RETOMADA ECONÔMICA VERDE

"Green economic recovery: the United States experience"

Introductory text and key questions

The effects of climate change are increasingly present in everyday life and are perceived in the heightened frequency of extreme meteorological events such as heat and cold waves, heavy, concentrated rainfall, prolonged drought, and other phenomena. In recent years, the climate crisis has been compounded by the Covid-19 pandemic shocks, which severely hampered world economies and the quality of life of populations. The convergence of those crises prompted different countries to come up with new development strategies, combining economic recovery with a transition to carbon neutrality.

In light of that, the organizations Instituto Democracia e Sustentabilidade (IDS), BEI/Por Quê?, Arq.Futuro and Insper, with the support of Itaú Unibanco, have come together to host the "Green economic recovery" seminar cycle. The initiative is designed to spread awareness in Brazil of ongoing experiences in four different countries that are implementing actions to transition to carbon-neutral economies. It will consist of detail-rich seminars featuring guests who are spearheading the green economic recovery processes in their own countries. Hopefully, the event will spark debate on more ambitious policies that could help Brazil effectively begin its transition to a carbon neutrality.

This document briefly outlines the experience of the United States, which is presently the second biggest greenhouse gas-issuing country in the world, second only to China, and which will be the theme of the 4th seminar in this cycle. The document begins by outlining the context of US emissions, showcasing their recent trajectory and the contribution of each sector to greenhouse gas generation in the country. Next, it addresses the political context in the US and how it has affected national commitment to the climate targets laid out in the Paris Agreement. It then covers policies in place or in discussion in the US to address climate change. Lastly, it provides a list of key questions to steer discussions during the seminar regarding the main challenges in implementing climate policies and potential strategies for articulating different players and sectors of interest.[1]

The United States in numbers
Population [millions]
327
GDP 2020 [USD billion]
20,894
Emissions 2018 [MtCO2e]
5,892
Emissions per capita [tCO2e]
18.0
Emissions per capita world [tCO2e]
6.5
Per capita GDP 2020 [USD thousand]
63.9

The United States' role in global greenhouse gas emissions

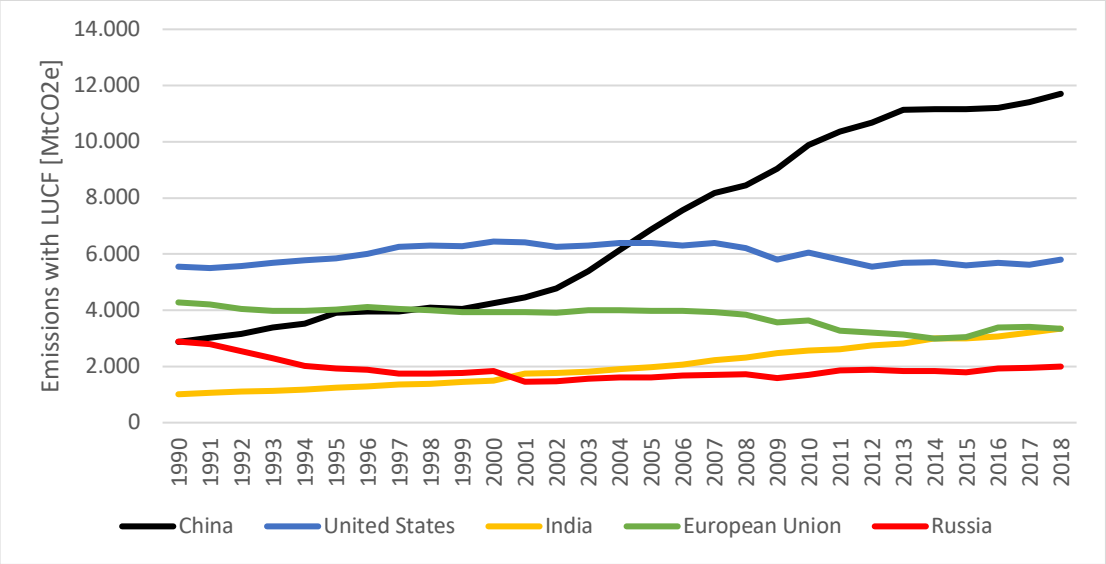
[1] Sidebar chart sources:

- GDP and population from the World Bank;
- Emissions from Climate Watch.

Realização: Arq.Futuro, POR QUÊ? Economês em bom português, Instituto Democracia e Sustentabilidade, Insper
Patrocínio: Itaú

Figure 1 shows that the United States were the biggest greenhouse gas emitter in the world before being surpassed by China in the mid-2000s, at which point the Asian country began to integrate with global markets.

Figure 1 - Time series of the five biggest greenhouse gas emitters (59% of global emissions)



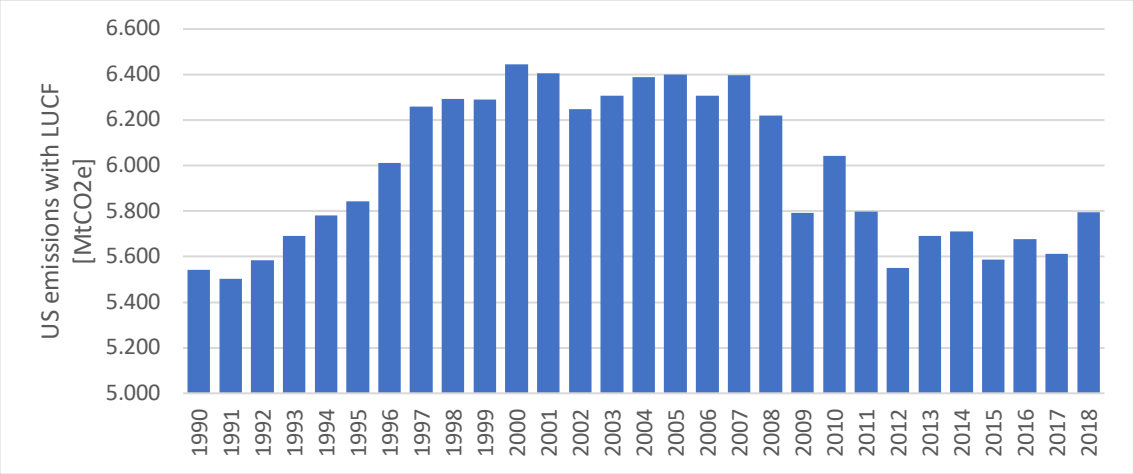
Source: Climate Watch and United Nations Food and Agriculture Organization (FAOSTAT), 2022. Graph by the author.

Note: European Countries have been grouped up as per commitments made under the Paris Agreement. Emissions include Land Use Change and Forestry (LUCF).

United States greenhouse gas emissions picked up throughout the early 90s and peaked in 2000 at around 6,400 MtCO2e (Figure 2). After a relatively stable period, emissions began to decrease, resulting in 5% compound growth from 1990 to 2018. These figures factor in net emissions and include the land use change and forestry sector, which tracks emissions stemming from deforestation and changes in land use patterns.[2,3] Net emissions and sequestration from this sector have been consistently negative, sequestering some 5% of all CO2e emitted in the country.

[2] Emissions data associated with land use change and forestry are compiled by the United Nations Organization for Food and Agriculture (FAOSTAT) and made available by Climate Watch.
[3] Land use changes can include conversion of natural ecosystems into planting areas, abandonment of pastures and plantations, changes in cultivation type and wood harvest etc.

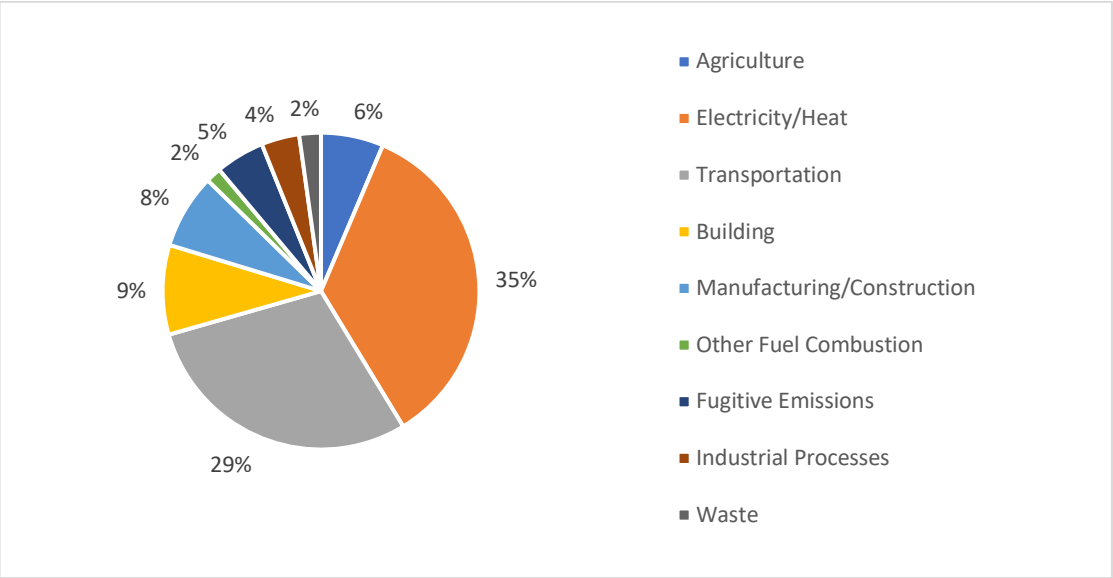
Figure 2 - Net US emissions over the past decades



Source: Climate Watch and United Nations Food and Agriculture Organization (FAOSTAT), 2022. Graph by the author.

Looking at the sources and the different sectors that contribute to US emissions, one notes that the energy sector associated with electricity generation and transport accounts for over 60% of emissions. The housing sector is the 3rd biggest emitter in the country at 9% of total emissions, followed by manufacture and construction at 8% and agriculture at 6%. The Figure 3 graph does not include information associated with land use change and forestry.

Figure 3 – US emissions per sector in 2018

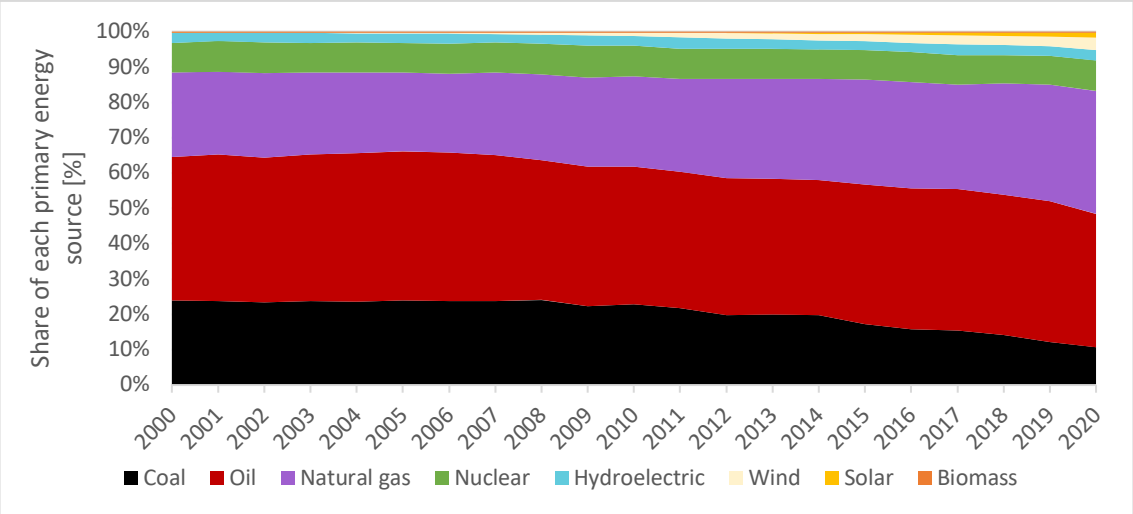


Source: Climate Watch, 2022. Graph by the author.

Note: "Household" emissions include only the burning of fuel in households, i.e., electric energy utilized in households is classified as "Electricity." This classification does not include land use change and forestry.

Figure 4 portrays the share of each source of primary energy generation in United States consumption over the past decades. The data show that in 2020, natural gas and oil products were the leading source of energy in the country, accounting for over 70% of power generation. Renewable sources account for only 8% of production, a similar share to those of coal (11%) and nuclear power (9%). One can also note that the share of primary energy generated through the burning of coal in the US has gone down in the past decades, and particularly so since the signing of the Paris Agreement in 2015. This reduction has been partially offset by the use of natural gas, which, though not as harmful as coal, is still a major source of greenhouse gas.

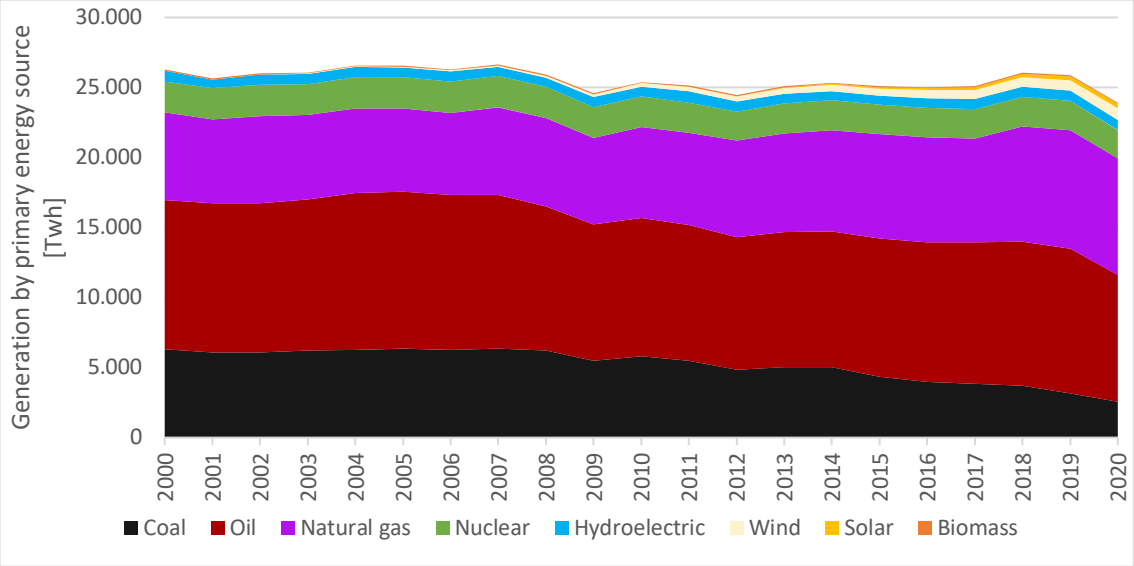
Figure 4 – The share of each source in primary energy generation in the United States



Source: data structured by Our World in Data platform. Graph by the author.

Figure 5 provides complementary information on primary energy sources in the United States, portraying the absolute value of annual generation from each source since 2000. One can note that the amount of energy generated in the country has remained stable over the past few decades, with a marginal reduction in recent years.

Figure 5 – Primary energy generation by source



Source: data structured by Our World in Data platform. Graph by the author.

US national situation and positioning regarding the Paris Agreement

The US plays a fundamental role in the global challenge of addressing climate change, due to its central role as a greenhouse gas emitter and its economic and geopolitical relevance. The United States is a Paris Agreement signatory country, and in 2016 president Barack Obama submitted the country's first NDC (*Nationally Determined Contribution*)[4], pledging to reduce greenhouse gas emissions by between 26% and 28% by 2025 from 2005 emission levels.

In June 2017, president-elect Donald Trump announced the United States' withdrawal from the Paris Agreement under claims that decarbonization efforts would be detrimental to the economy. However, research has shown that this move was unpopular and met with resistance even from Republican voters.[5] Civil society and different business groups, such as America´s Pledge and America is All In, came forward to ensure the advancement of the country's environmental agenda and to push for more ambitious climate goals.

In 2020, president Joe Biden, from the Democratic Party, was elected to succeed the Republican Donald Trump. The incoming administration gave priority to issues such as social assistance to those affected by the Covid-19 pandemic, post-pandemic economic recovery, and climate action. One of the first actions taken by the government was the American Rescue Plan program,

[4] Nationally Determined Contributions (NDC) are contributions to addressing global warming agreed upon by each country under the Paris Agreement. The targets put forth by each of the countries in their respective NDCs are updated every five years.

[5] Scott Clement and Brady Dennis on June 5, 2017 in *The Washington Post*. "*Post-ABC pool: Nearly 6 in 10 oppose Trump scrapping Paris Agreement.*"

which saw $1.9 trillion allocated to social assistance, vaccine incentives and income transfers to the population.

Regarding the climate, on his first day in office, president Biden announced that the United States would rejoin the Paris Agreement and submit more ambitious emission reduction targets than the original ones. In April 2021, the country updated its NDC, expressing intent to cut emissions by 50% to 52% by 2030 from 2005 levels. Additionally, in November 2021 the US committed to the long-term goal of achieving carbon neutrality by 2050.[6] This shift towards climate action was welcomed by civil society organizations and big business representatives.[7]

Despite opposing the neglectful approach of the preceding administration when it came to the climate crisis, president Joe Biden still has a hard road ahead implementing the policies needed to get the United States on track to zero emissions as per its Paris Agreement targets. As we will see, key emission reduction policies are going through Congress, where midterm elections in late 2022 could mean Democrats losing majority in the legislative houses.[8] Seeing as Democrat politicians tend to be more favorable to climate action, this legislative branch renewal may impact carbon neutrality transition projects. Additionally, the beginning of the Russia-Ukraine armed conflict breeds fresh uncertainties that may impact climate policies.

Paths in the transition to a carbon-neutral economy

The US president's climate change efforts are in line with some of the principles outlined in the Green New Deal, a proposition put forth in 2019 by congresswoman Alexandria Ocasio-Cortez and senator Edward John Markey, both Democratic Party members. This document outlines comprehensive principles that should be observed by government in the transition to a carbon-neutral economy. The document's vision imparts a central role to the State as inducer of the transition to carbon neutrality, whether in market oversight and regulation or in investment promotion coupled with emission neutrality. Though not as ambitious as the propositions outlined in the document submitted by Ocasio-Cortez and Markey, the Biden administration's commitment to climate action became clear within a few days of inauguration with the signing of an executive order designed to address climate change ("Tackling the Climate Crisis at Home and Abroad").[9] This executive order, the updated NDCs, and bills espoused by the government

[6] U.S. Department of State. The Long-Term Strategy on the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050. November 2021. Available in: https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf. Accessed on March 17, 2022.

[7] *We Mean Business Coalition*. Available in: https://www.wemeanbusinesscoalition.org/ambitious-u-s-2030-ndc/#letter-block. Accessed on March 17, 2022.

[8] In the midterm elections, candidates run for all House of Representatives seats, plus some Senate seats. Presently, Senate is equally divided among Democrats and Republicans. However, as per the US constitution, the vice president has tie-breaking vote rights.

[9] The White House. "Executive Order on Tackling the Climate Crisis at Home and Abroad". Available in: https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/. Accessed on March 17, 2022.

all indicate a few objectives the Biden administration is likely to pursue in the years ahead with its climate policies, chief among them being:

- Decarbonizing the electric sector by 2035;
- Setting a national Clean Energy Standard so electric utilities are mandated to source part of its energy from clean sources;[10]
- Having half of the new passenger vehicles sold from 2030 on be zero-emission;
- Setting new emission and fuel-efficiency standards for light vehicles;

A fundamental question to be looked into in the context of the transition to a carbon-neutral economy are countries' legally binding provisions to ensure their commitment to carbon neutrality. Two legal instruments that could potentially impact the United States' emissions curve are front-and-center in congressional discussions: the Infrastructure Bill and Build Back Better.

The former bill, formally named the Infrastructure Investment and Jobs Act, got bipartisan backing and was passed into law on November 15, 2021.[11] The Infrastructure Bill provides for $1 trillion in investment over the next few years in infrastructure renewal, economic stimulus and jobs creation. Although the plan does not focus solely on climate change, some of its actions are designed to address global warming,[12] such as:

- $7.5 billion for construction of an electric vehicle charger network across the US eventually spanning 500,000 charging locations to speed up vehicle electrification;
- $65 billion investment in electrical grid and clean energy transmission;
- $50 billion towards making the infrastructure more resilient to the effects of climate change, such as protection from drought, extreme heat, fires and floods;
- $21 billion towards clearing and restoring mines, wells and abandoned lands;
- $17 billion and $25 billion investment in respectively port and airport maintenance, modernization and emission reduction.

Build Back Better is the second bill with a potentially major impact on the United States emissions curve. It provides for $2 trillion in investment into climate and social policies. The climate portion of this bill is regarded as a key instrument in having the United States meet its

[10] Silverstein, Ken. 2021. Can President Biden Get The Clean Energy Standard Across The Goal Line. Available in https://www.forbes.com/sites/kensilverstein/2021/08/01/can-president-biden-get-the-clean-energy-standard-across-the-goal-line/?sh=543bac9728f0. Accessed on March 17, 2022.
[11] Infrastructure Investment and Jobs Act. Available in: https://www.congress.gov/bill/117th-congress/house-bill/3684/text. Accessed on March 17, 2022.
[12] President Biden's Bipartisan Infrastructure Law: https://www.whitehouse.gov/bipartisan-infrastructure-law/. Accessed on March 17, 2022.

Paris agreement climate targets.[13]–[14] The latest iteration of the bill in discussion in Congress included:

- $555 billion in clean energy incentives in the form of tax credits to businesses embracing solar, wind or other clean energy sources. This is a core aspect of the bill, and the resources would allow big steps forward in reducing emissions in the country;
- Tax credits for household solar panel installation that could cut costs of such equipment by roughly 30%;
- Up to $12,500 in tax credits to consumers purchasing electric vehicles;
- Financial incentives to businesses for maintaining nuclear plants at risk of premature closing, and for expansion of carbon capture investments.

A version of the bill was passed by the US Chamber of Representatives in November and went on for consideration by the Senate. However, with Senate divided on the matter, all Democrat Party senators would have to vote for the bill, and West Virginia senator Mr. Joe Manchin III has indicated he should not support the bill in its current form. To take advantage of its majority in Senate,[15] Democrats are considering submitting only the climate-related portion of the bill, which is met with stronger support in Congress, and excluding the social programs portion of it.[16]

[13] Plumer, Brad; Popovich Nadja. What the Stalled Build Back Better Bill Means for Climate, in One Chart. The New York Times, December 21, 2021. Available in: https://www.nytimes.com/interactive/2021/12/21/climate/manchin-climate-change-build-back-better.html?searchResultPosition=27 . Accessed on March 8, 2022.
[14] The White House. The Build Back Better Framework. Available in: https://www.whitehouse.gov/build-back-better/. Accessed on March 8, 2022.
[15] As mentioned earlier, in November 2022, president Biden will face midterm elections and could lose majority in Senate.
[16] Davenport, Coral; Friedman, Lisa. "Build Back Better" Hit a Wall, but Climate Action Could Move Forward. The New York Times, January 20, 2022. Available in: https://www.nytimes.com/2022/01/20/climate/build-back-better-climate-change.html. Accessed on March 8, 2022.

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Key questions

- **Supreme Court ruling limiting EPA's powers**: the United States Supreme Court has recently limited the ability of the EPA (Environmental Protection Agency) to regulate carbon emissions from thermal power plants. What is the actual impact of that on the government's ability to fight greenhouse gas emissions from the electric sector? Are there still tools in place to control emissions from the sector and ensure the US will remain en route to neutrality?
- **Senator Joe Manchin signals he will oppose the Build Back Better program**: alleging inflationary concerns, the senator indicated he will not support the Build Back Better bill, which means the bill might not pass. What are the alternatives for addressing climate change in case the bill is not passed by Congress? Could the bill be split up to reduce resistance? What groups are working for the bill and what are the biggest interests opposing it?
- **Decentralization of climate action**: When Donald Trump took office and withdrew the United States from the Paris Agreement, multiple private players and subnational government entities mobilized to keep advancing the climate agenda. Now that the national government is back to prioritizing the environmental agenda, is this decentralization being reversed or does it represent a novel strategy to address climate change? What is the relevance of private and subnational entities in reducing emissions in the United States?
- **Environment and democracy**: the US situation is similar to Brazil's as pertains to political polarization, with one side downplaying the seriousness of the climate crisis. Can governments' environmental policies be shielded from administrations uncommitted to climate action? How to ensure that commitment to climate targets will effectively become a State policy?
- **Political polarization in the legislative houses**: how do political negotiations for Build Back Better and the Infrastructure Bill compare with those for past environmental bills? Have those who have historically opposed such measures become more welcoming of them?
- **Mobilizing political efforts**: How to mobilize political efforts to get bills passed that will effectively address the challenges of climate change? Are there incentive measures more palatable to politicians across the spectrum, and which therefore facilitate approval and cooperation in Congress (for instance, providing incentives such as tax credits instead of fines)?
- **Political polarization of society**: Has society become more welcoming of climate action measures?

Additional questions

1. Who led the creation of this agenda? Was it the federal government? Was it Congress? Was it the states? Was it civil society?

2. What was the process like to create the propositions? Did society chime in? How were the priorities set?
3. How has it been possible to accommodate different players, sectors and interests? How has it been possible to overcome the barriers and opposing movements?
4. Who currently spearheads this agenda within federal government? Is it a ministry? Is it the president himself?
5. How does society perceive and support this agenda? How does communication take place with society to address this climate agenda?
6. Has this policy become a State policy with continuity, predictability and long-term planning? Or is it still an object of dispute between political forces?
7. How has it been possible to overcome the barriers and hurdles of the government's budget to enable investments towards this transition? Have priorities been ascribed? Has it been necessary to withdraw investment from sectors that directly contribute to emissions?