and the Netherlands shall prioritize exchanges in the areas of climate change adaptation and resiliency, focusing on natural and built infrastructure and land use planning to minimize impacts from flooding, sea-level rise and water supply disruptions;

Sharing of Expertise

The California Environmental Protection Agency and Natural Resources Agency and the Netherlands Ministry of Infrastructure and Water Management shall explore the opportunity of collaboration through information exchange, design and policy consultation, joint university projects, and sharing of innovative technologies.

**Paragraph 3
Coordination**

The Parties respectively designate the Consulate General of the Netherlands in San Francisco for the Kingdom of the Netherlands and the Governor's Office of Business and Economic Development for the State of California to establish the creation of an action plan to implement the objectives of this Letter of Intent.

**Paragraph 4
Availability of Personnel and Resources**

This Letter of Intent, once in effect upon signature, does not create any legally binding rights or obligations for either Party.

This Letter of Intent does not involve the exchange of funds, nor does it represent any obligation of funds by either Party. All costs that may arise from activities covered by, mentioned in, or pursuant to this Letter of Intent will be assumed by the Party who incurs them, unless otherwise stipulated and decided pursuant to a future written arrangement. All activities undertaken pursuant to this Letter of Intent are subject to the availability of funds, personnel and other resources of each Party.

The personnel designated by the Parties for the execution of this Letter of Intent will work under the orders and responsibility of the organization or institution to which they belong, at all times maintaining their employment relationship with that organization or institution. Their work will not create an employer-employee relationship with any other organization or institution, so in no case will that other organization or institution be considered as a substitute or joint employer of the designated personnel.

**Paragraph 5
Compliance with Applicable Laws**

All activities undertaken pursuant to this Letter of Intent, and all personnel designated by the Parties for the execution of those activities undertaken pursuant to this Letter of Intent are subject to the applicable laws of the receiving country. Such personnel, if visiting the other Party to participate in an activity pursuant to this Letter of Intent, will not engage in any activity detrimental to this Letter of Intent.

**Paragraph 6
Interpretation and Application**

Any difference that may arise in relation to the interpretation or application of this Letter of Intent will be resolved through consultations between the Parties, who will endeavor in good faith to resolve such differences.

**Paragraph 7
Final Provisions**

This Letter of Intent is effective from the date of its signature, for a five (5) year period.


This Letter of Intent may be modified at any time by mutual consent of the Parties. Any modification will be made in writing and specify the date on which such modification is to become effective.

Either of the Parties may at any time, withdraw from this Letter of Intent by providing a written notice to the other Party thirty (30) days in advance.

The termination of this Letter of Intent should not affect the conclusion of the cooperation activities that may have been formalized during the time this Letter of Intent is in effect, unless the Parties mutually decide otherwise.

This Letter of Intent is signed on 13 November 2019 in Sacramento, California; each of the two sides has one copy.

**State of California
United States of America**



Amb. (ret.) Eleni Kounalakis
Lt. Governor of California

Kingdom of the Netherlands



Mr. Roald P. Lapperre
Vice Minister for the Environment

Appendix H: Global Climate Leadership Under2 MoU



— Global Climate Leadership Under2 Memorandum of Understanding (MoU)

I. Statement of Purpose

- A. Climate change presents worldwide challenges and risks to environment and economies, impacting human health, increasing extreme weather events, threatening natural resources and triggering forced migration of populations. Impacts from climate change are already occurring due to greenhouse gas emissions (GHG) already resident in the atmosphere. At the same time, climate change responses and solutions create economic opportunities and benefits through sustainable energy and development. International efforts are essential to ensure protection of humankind and our planet, and to limit the increase in global average temperature to well below 2°C with best efforts to achieve 1.5°C. This requires substantial emissions reductions over the next few decades, including global net CO₂ decline of 45% by 2030 (from 2010 levels), reaching net zero emissions of CO₂ by 2050 and all GHGs about two decades later.

(Intergovernmental Panel on Climate Change – Special Report: Global Warming of 1.5°C)

- B. Governments at all levels need to act now to reduce GHG emissions in order to achieve long-term climate balance. Entities need to harness new technologies, policies, financing mechanisms, and economic incentives to reduce emissions while developing common metrics to measure their progress. Governments must also increase the resilience of infrastructure and natural systems to growing climate impacts.
- C. While the signatories to this MOU (hereinafter referred to as “the Parties”) acknowledge and affirm support of international activities and declarations to respond to climate change (including the Rio Declaration on Environment and Development (1992), the Montreal Declaration (2009), the Cancun Statement (2011), the Lyon Declaration (2011) and the Paris Agreement, and especially decision

1/CP.21 (2015)), international efforts on climate change to date have been inadequate to address the scale of the challenge we face. Sub-national jurisdictions—including provinces, states, regions, and cities—have led the world in setting ambitious climate targets and taking actions to reduce GHG emissions and protect against climate impacts.

- D. By working together and building on agreements such as the Declaration of Rio de Janeiro 2012 (Federated States and Regional Governments Committed to a New Paradigm for Sustainable Development and Poverty Eradication), subnational governments, together with interested nations, can help to accelerate the world's response to climate change and provide a model for broader international cooperation among nations.
- E. In May 2015, Parties established the Under2 Coalition, a network of states and regions committed to ambitious climate action, for which the Climate Group acts as Secretariat.

II. Reducing Greenhouse Gas Emissions

- A. In line with the Paris Agreement, the guiding principle for reduction of GHG emissions by 2050 must be to limit global warming to no more than 1.5°C. For Parties to this MOU, this means acting as climate leaders and pursuing an emissions reductions trajectory consistent with achieving net zero emissions by 2050 as a Coalition, and individual net zero emissions as soon as possible, in line with the most recent science.
- B. In order to achieve this ambitious 2050 target, measurable progress must be made in the near-term to establish the trajectory of reductions needed. Midterm targets, including commitments for 2030 or earlier are critical. Recognizing that each party has unique challenges and opportunities, this agreement does not prescribe a specific path for 2030. Rather, Parties agree to undertake their own unique set of actions and plans towards supportive interim targets, preferably towards or beyond a fair share of 45% global reduction in CO2 emissions by 2030 over 2010 levels or equivalent goals, to the maximum extent possible.
- C. Parties aim at broadly reducing emissions across sectors of the economy to achieve the GHG emission reduction goals. Parties set forth their 2030 goals and targets for these and other critical areas by pursuing their own unique set of actions and plans and reporting them publicly and to the Under2 Coalition Secretariat – the Climate Group.
- D. Specific areas of action, coordination, and cooperation:

The Parties agree that for actions related to this MOU, coordination and cooperation will be beneficial and will strengthen the efforts of participating states. The Parties agree to work together on solutions that provide near-and long-term environmental and economic co-benefits, including joint efforts where possible. The Parties may expand the list of specific areas of action set forth in this subsection from time to time. The following is a non-exhaustive list of issues of interest for cooperation and coordination among the Parties:

1. Energy:

The Parties agree to share information and experience on redesign of the power supply and grid, technical solutions and advances in promoting large-scale switch to renewable energy and the integration of renewable energy sources, actions needed to ensure security of supply, strategies to promote energy efficiency and strategies on transitioning away from the use of fossil fuels.

2. Heavy Industry:

The Parties agree to share information and experience on decarbonising highly industrialised economies and develop strategies to cut emissions from the industrial sector while supporting growth, job creation and prosperity.

3. Traffic and Transport:

The Parties agree to take steps to reduce greenhouse gas emissions from passenger and freight vehicles, with the goal of broad adoption of “zero emission vehicles” and development of related zero emission infrastructure. The Parties agree to encourage land use planning and development that supports alternate modes of transit, especially public transit, biking, and walking.

4. Nature and Land Use:

The Parties agree to collaborate on methods to reduce emissions from natural resources, deforestation, agriculture, and waste, which exist at the nexus of climate mitigation and adaptation activity. Parties will share information about management techniques to sequester carbon and protect natural infrastructure including nature-based solutions and climate-smart agriculture. Parties will share technologies to reduce waste or convert waste to secondary raw materials or to energy.

5. Science and Technology:

The Parties agree to collaborate and coordinate on scientific assessment efforts and share information and experience in technology development and deployment. Parties seek to help others learn from experience to maximize success of technological transitions and avoid potential obstacles.

6. Communication and Public Participation:

The Parties agree to collaborate and coordinate on messaging, transparency, accountability, public outreach around climate change, mitigation of GHG emissions, adaptation, and the subject matter of this MOU.

7. Short-lived Climate Pollutants:

The Parties agree to collaborate on the reduction of short-lived climate pollutants such as black carbon and methane, which will provide near-term air quality benefits, while also reducing potent climate forcing pollutants.

8. Inventory, Monitoring, Accounting, Transparency:

The Parties agree to work towards consistent monitoring, reporting, and verification across jurisdictions including but not limited to through the Under2 Coalition Secretariat – the Climate Group.

9. Finance and Investment:

The Parties agree to work to share and collaborate on innovative financial policy models to support greenhouse gas emissions reduction. The Parties may work with private sector actors to increase private investment in climate mitigation and adaptation mechanisms.

III. Adaptation and Resilience

- A. The Parties agree to collaborate on actions to promote adaptation and resilience, with an eye toward maximizing benefits for both GHG emission reduction and climate adaptation.
- B. Parties will share best practices in modelling and assessment to understand projected climate impacts, especially at the regional and local scale. Entities will share best practices in integrating these findings into planning and investment.
- C. Parties will work together to build metrics and indicators that can help to track progress in reducing the risk of climate change to people, natural systems, and infrastructure.

- D. In working to reduce climate risk, Parties will look to natural or “green” infrastructure solutions that maximize ecological benefits while providing protection. Parties will share best practices in designing and deploying these solutions.
- E. Parties to this MOU will work to share innovative models for financing and supporting climate adaptation, including public-private partnerships, resilience funds, and competitive approaches.

IV. Means of Implementation

The Parties each act with urgency towards their own strategies to implement and achieve their goals and targets. While some strategies will be unique to particular Parties, others can be shared and/or modified by other Parties, including through Under2 Coalition projects.

- A. Parties agree to collaborate and coordinate to advance respective interim targets consistent with 2050 goals and climate actions at the annual Under2 Coalition General Assembly, the annual session of the Conference of Parties to the United Nations Framework Convention on Climate Change and other international climate events.
- B. Parties agree to share and promote effective financing mechanisms domestically and internationally to the extent feasible.
- C. Parties agree to share technology to the extent feasible, such as through open source information.
- D. Parties agree to help build capacity for action and technology adaptation through technology transfer and expertise to the extent feasible.
- E. Parties agree to engage in programmes and projects developed by other Parties and/or the Climate Group, as Secretariat to the Coalition, to the extent feasible.
- F. Parties agree to review the on-going relevance of the MOU every five years, in line with the Paris Agreement’s five-year cycle of increasingly ambitious climate action.

This MOU is neither a contract nor a treaty.

Signed on behalf of Government of:

Name of signatory:

Title:

Date: