

THESIS

THE ROLE OF MASTER AND COUNTER-NARRATIVES
IN CONCEIVING A CARBON-NEUTRAL SOCIETY
A DISCOURSE ANALYSIS OF A FRENCH PODCAST

Submitted by

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ABSTRACT

THE ROLE OF MASTER AND COUNTER-NARRATIVES IN CONCEIVING A CARBON-NEUTRAL SOCIETY A DISCOURSE ANALYSIS OF A FRENCH PODCAST

In the context of the climate crisis, narratives that stimulate our imagination to create a desirable view of the future are tremendous for understanding and defining our society's goals. This study analyzed four scenarios designed by the French governmental ecological agency ADEME which present different alternatives for a carbon-neutral society in France in 2050. The podcast series “Tomorrow is Not Far Away,” which was created in 2022 to introduce the four scenarios, was examined to capture the master and counter-narratives. The method centered around critical discourse analysis provided crucial insights into the dynamics of power and social relations that contribute to the futuristic master and counter-narratives.

Futuristic master narratives are grounded in the narrative of human domination over nature. With narratives on eco-technological solutionism, unlimited economic growth, and personal freedom, the future is not bright for everyone, and the consequences of climate change are heavier on those who are the most vulnerable. The debate held by the experts unraveled each futuristic counter-narrative and demonstrated the complexity of creating a carbon-neutral society that does not leave anyone behind. The panelists brought back nature at the center of the conversation and discussed the delicate balance between sufficiency and technology. They also reminded us that climate justice needs to be organized and ensured by public policies.

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1.1 Overviews and Rationales

While we have been witnessing an increasing number of natural disasters worldwide (such as extreme droughts, storms, and wildfires), it is now unthinkable to deny the climate crisis. The role of human activities in climate change has been extensively studied, and their impacts are now clearly defined by the Intergovernmental Panel on Climate Change (IPCC). It is now incontestable that the way we are living on Earth and the way we consume without limits have significant impacts on the climate. The good news is that the IPCC has also provided detailed solutions on how to mitigate the climate crisis and how to adapt to a warmer world (Shukla et al., 2023).

The solutions needed to tackle the climate crisis are not easy because they require us to change our behaviors, approach traveling differently, consume locally, modify our diet, and limit our dependence on fossil fuels. In a globalized world, every country, every region, every city, and every individual needs to contribute because every action counts to limit global warming. That is why the media have a key role in sharing the knowledge that people need to take action.

As severe weather events are more frequent, the media coverage of the climate crisis has gained more prominence in the last ten years. But even if the media talk more about climate change, the proportion allocated to this topic on the news is still very low compared to other topics and considering the urgency of the situation (Katzung et al., 2023). While social media are prone to deniers who propagate false information, there is also a lack of trust in traditional media. In fact, journalists need more support and knowledge to explain the causes and the consequences clearly. To create more interest, journalists can choose to emphasize the solutions, generate hope, and empower the audience (Hackett et al., 2017).

France is not an exception, and French media need to talk more about the climate crisis. For example, a study showed that the coverage of the IPCC report in 2021 had been largely overtaken by other news, such as the transfer of the famous soccer player Lionel Messi to Paris (Cordonier & Agbanrin, 2021). If the media coverage is insufficient, the quality of the information is also a weakness. The media rarely states the link between global warming and the increase in severe weather events such as heat waves, droughts, and floods. Additionally, and to give another example, the media depict heat waves as something fun, with people enjoying the sunshine, whereas they should be portrayed as dangerous events, especially for the most vulnerable (O'Neill et al., 2022).

To better analyze French coverage of climate change by the media, it is important to review some events from the last five years. In November 2018, while the French government wanted to increase the carbon tax, a vast protest (the Yellow Jackets) started and lasted for several months to protest against the price rise at the gas pump. This carbon tax was seen as ineffective and inequitable as the solutions to avoid using cars were not widely available and accessible (Douenne & Fabre, 2020). At the same time, in December 2018, a large petition called “l’Affaire du Siècle” led by several non-profit organizations and supported by many artists, collected more than two million signatures in less than a month. This action led the French government to be convicted for inaction in the climate crisis in 2021 and again in 2023. In 2019, the government launched a Citizens Convention for Climate with 150 randomly selected citizens. One hundred forty-nine propositions were written and voted on by the citizens. Unfortunately, the bill written by the parliament in 2021 did not include many of the key propositions suggested by the Citizens Convention. A survey conducted by IPSOS in 2022 reveals interesting information about French people's opinions on solutions. 50% believe that significant changes in our lifestyles are necessary,

while 31% rely on technology and scientific innovations. Another 11% think that there is nothing to do because it is too late anyway (*Environnement*, 2022).

In 2019, the French government revised the National Low Carbon Strategy to set the goal of carbon neutrality in 2050. But even if the carbon neutrality goal was defined, the path to reach the aim was uncertain. In this context, the ADEME, a French governmental agency for ecological transition, was in charge of identifying, developing, and sharing best practices and innovations for a more climate-friendly society. The ADEME spent two years (2020-2021) conceiving four disparate scenarios and considering their implications to think about what could be France in 2050. The ADEME hoped to serve the debate and helped define which path France wanted to take. They presented the project through press conferences, webinars, reports, and a podcast series.

This thesis studies the four podcasts the ADEME has run to present the four scenarios. The series was led by a journalist and consisted of a short introduction with a mini-fiction to present the scenario, followed by a debate with four experts. The mini-fiction is a three- to four-minute dialogue that helps to understand the main characteristics of everyday life in 2050, depending on the scenarios. The four experts came from various fields (economy, food industry, climate science, and technology industry), which created interesting conversations about what could be the dominant solution types in the future.

Narratives are crucial in understanding the world around us. They frame how we talk about historical events, guide us to organize our lives, and provide pieces of advice on how to act properly in society. Master narrative theory has been created to understand how stories design culture. Researchers argue that people are influenced not only by the sociocultural context but also by sharing and listening to stories with others. They demonstrate the pressure exerted by people in

power to align with those master narratives (Andrews, 2004; Bamberg, 2004; Hammack, 2008; McLean & Syed, 2016; Syed, 2017).

McLean and Syed defined three types of master narratives: *biographical master narratives*, *structural master narratives*, and *episodic master narratives* (McLean & Syed, 2016). For this study, I propose a new type of master narrative: the *futuristic master narrative*. I argue that how influential institutions, such as governments or big companies, shape our views of the future through the media constitutes futuristic master narratives.

Some people do not recognize themselves in mainstream discourses and see master narratives as partial, insufficient, or even unrealistic. That is why they create counter-narratives in order to represent minorities and marginalized people and contest the master narratives (Bamberg, 2004; Gabriel, 2016). However, pointing out master narratives tends sometimes to reinforce them rather than confute them. In fact, people who create counter-narratives can neutralize pieces of the master narratives and be complicit at the same time (Bamberg, 2004; Lundholt et al., 2018). The futuristic master narrative approach that I proposed can be adapted to create the futuristic counter-narrative.

To specifically apply futuristic master and counter-narratives to the climate change context, I propose three themes: technology, economy, and responsibility. Those three intertwined themes have been designed to characterize the visions of the future and the solutions that are conceived to solve the climate crisis. They will be explained on both sides: the master narratives and the counter-narratives.

The way media narrativize desirable views of the future for everyone will significantly impact the design of solutions and public opinion on those solutions. Master and counter-narratives have been used in various contexts, from studying identity development and personal narratives in

psychology (e.g., Hammack, 2008; Lundholt et al., 2018; Rasch, 2021; Syed & McLean, 2021), to studying critical theories around race and gender (Mauro, 2020; Stanley, 2007; Woodson, 2017); however, they are understudied for analyzing social issues representation such as climate change. This is why the study of climate change master and counter-narratives is necessary.

To run the analysis, I have developed a futuristic master and counter-narratives analysis based on semantic analysis and critical discourse analysis with a bit of small stories research. The semantic analysis serves to analyze the themes present in the podcast and categorize the master and counter-narratives within those themes. Critical discourse analysis is used to analyze how the master and counter-narratives are narrated, study the ways experts are presenting them, and investigate their positionality. Small stories research is a method that could be helpful to seize the co-construction of the discourse around master and counter-narratives.

1.2 Goal and Research Questions

The goal of this thesis is to find out how narratives are shaping and questioning representations of a carbon-neutral world in 2050. The analysis helps validate the proposed theoretical framework of futuristic master and counter-narratives to analyze the narration of prospective events in the context of social issues such as climate change.

1.3 Organization of Thesis

Chapter 2 presents an overview of climate change communication with a focus on communication of the solutions to mitigate the crisis and a glimpse of France's context. Then, the benefits of narrative theories in the context of climate change are explained. An emphasis on master and counter-narratives is provided with concrete examples applied to the climate change context. Chapter 3 includes a description of the chosen methods, an explanation of how the analysis has been conducted, a step-by-step process, and an examination of the trustworthiness of the study.

Chapter 4 presents the overall results, including more context information and answers to the three research questions. Chapter 5 sums up the main findings and provides a conclusion.

2.1 Climate Change Communication Overview

2.1.1 Developing Desirable Views of the Future

As the Intergovernmental Panel on Climate Change pointed out in a 2022 report, misinformation and science denigration led to the misunderstanding of the scientific consensus and negligence regarding the risk and urgency of the climate situation (Hicke et al., 2023). The climate crisis is a complex problem, and even if the media talk more about it, the discourse is still not always clear and understandable. The media coverage of the climate crisis could be improved in various aspects to explain the stakes better (Painter, 2019).

First, traditional media mainly talk about the climate crisis when severe weather occurs, such as floods, wildfires, drought, or hurricanes, but tend not to explain the causes and solutions clearly. Second, legacy media tend to present the topic in a depressing way. They maintain a doom-and-gloom ambiance by shaping climate change as ineluctable, creating discouragements. Additionally, journalists lack the training to talk about the climate crisis with confidence. They fail to give an overview of the problem and truly denounce the oil and gas industry. They also miss providing local evidence that speaks to the public. It creates less interest and engagement from the audience (Hackett et al., 2017; Romps & Retzinger, 2019).

Furthermore, the mass use of social media both increases access and complicates the dissemination of climate change information. In this context, climate change speakers diversified in many types, from government, companies, and scientists to activists and influencers, which diminishes journalists' monopoly (Schäfer & Painter, 2021). However, the journalistic norm of balanced reporting, which means that journalists give the same attention to both climate believers

and climate deniers, has engendered more biases in climate change coverage (Boykoff, 2011). Climate deniers are also really active on social media and make it difficult for the audience to sort the truth from the lies. They disseminate misleading information and use bots to propagate their ideas (King et al., 2022). It creates a challenge to convince people about the seriousness of the situation and encourage people to take action.

As Guenther and his colleagues explain, a new frame has recently emerged on climate change coverage (2022). Their study analyzed the Indian, German, United Kingdom, and United States media and showed that *Global Doom* and *Local Tragedies* were prevalent in the early 80s. However, more recently, a new frame has appeared that is more centered on a *Sustainable Future* (Guenther et al., 2022). This matters because the media create people's vision of the future regarding the climate crisis. They shape how people imagine the possible climate pathways and, consequently, how they think about what they can actively do about it now (Bolsen & Shapiro, 2018). Showing desirable views of a sustainable future and creating common goals create hope and encourage individuals to take action in their everyday lives. Communications that are focused on solutions that directly show people what they can do, how they can do it, and that explicitly demonstrate how it contributes to solving the problem are the most effective in generating hope and empowering the communities (Guenther et al., 2022; Moser & Dilling, 2007).

2.1.2 Worldwide Climate Change Communication on Solutions

In the context of this study, solutions are defined as the means to solve the climate crisis. To be more specific, they are all the ways society can use to reduce carbon emissions. It is beneficial to have an overview of how the media talk about climate solutions around the world. Hase et al. presented an analysis of climate change coverage for both the Global North and the Global South, with more than 70,000 articles included (2021). Ten countries were selected to give

a broader view of climate communication, with countries such as Namibia, Thailand, and South Africa, which are not usually included in other studies. In this study, the researchers used structural topic modeling to analyze the data and determine the prevalence of themes and topics. The *Causes of & Solutions to Climate Change* theme represents 13.83% of the coverage, which makes it the dominant theme. The types of solutions that are the most prevailing are *Carbon-related incentives & policies* (2.75%), *Clean energy* (2.05%), *Divestment* (1.19%), *Energy efficiency* (1.12%), *Forest conservation* (1.07%), *Carbon capture* (1.07%), *Infrastructure & transportation* (0.83%), *Sustainability & consumption* (0.78%) (Hase et al., 2021).

Now, it is important to consider if some solutions are predominant in discourse provided by the media, and if there are, why. Are some solutions related to certain ideologies, beliefs, or economic interests? Are they the most effective or the easiest to implement? Also, are there other solutions that are missing here? It could be difficult to tell because it mainly depends on where and how people live (i.e., habits, behaviors, energy sources, etc.). However, some sources could be helpful in evaluating the pertinence of those solutions. The best example is the 2022 IPCC report on mitigation, in which the authors provide a table with solutions categorized by sectors and their contributions (see Appendix A). The promising solutions are *Wind energy*, *Solar energy*, *Carbon sequestration in agriculture*, *Reduced conversion of forests and other ecosystems*, *Ecosystem restoration*, *afforestation*, *reforestation*, and *Fuel switching (electr, nat. gas, bio-energy, H2)* (Shukla et al., 2023).

There are definitely some overlaps with the dominant solutions found in the Hase et al. study (2021). However, for example, divestment has not been mentioned in the mitigation options proposed in the IPCC report. Unfortunately, it seems that nobody has conducted the same kind of research in France to characterize the solutions presented by the French media. However, it is still

important to understand the French context and find out how the French media present the climate crisis.

2.1.3 Climate Change Communication in France

According to a study conducted by *Reporters d'Espoirs* between 2010 and 2019, less than 1% of French TV, radio, and newspapers covered the climate crisis. National newspapers are the most engaged, such as *Le Monde* with 5% of the production dedicated to climate. However, the report also describes a global net increase in climate coverage over the ten years analyzed. For example, nightly news broadcasts (*TF1* and *France 2*) on climate change have been multiplied by three over the period (Comment Les Médias Traitent-Ils Du Changement Climatique ?, 2020). Since the publication of this study, climate coverage has evolved quickly. Weather forecasts have been combined with information about the climate evolution for two news broadcasts (*France 2* and *France 3*) since March 2023, with a new communication strategy developed by those media better to cover the climate crisis (Alvarez, 2023).

Despite the scarcity of more recent analyses and the lack of studies on the solutions promoted by the French media, the French population's opinion on solutions has been studied in a few papers. After the Yellow Jackets' protest that lasted for several months to complain about a carbon tax increase in 2018, Douenne and Fabre conducted a large survey with 3,002 participants to understand how French people react to climate policies (Douenne & Fabre, 2020). They explained that people perceive the tax as ineffective because they do not have other convenient alternatives to cars. It means that a carbon tax can be seen as a false excuse to increase taxes. They concluded that the rejection was rather not a low desire to take action but an inappropriate measure to tackle the climate crisis. Douenne and Fabre's results show that most people understand the

climate crisis globally, but they do not completely grasp the factors and consequences and certainly not enough to realize the solutions needed to address it (Douenne & Fabre, 2020).

Taking into consideration the Yellow Jackets movement, the French government initiated a large consultation within the population called the *Grand Debat National*. The data collected from the survey dedicated to the ecological transition has been analyzed by Schmid and Guinaudeau (2022). They found out that transportation and energy are the two main sectors where French people see that solutions can be implemented to address the climate crisis. Solutions that are based on substitution (switching from a carbon-emitting solution to a low or zero-carbon emission solution) are the preferred solutions, followed by sufficiency- (reduction of the practice) and efficiency-based (improvement of the usage) actions, deduced from public opinion analyzed through the survey. Regarding transportation, the most supported solutions are low-emissions cars (50%), fewer flights (25%), and the development of trains (22%). The most mentioned solution in the energy sector is the deployment of renewable energy (70%), while the others support nuclear energy (30%) (Schmid & Guinaudeau, 2022). There is a lack of consensus on electric cars because some participants argue that the battery's production is harmful to the environment. The other topic on which participants disagree is the development of nuclear energy, as half of the respondents think that the cost and the risk are too high (Schmid & Guinaudeau, 2022).

Since the Paris Agreement in 2015, France wants to play a major role in the fight against the climate crisis. The government is actively working on mitigation plans to reach its ambitious objectives for 2050. In 2022, the French governmental agency ADEME published four podcasts to engage a conversation around the mitigation options to address the climate crisis. They presented four prospective scenarios that could lead to a carbon-neutral society in 2050. Studying this podcast series can give an idea of the possible, feasible, and desirable solutions that France

could decide to implement. It can help grasp the societal alternatives that are attractive in France and how they fit in the global climate change communication on solutions.

2.2 Narrative Theories in the Context of Climate Change

2.2.1 Why Studying Narratives

For this study, I have conscientiously chosen to use narrative theories for several reasons. Reviewing the literature on both framing and narrative theories, acknowledging the likenesses, the differences in their concept, and their applications helped me strengthen my choice.

First, it is important to recognize the similarities between Fisher's Narrative Paradigm (1985) and Goffman's frames (1974). Despite their different approaches, both theories argue that humans are active meaning-makers. People use language and other symbols to make sense of the world around them but also to persuade others by shaping how others see the world. People's interpretations of events are influenced by their own values and beliefs (W. R. Fisher, 1985; Goffman, 1974).

However, if, on the one hand, frames are approved or rejected based on a set of beliefs the audience already owns, then, on the other hand, narratives allow people to relate the determinant factors of those beliefs, the sequence of events that create a certain attitude, and what might come out in the future. Consequently, frames leverage what we think within a specific context and narratives leverage who people think they have become and could be, both individually and as a community.

According to Goffman, frames are defined as "principles of organization which govern events—at least social ones—and our subjective involvement in them" (Goffman, 1974, p. 10). As explained by Chong and Druckman (2007), there is a distinction between "*frames in thought*" and "*frames in communication.*" Frames in thought refer to personal frames generated by people's

cognitive comprehension of a specific situation. Frames in communication represent what an interlocutor emphasizes when reporting about an issue, while frames in thought point out what people think is the most important aspect of an issue (Chong & Druckman, 2007, p. 101). Based on this distinction, Chong and Druckman give an explanation of the four processes designed by Scheufele in 1999 to better understand the relationship between the media and their audiences and the effect of framing. First, “frame building” is the process that describes how media choose specific frames in communication. Then, the process of “frame setting” reflects the effect of frames in communication on frames in thought. Next, the “individual-level effects of frames” process relates to the influence of frames in thought on behaviors. Finally, the “journalists as audiences” process analyzes how people’s actions impact the frame-building process (Chong & Druckman, 2007; Scheufele, 1999, p. 115).

In fact, to frame is to choose some aspects of an event or an issue and emphasize them to make them the focus of the communication in order to shape the meaning of the problem, his analysis, and even the solution needed (Entman, 1993). People can reflect on what they already know and make connections to things that are not mentioned by the speaker, which constitute their frame in thought. However, if people are less informed or educated, they could be more deeply influenced by the frame in communication (Chong & Druckman, 2007; Entman, 1993).

Using frames to analyze content could limit the diagnosis to the main meanings and fail to consider the importance of the connection between the message and people’s existing schemas (Entman, 1993). In fact, previous knowledge and past experiences constitute people’s schemas that help people to quickly and efficiently process new information. This is where stories play a significant role.

As Fisher explains, people communicate by using rhetorical messages that are narrative in essence and that use stories to make sense of life and to convince others (W. R. Fisher, 1987). Ryan argues that “narrative representation” is created by the audience and combines the place and time of the staging, the actors, and how they act and go through experiences. As the order of events and logical flow of the narrative need to be coherent, the elements of the narrative cannot be interchanged; otherwise, the narrative could lose its strength (Ryan, 2001).

Some narratives have more impact than others on how people see the world and how they define themselves. Master narratives are the traditional stories that construct people's culture. They state the principles in order to be part of that culture and the expected attitudes people should have. People have to assimilate those master narratives and work out with them to know how to behave (McLean & Syed, 2016). They play an important role in individual agency and community belonging.

Moreover, according to Ganz, public narrative can create new common identities and bring stimuli that motivate people to take action (2008). By sharing values within narratives, emotional responses are solicited, and this gives force to the audience to act. Public narrative mobilizes different levels of a story: *self*, *us*, and *now*. Those three levels narrate a story that helps people determine the choices they want to make and encourages them to find a way to tackle the crisis (Ganz, 2008).

In that regard, identity is developed through narratives. The way someone creates a personal narrative, adapts it through life experiences, and arranges it with and by social life, constitutes the process of identity development (Hammack, 2008). McAdams and McLean define narrative identity as “a person’s internalized and evolving life story, integrating the reconstructed past and imagined future to provide life with some degree of unity and purpose” (McAdams &

McLean, 2013, p. 233). To some extent, people arrange their life stories to make them stable, well-constructed, and aligned with society's expectations. In that sense, narrative identity gives more strength to the master narrative.

While framing can influence the way people think about a topic, the master narratives are rooted in more than mere manipulation at a moment of salience. The underlying process of integrating the master narratives and then constructing and reconstructing the self is much more steady. As master narratives are rooted in narrative identity and do not just rely on a topic in a moment of time, they hold greater power over the discourse of an issue. With such a tremendous crisis that is climate change, studying master narratives could probably give a deeper understanding of the communication mechanisms than framing would do.

2.2.2 Narratives on Climate Change Solutions

The solutions needed to tackle the climate crisis require wealthy people in developed countries to change their behaviors, approach traveling differently, consume locally, change their diet, and limit their dependence on fossil fuels. However, as seen in the Schmid and Guinaudeau analysis, solutions and societal choices to address the climate crisis can polarize opinion (2022). Fisher argued that stories have the power to persuade people and that they are more effective than an argumentative debate. Stories are the foundation of communication, and they help people make sense of their life. He developed the concept of *narrative rationality* within his *narrative paradigm*, which brings attention to the *coherence* and *fidelity* of stories. The more a story is consistent, free of incoherences, or inferences and issues that feel not logical, the more people will adhere to the message (W. R. Fisher, 1984, 1985). Those claims have been balanced by other theorists who argue that people need strong arguments from experts and scientists to make an informed decision. From their point of view, narratives serve to build trust and resolve conflicts

by calling for reasoning (McGee & Nelson, 1985). Other researchers argue that if nobody seems to act to address the climate crisis, it is probably because people do not know enough about the problem or how to solve it, which is known as the knowledge deficit (Cornforth, 2011; Einsiedel, 2005; Kellstedt et al., 2008).

As a societal consensus on solutions is needed to take action to tackle the climate crisis, narratives play an important role in climate change communication. How the media and people with influence talk about the climate crisis is paramount for the population to understand the problem and raise awareness about the alternative paths we collectively can take.

2.2.3 Master and Counter Narratives on Climate Change Solutions

Acting involves a drastic change in the way we live. However, how we behave and what we believe is part of our culture and our identity. Some narratives are so impregnated in our culture that we struggle to question them. Also, change does not please everyone, and some people take advantage of their power to share discourses that promote immobilism. Studying the narratives in the four podcasts by ADEME, with master narratives and counter-narratives theories, can help to understand the underlying mechanisms of climate change solutions promoted by the media.

2.3 Master Narratives

2.3.1 Overview of the Theory, Context, and Evolution

Master narratives have been studied in two different ways: to analyze storytellers' posture vis-a-vis their story or, more broadly, to investigate metanarratives and grand narratives that dictate cultural norms (Bamberg, 2004). From those two perspectives, researchers have defined master narratives as stories that reflect culture. They guide people on how to be part of that culture, understand their identity, and influence their behaviors and beliefs. Master narratives have been used in various contexts to study how people tell stories and their impact on individual agency and

identity development. Theorists defend that people are influenced not only by the sociocultural context but also by interactions with others. They emphasize the pressure to align with those master narratives and fit within that culture (Andrews, 2004; Bamberg, 2004; Hammack, 2008; McLean & Syed, 2016; Syed, 2017).

McLean and Syed worked to give a better sense of what characterizes master narratives and how they operate (2016). They defined five principles to describe master narratives that are “utility, ubiquity, invisibility, their compulsory nature, and their rigidity” (McLean & Syed, 2016, p. 326). Indeed, master narratives are useful for giving pieces of advice on how to behave, how to belong to a group identity, and how to interact with others. They are also pervasive messages that are present in most representations of the culture (media, books, films, etc.), which make them ubiquitous. As they impregnate all messages, master narratives are difficult to detect. They are unconsciously adopted by people, and they tend to show up when someone or something starts to act in contradiction with them. Additionally, the authors explain that master narratives have a compulsory nature, which means that they define the moral, what is good, and what is bad. Those who do not align with them have a higher chance of being marginalized. The last principle is the rigidity of their message due to the advantages they give to those in power (McLean & Syed, 2016). Master narratives tend to serve the people who have the power, namely, the government and the industry contributing to the economy, and they tend to minimize or discredit other narratives (Gabriel, 2016).

McLean and Syed also defined several types of master narratives (2016). The *biographical master narratives* are the ones that describe the events that should occur during a lifetime and their order. *Structural master narratives* dictate how stories or specific experiences should be recounted. *Episodic master narratives* appear when the same historical event is narrated frequently and in the

same way. They serve as common recollections of important events and foster identity development and community membership. The media have a strong influence on this type of master narrative because they are the first to shape the story of an event (McLean & Syed, 2016). A fourth type of master narrative has been identified by Hochman and Spector-Mersel. They defined *foundational master narratives* as cultural and religious stories and global ideologies related to religions (Hochman & Spector-Mersel, 2020).

2.3.2 Application of Master Narratives

Master narratives have been studied in various contexts and by diverse scholars. For example, Woodson analyzed them through the lens of critical race theory to understand how black people's struggles are rubbed out and how it strengthens racism (2017). The author defined four themes issued from the literature to demonstrate that master narratives limit people's understanding of historical racial struggles within the educational system (Woodson, 2017). Another example is the publication on the psychology of life stages by Syed (2017). Here, the researcher emphasized the importance of analyzing the pressure enforced by biographical master narratives within a framework of power, social structure, and agency (Syed, 2017). Finally, to bring an example of a study of episodic master narratives, Hochman and Spector-Mersel conducted interviews to analyze how people of Yamit -who were evacuated in 1982- narrate their personal stories considering the influence of the Yamit's history and the foundational master narratives of the Zionist. The authors concluded by defining three strategies to resist the master narratives: "explicit debate, implicit debate, and neutralization" (Hochman & Spector-Mersel, 2020, p. 1055).

2.3.3 Master Narratives within Climate Change Communication

The master narratives that define what it means to have a good life are mainly composed of "happiness, meaning, or richness," which aligns with the individualistic social outlook in

developed countries (Syed & McLean, 2021, p. 6). Those in power positions nourish the master narratives of success that emphasize individual work because they understate the background and the structural elements of our society that disadvantage marginalized people (Syed & McLean, 2021). The problem is that master narratives on having a good life nowadays are not climate-friendly because they create the desire to be successful and gain a lot of money. In fact, the 10% wealthiest in the world contribute to about 50% of the worldwide greenhouse gas emissions, while the 50% poorest are only responsible for about 10% of the total emissions (Chancel & Piketty, 2015). People who have money tend to buy bigger cars that need more gas, buy bigger houses that require more energy to warm or cool, buy more technology tools and gadgets, travel more often and farther, etc. Those who defend this lifestyle tend to refuse to see the impact they have on the climate, on the environment, and even on marginalized people.

Impacts of climate change affect more heavily vulnerable populations, tend to exacerbate inequalities, generate new ones, and reinforce people in positions of power (Grubb et al., 2022). As Foucault stated, power is not limited to governmental institutions but permeates every discourse, shapes socialization, and creates relations of domination (Foucault, 1980). This is why master narratives are extremely important to study in the context of climate change. Sociologists have defined two master narratives that often apply to environmental problems: the “apocalyptic narrative” and the “ecological enlightenment and sustainability narrative” (Hannigan, 2023, p. 37). The apocalyptic narrative relies on biodiversity loss, depletion of natural resources, and overconsumption, which could lead to the collapse of civilization. The ecological enlightenment and sustainability narrative portrays a more positive view of the human capacity to protect the environment. Two theories fall under this master narrative. The *risk society thesis* developed by Ulrich Beck argues that modernization has led to an increase in risks that are difficult to manage,

and the *ecological modernisation* theory from Mol and Spaargaren claims that solving the environmental crisis can be done without quitting modernization (Beck, 1992; Hannigan, 2023; Spaargaren & Mol, 1992).

2.3.4 Futuristic Master Narratives and Climate Change Solutions

The term “sociotechnical imaginaries” was elaborated by Kim and Jasanoff and defined as “collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology” (2015, p. 4). In this concept, the question of power is essential because the visions of desirable futures can be very different depending on people's position in society. As explained by the authors, master narratives can contribute to the development of specific sociotechnical imaginaries (Jasanoff & Kim, 2015).

Master narratives have been extensively used for life events or historical events but rarely for futuristic perspectives. For example, Törrönen created the broad concept of *pending narratives*, which are stories that transform unsettled future situations into more bearable scenarios. He highlighted the role of master narratives in characterizing the pending narratives in the context of COVID-19 but did not directly focus on them. His study emphasizes the persuasion aspect of narratives, while I intend to assert the hegemonic characteristic of master narratives (Törrönen, 2021).

As stated earlier, master narratives impregnate every discourse on climate change and have a tendency to reinforce climate injustice. The way media frame desirable views of the future for everyone will have an important impact on the design of solutions and public opinion on those solutions. This is why the study of climate change master narratives is necessary.

To conduct this research, I propose a new type of master narrative, which I call the *futuristic master narrative*. I argue that the way the media shape our views of the future constitutes futuristic master narratives. The difference with episodic master narratives is only in the fact that the events will occur in the future, but the mechanisms are the same. This is why the definition I wrote is inspired by the definition of episodic master narratives:

Futuristic master narratives design collective views of the future that reinforce community cohesion and cultural identity. They emphasize the power of the authorities to elaborate master narratives of future events. Media play an important role in the tailoring and distribution of those narratives, which leads to rapid adoption by the audience.

To specifically apply futuristic master narratives to the climate change context, I have developed three themes: eco-technological solutionism, green growth, and responsibility individualization. Those three intertwined themes have been designed to characterize the visions of the future and the solutions that are conceived to solve the climate crisis. They can be applied to developed countries, which are characterized by an advanced economy and a high gross domestic product (GDP) per capita (International Monetary Fund, 2022).

Eco-technological solutionism is the master narrative that presents technology as the best strategy to solve the climate crisis. Innovations are induced through the funding of research and start-up projects to find technological solutions to reduce our carbon footprint. The focus is on the creation of new technologies that allow people to maintain their quality of life and comfort without changing their habits. This master narrative tends to maintain the status quo, as individuals think they just have to wait for scientists to find technological solutions to reduce our carbon emissions. It creates techno-optimism even on technologies that are far from completely developed. For example, carbon capture and storage is presented as an attractive solution in Japan because it

allows fossil fuel burning continuation while promising carbon emission reduction. If Japanese media present this solution with a lot of optimism, messages need to be balanced to include the doubts and hazards linked to this technology (Asayama & Ishii, 2017).

Eco-technological solutionism finds its roots in ecological modernization, which promotes the development of clean technologies within a business-as-usual approach (Spaargaren & Mol, 1992). However, carbon-neutral technologies do not exist, and the development of new ones always has an impact on the environment. The expansion of electric cars is a good example of a new technology that wants to replace old and carbon-emitting technology (internal combustion engine). The thing is that the media rarely talk about the drawbacks of electric cars (pollution due to the production and recycling of batteries) or even present the development of other alternatives (Zheltukhina et al., 2020). In fact, technology has been shown to create more needs and then more consumption, which is not the impact expected on the climate crisis (Shove, 2003).

This leads to the second futuristic master narrative: green growth. This master narrative defends that our current economic system cannot function without economic growth. People who support this master narrative argue that it is possible to develop a green economy that will align with the climate goals but also address social challenges and generate more job opportunities at the same time. The concept of green growth is largely supported and promoted by international organizations such as the United Nations Environment Program and the World Bank (Dale et al., 2016; Hickel & Kallis, 2020). This is not a new idea, and back in the 90s, theorists in ecological modernization already promoted green capitalism, but they also admitted later that it reinforces power positions (Hannigan, 2023). A similar concept is neoliberal environmentalism, which means that the self-regulating market of liberal capitalism can serve to protect the environment (Swaffield, 2016).

The main argument is that an economic system based on technology reduces the amount of natural resources needed. McAfee claims that even if the American population is growing as well as the economy, the US emits less greenhouse gasses therefore, economic growth is not a problem, and there is no need for change (McAfee, 2019). Economists refer to the decoupling of carbon emissions from economic growth and explain that technological progress and substitution allow for less resource consumption (Hubacek et al., 2021; Schandl et al., 2016). However, the latest IPCC report, which synthesized research papers on decoupling, made a skeptical conclusion on the ability of green growth to reduce carbon emissions. Another counter-argument is the Jevon paradox, which means that “high efficiency is associated with high levels of resource consumption” (York & McGee, 2016, p. 79).

Lastly, another futuristic master narrative is that individual actions are more important than organized and collective actions. The responsibility to take action is put on individuals rather than governments and industries. This narrative emphasizes people's culpability in the climate crisis. For example, people can choose to make different choices when they buy a product and try to avoid overconsumption. In fact, ecological and green products are promoted as a solution to address climate change, and consumption becomes a social action. Consumers have the personal freedom to choose what they want to support in their everyday lives. This idea was developed in the US in the 80s when the government wanted to give back power and responsibility to the citizens and limit its own actions. Innovation of cleaner and environmentally friendly products was presented as a solution to limit the impacts on the environment and sustain the economy without any coercion (Maniates, 2001).

2.3.5 Application to the French Context

In France, nuclear technology is presented as a solution to limit global warming. While France's nuclear reactors are getting old, nuclear power is part of the carbon neutrality strategy, and the government is accelerating the development of new technologies and the construction of new reactors. Long debates have taken place within the European Commission to categorize nuclear energy as a green technology alongside renewable energies such as solar panels and wind turbines (Jack, 2023; Mouterde & Pecout, 2023).

In addition to nuclear energy, the French government wants to have more green industry installations. Following the US Inflation Reduction Act, they announced in Mai 2023 the NZIA (Net Zero Industry Act) and the TCTF (Temporary Crisis and Transition Framework), accompanied by bills to attract investments and support the development of green technologies. They argue that the French industry is cleaner and produces less carbon emission (mostly due to nuclear energy) than China, and that is why it is used to encourage production directly on French territory (Caulcutt, 2023; Le Maire et al., 2023).

France still relies on gas for its energetic supply, and after the beginning of the war in Ukraine, the government had to set up a plan to avoid any disruption. One of the strategies was to ask French citizens to do their part by reducing their energy consumption. They were invited to reduce air-conditioning use, unplug electrical materials, and turn off the lights in unoccupied rooms, arguing that it is also better for the Earth (“Le gouvernement appelle les Français «à des petits gestes» pour économiser l’énergie,” 2022).

2.4 Counter-Narratives

2.4.1 Overview of the Theory, Context, and Evolution

As explained in the previous section, by guiding individuals in their lives, master narratives impose a certain agency and course of action. If master narratives are everywhere and penetrate everyday conversation, consequently, they are difficult to detect, and this makes it tricky to step out of them. Individuals might feel immersed in sociocultural explanations of society imposed by a regime of hegemony. However, those narratives might appear incomplete, oversimplified, or even unrealistic, especially for those who do not recognize themselves in mainstream discourses. In this sense, counter-narratives are used by minorities and marginalized people to contest the master narratives created by those in power. Additionally, sometimes, other people speak for minorities to represent their voices or act as rebels to diffuse a counter message (Bamberg, 2004; Gabriel, 2016).

However, the line between master and counter-narratives is not that clear. To be able to be counteracted, first, a master narrative must be identified and recognized by pointing out its largely uncontested power and influence. Designating master narratives this way, however, tends sometimes to reinforce them rather than deprive them of that power. Therefore, parts of the master narrative can be refuted and reformulated while others are unchanged. By doing so, people who create counter-narratives can neutralize pieces of the master narratives and be complicit at the same time (Bamberg, 2004; Lundholt et al., 2018).

Understanding the interconnection between counter and master narratives and how people position themselves within those narratives can help seize the social construction that shapes our society. They are essential to comprehending identity pluralism and individual agency that contributes to the social multiculturalism context. Master and counter-narratives have been largely

used for studying identity development and personal narratives in psychology (e.g., Hammack, 2008; Lundholt et al., 2018; Rasch, 2021; Syed & McLean, 2021); however, they are understudied for analyzing social issues representation such as climate change, which I will address below.

2.4.2 Application of Counter-Narratives

Counter-narratives have been used in various contexts and with different combinations of theoretical frameworks. For example, in a paper published in 2007, Stanley applied master narratives and counter-narratives in the context of university research (2007). She argues that the submission process of journal articles is hampered by institutional racism by relating her own experience. Counter-narratives are needed to represent marginalized people, share their research, and challenge mainstream publications (Stanley, 2007). Another example is a study from Mauro, where the researcher analyzed the link between sports representation in the media and national identity definition in Europe (2020). While traditional media tend to generate racial communication, social media give a voice to famous sportsmen to counterbalance the main narrative and allow them to interact directly with their fans to talk about nationalism and national attachment (Mauro, 2020).

Those examples of research articles also reinforce the idea of a blurry line between master and counter-narratives because even when people try to create another discourse, they have to make the master narratives visible to denounce them. This is why it is important to analyze who tries to counterbalance the master narratives, what their arguments are, and what interests they have, especially when we consider the tremendous social issue of climate change.

2.4.3 Counter-Narratives within Climate Change Communication

Scholars have warned about the Earth's capacity to sustain humanity's growth for years. In 1972, *The Limits to Growth* report started the debate and warned about the unsustainability of the

economic and industrial system that organized our world (Meadows et al., 1972). Similarly, environmental sociologists have studied the link between environmental deterioration and capitalism for several decades now. The theory of the treadmill of production developed by Schnaiberg in 1980 explains that our society is based on an insatiable economic system that always wants to generate profits no matter the impact on the environment. People are dragged along in the system with a lot of advertisements that incite them to always consume more. When governments see the necessity of environmental protection, it is usually to establish their legitimacy, and the result is usually more production and more degradation. They are trapped between the need for environmental regulation and the unstoppable capitalism machine (Schnaiberg, 1980).

Since then, the Intergovernmental Panel on Climate Change has used each report to emphasize the fossil fuel industry's impact on the climate crisis and the human responsibility to act (Grubb et al., 2022). If scholars are not part of a marginalized group, neither are they in a position of power. Their voices are mostly absent from traditional media, and they suffer from misinformation on social media (Schäfer & Painter, 2021). Their intentions are to analyze the pros and cons of each solution and provide clear and unbiased pieces of evidence for governments, industries, and individuals to make the best-informed decisions to reduce carbon emissions. As stated earlier, the climate crisis does not affect everybody to the same level, and minorities are the ones that are the most impacted (Grubb et al., 2022). To some extent, scholars speak for those who cannot defend themselves. This is why I argue that scholars design counter-narratives by conducting research that leads to a better understanding of our world in order to provide mitigation options to protect everyone for climate justice.

Scholars are not the only ones who want to create alternative discourses. Activists are citizens who engage themselves in protesting against the insufficient governmental actions to address the climate crisis. By changing their own behaviors, they share a counter-narrative that is more focused on living with frugality, voluntary simplicity and solidarity. They also directly want to induce new policy developments by challenging governments on economic and political levers. Activists have grouped through Non-Governmental Organizations (NGOs) to have more weight against the people in power positions (D. R. Fisher & Nasrin, 2021). Like scholars, NGOs are having trouble having their voices heard by mainstream media (Schäfer & Painter, 2021). That is why activists are not only protesting in the streets but also directly and actively on social media by sharing memes to express their frustration, anger, and motivation to act (Sakas, 2023). The environmental justice movement, which defends the protection of vulnerable populations (mainly people of color) against environmental pollution for safety and health concerns, cleared the way for the climate justice movement. According to Schlosberg and Collins, “climate justice focuses on local impacts and experience, inequitable vulnerabilities, the importance of community voice, and demands for community sovereignty and functioning” (2014).

Scholars and activists are both focused on finding the best solutions to address climate change. However, what are their arguments, and how do they differ from the solutions presented by the people in power? In other words, what are the counter-narratives they propose? Also, if their messages are largely absent from mainstream media, how do they diffuse their messages?

2.4.4 Futuristic Counter-Narratives and Climate Change Solutions

The futuristic master narrative that I proposed in the previous part can be adapted to create the futuristic counter-narrative. I argue that minorities who do not recognize themselves in the

master narratives that design our future dream up other possibilities that better suit their needs. I propose the following definition for the futuristic counter-narratives:

Futuristic counter-narratives represent alternative views of the future that contradict the futuristic master narratives. They are created by vulnerable and marginalized people to find solutions that are more aligned with their lifestyles and needs. Their ideas are usually not relayed by the mainstream media.

The three themes developed for futuristic master narratives can be applied to futuristic counter-narratives in the context of climate change solutions: low-tech and energetic soberness, degrowth, and collective responsibility. It is important to remember that those solutions are designed for developed countries.

In opposition to technological solutionism, the low-tech and energetic soberness counter-narrative presents an alternative to the mainstream discourse. If technologies are part of the solution to address climate change, some researchers also think that technologies take too much time to emerge and to be implemented, and this can prevent us from finding low-tech solutions or from implementing necessary regulations. Some researchers refer to technological myths to talk about technologies that do not seem to be realistic in a timely manner (Lamb et al., 2020; Peeters et al., 2016). Low technology means a simple and unsophisticated system that is easy to make, inexpensive, and also relatively easy to use. According to Alexander and Yacoumis, compared to high-tech, low-tech does not rely on fossil fuels and electricity but can rely on passive energy such as human energy, wind, and solar (2018). They also argue that low-tech solutions can present advantages in the case of energy and economic crises, which are highly likely in the context of the climate crisis (Alexander & Yacoumis, 2018). French researchers have recently designed a framework to understand better the various notions that define low-tech. They have determined

the following seven features: *decreased resources consumption in technology, new or extended service lives, appropriation, collective networks, back to basics, limited external dependency, and context-dependency*. The low-tech approach is a societal phenomenon that includes an organizational, systemic, and cultural dimension (Tanguy et al., 2023).

The second counter-narrative relates to the economic system. Some researchers argue that green growth is not a reasonable solution because the decoupling of economic growth from resource consumption and carbon emissions is unlikely in a timely manner (Hickel & Kallis, 2020; Jorgenson & Clark, 2012). One of the alternatives to green growth proposed by researchers is degrowth. The concept of degrowth is defined as a slowdown and a contraction of the economy to find an equilibrium with nature, reduce inequalities, and foster well-being (Hickel, 2021). Largely absent from mainstream media, degrowth is supported by activists to promote a sharing economy, low consumption, and less impact on the environment (Purdey, 2010). In a recent paper, Augustyn questions the capacity of degrowth to substitute the master narrative of economic growth (2023). She explains that the *sharing economy* that emerged early in the 2010s, with the success of Airbnb, is largely based on capitalism as it still promotes renting and selling, while in a context of degrowth, a true sharing economy should replace *owning* with *sharing* (Augustyn, 2023). This is exactly where the line between master and counter-narratives can get blurry. To avoid the counter-narrative to support the master narrative or the counter-narrative to be rejected, words have to be chosen smartly. The term *degrowth* has a negative connotation that does not help his appropriation (Hickel, 2021).

The last counter-narrative concerns responsibility vis-a-vis the climate crisis. While individualism is highly impregnated in developed countries, some researchers point out the need for more environmental regulations and government leadership on solutions (Lamb et al., 2020).

Hormio recently defined collective responsibility in two different ways (2023). First, individual actions taken by a lot of people can produce a powerful collective effect to tackle the climate crisis. Second, governments, politics at the international level, and companies are the ones who need to take responsibility for their decisions in the context of a warming climate (Hormio, 2023). In another way, Maniates explains that consumer choices to buy more eco-friendly products are moderated and limited by governmental and political actions (2001). If the power in place does not satisfy a need for more greener choices, then collective actions are necessary. He also argues that focusing on individual responsibility reduces and constrains our ability to think about bigger and more effective solutions (Maniates, 2001).

2.4.5 Application to the French Context

The non-profit organizations' ecosystem is well-developed in France, and low-techs have gained in popularity in the last 10 years within this ecosystem. *Low-tech Lab* is one of the most developed organizations that works on the promotion of low-technologies to make everyday life easier while using fewer resources and less energy. French researchers are actively looking at ways to overcome barriers that prevent people from using low-tech (Martin & Colin, 2021). Additionally, it is important to note that the governmental organization ADEME also published a report in 2022 to give a better understanding of the low-tech industry and its potential (Bloquel et al., 2022).

France is also a place of societal experimentation where eco-villages are flourishing (Hanks, 2021). Eco-villages are communities that are based on sustainability and where life is organized to limit the impact on the environment and preserve resources. A recent study shows that those communities are based on a model that does not seek any form of profit and tends to limit global consumption (Bobulescu & Fritscheova, 2021). Additionally, it is noteworthy to

mention that the European Parliament organized a conference named “*Beyond Growth*” in May 2023, where scholars were invited to present their perspectives on degrowth.

Lastly, French non-governmental organizations are pressurizing the government through judiciary processes. In December 2018, a large petition called “l’Affaire du Siecle” led by several non-profit organizations and supported by many artists, collected more than two million signatures in less than a month. This action led the French government to be convicted for inaction in the climate crisis in 2021 and again in 2023 (Cournil et al., 2020).

2.5 Research Questions

Scientists have tried to warn about the dangerous impact of carbon emissions on the climate for decades, but our society’s dependence on fossil fuels makes it difficult to think about solutions to design a carbon-neutral world. That is why we need to stimulate our imagination to create a desirable view of the future with less carbon emissions. Narratives focusing on the future in the context of the climate crisis are tremendous for understanding and defining our society's goals.

As reviewed previously, master narratives are omnipresent in our society and describe how people should act to be part of a community. They reinforce the hegemonic system in which people try to fit in. If they have been studied mostly in the context of identity development, they have not been studied as much as they could have been for analyzing social issues such as the climate crisis. Master narratives have been used to analyze life events and historical events, but there is a lack of studies involving them for the narration of future events. The futuristic master and counter-narratives framework that I have defined can address those gaps in the literature in order to characterize the solutions to mitigate the climate crisis and understand their implications.

The four podcasts conducted by the French organization ADEME serves as the content to analyze in order to answer the following research questions:

(RQ1): What futuristic master narratives can be identified in the depiction of the fictitious carbon-neutral society designed by the ADEME in their dedicated podcast series?

(RQ2): What futuristic counter-narratives can be identified in the depiction of the fictitious carbon-neutral society designed by the ADEME in their dedicated podcast series?

(RQ3): In the discussion part of the podcast series, how do the panelists negotiate the mini-fiction narratives to envision a desirable collective future in the context of the climate crisis?

RQ3 a: How do the panelists negotiate the futuristic master narratives identified in the mini-fictions?

RQ3 b: How do the panelists negotiate the futuristic counter-narratives identified in the mini-fictions?

This thesis consists of the analysis of a podcast series organized by the French governmental organization ADEME. The four podcasts start with a short mini-fiction for the listeners to picture themselves in a carbon-neutral society in 2050 in France. Then, four women with diverse backgrounds debate the mitigation solutions they just listened to. To conduct this study, I used critical discourse analysis and small stories methods.

3.1 Research Objectives

The core contributions of this thesis are:

- To utilize the proposed theoretical framework of futuristic master and counter-narratives to analyze the narration of future events in the context of social issues such as climate change;
- To identify the themes represented in the futuristic master and counter-narratives for the depiction of a carbon-neutral society in 2050;
- To examine the negotiation by experts of those futuristic master- and counter-narratives.

In order to achieve these objectives, I examined four podcasts led by the French organization ADEME and conducted a futuristic master and counter-narrative analysis based on semantic analysis and critical discourse analysis with a bite of small stories analysis.

3.2 Context and Field of Research

3.2.1 Master and Counter Narratives within Podcasting

As demonstrated in the literature review, master narratives are everywhere. They penetrate all kinds of media, and podcasting is no exception. Social media Influencers are active on podcasts, and by sharing their ways of living, they reinforce master narratives on what it means to be happy, rich, or successful.

The ranking of podcasts in France shows that the most popular topics are news and humor, but podcasts about lifestyles, such as fitness and health, are also numerous and very popular (*Classement Podcasts Juin 2023*, 2023). Those kinds of topics might convey master narratives about how to make healthy choices to comply with social norms. They define what it means to be fit and what it means to be healthy. In that way, they create limitations on people's agency to create their identity.

On the other hand, podcasting allows creative and cultural content to be produced independently, even with a small budget. This accessibility of content creation provides a space for people who are not represented in traditional media to express themselves. It gives a voice to marginalized people to explain their history, their struggles, and their ideas. The casual and intimate nature of podcasts offers an opportunity for them to promote their culture and encourage solidarity within and beyond their community. Moreover, minorities are able to create counter-narratives to neutralize and resist dominant discourses. With freedom in the editorial process, the medium provides a safe environment to share alternative stories and foster new self-created narratives (Vrikki & Malik, 2019).

3.2.2 "Tomorrow is not far away," a Podcast Series by the ADEME

The French organization, ADEME, is a governmental agency that works toward the ecological transition to help create a vision of a decarbonized society. The agency supports innovation and research to identify the best solutions for a smooth transition. Employees also train citizens and local stakeholders to promote concrete actions. One of the missions of the ADEME is to produce a prospective vision and define the steps needed to reach that vision. The agency spent two years (2020-2021) conceiving four disparate scenarios and considering their implications to imagine France as a carbon-neutral society in 2050. The project generated a wide variety of forms

of communication, including press conferences, webinars, reports, and a podcast series in 2022 named “Tomorrow Is Not Far Away.”

The podcast series consists of four podcasts to describe and discuss the four scenarios. The series is conducted by a French journalist, Nathacha Triou. She is a recognized journalist in science communication, mainly present on French public radio. Each podcast starts with a 3-minute mini-fiction to project the audience to a place in France in 2050 where people are living in a carbon-neutral society. Through their conversation, the audience can understand how society has changed. Then, four experts in their field discuss the mitigation solutions they just heard about in the mini-fiction for about 25 minutes. The four experts are:

- Céline Guivarch, PhD: climate scientist, research director at Ecole des Ponts ParisTech, and lead author on the IPCC;
- Chloé Charles: freelance chef, an anti-waste activist, the godmother of ecotable (an eco-responsible catering label), and co-founder of réductio;
- Sarah Lamaison, PhD: Cofounder of the French startup Dioxycle (carbon emissions converter);
- Dominique Méda, PhD: Philosopher, sociologist, author of books on the ecological transition and the impact on the workforce.

The scenarios present four different pathways France can take to achieve carbon neutrality in 2050. Each of them emphasizes a specific aspect of society:

- Scenario 1 - Frugal generation: significant changes in people's behaviors have led to more frugality and sufficiency;
- Scenario 2 - Regional cooperation: the economic system has been adapted to promote sharing. Decisions are made locally;
- Scenario 3 - Green technologies: technological innovations have helped design solutions for more energy efficiency;
- Scenario 4 - Restoration gamble: people have kept the same way of living, and efforts are placed on the economy and technology to restore ecological systems.

At the time the podcast series was published on Spotify (2022), podcasting was not a usual way of communication for the ADEME. But since then, two other series have been published.

3.3 Theoretical Framework of the Method

The futuristic master narrative analysis that I have designed is based on critical discourse analysis (Fairclough, 2001) and infused with thematic interpretation from Owen (1984) and small stories research (Bamberg & Georgakopoulou, 2008).

3.3.1 Critical Discourse Analysis (CDA)

According to Fairclough, language is an essential part of our social interaction and, therefore, needs to be at the center of social analysis (Fairclough, 2003). That is why he developed the discourse analysis method with the idea of giving the tools to analyze content to demonstrate the contribution of texts to “processes of meaning-making” (Fairclough, 2003, p. 11). Fairclough defined critical discourse analysis as a framework “which tries to incorporate the view of language as an integral element of the material social process” (Fairclough, 2001, p. 3).

Fairclough’s approach to discourse analysis highly considers the consequences of texts on social relations of power because ideological representations within the content can have effects on people’s beliefs and attitudes (Fairclough, 2003). However, it is important to clarify that critical discourse analysis, in accordance with Fairclough’s approach, emphasizes the analysis of the production of texts rather than the reception by the audience (Fairclough, 2003).

Critical discourse analysis is grounded in critical social theory. By using this method, researchers seek to study not only how ideology creates perception, meaning, or identity but also how it maintains a system of injustice and inequality (Leeuwen, 2009). As master narratives tend to serve the people in positions of power in order to legitimize a society of oppression, it makes sense to use critical discourse analysis to study master and counter-narratives.

Critical discourse analysis does not only focus on what is in the text but also on what is not. By using this method, researchers also identify what is implied or assumed and what has been

excluded from the content. The interpretation of the content can be difficult because it implies an understanding of the author's intentions. It also requires reflexive thoughts to judge and evaluate the seriousness, sincerity, and truthfulness of the content (Fairclough, 2003).

Discourse Analysis is a method that has become more and more common in the study of climate change communication for several reasons. First, discourse analysis takes into account the sociocultural and political context in which the discourse happens. The focus is rather on the linguistic structures and the contexts than the content itself. Then, this method can reveal cultural and ethical aspects of the climate change crisis (Koteyko & Atanasova, 2016).

Critical discourse analysis has several advantages for this study. First, it can be applied to all kinds of content, including audio formats such as podcasts. This method allows for a better consideration of nuances and contextualizing factors, which can be helpful in our case. Additionally, this method helps to understand how language is used to create social reality and how language reflects social power and ideologies, which is exactly aligned with master narrative analysis (Febriyanti, 2020).

On the other hand, it is also important to recognize the limitations of this method. As the podcasts chosen for this study are in French, there is a risk of alteration of the meaning during the translation, and this could interfere with the analysis. Also, the interpretation of the text is highly dependent on the researcher's knowledge on the topic. As stated by Mogashoa, “Meaning is never fixed and everything is always open to interpretation and negotiation” (Mogashoa, 2014, p. 111). Lastly, this method is time-consuming, and a good amount of time needs to be spent on the investigation, analysis, and review of the content. The reliability and the subjectivity associated with this method are discussed at the end of this chapter.

3.3.2 Thematic Interpretation

Owen defined themes as a scope of interpretations that can be used to conceptualize a topic or idea (1984). Then, thematic analysis is useful to provide insight into how people interpret an idea. To qualify as a theme, the idea or concept needs to be tested according to three criteria: recurrence, repetition, and forcefulness (Owen, 1984). Those criteria are explained in more detail later. If this approach can be seen as simple, it is pretty effective and highly applicable. For example, Owen's strategy has been used to create a method of critical thematic analysis to determine the importance of social practices, power relations, and ideologies (Lawless & Chen, 2019).

3.3.3 Small Stories

Georgakopoulou developed small stories research in 2007 to study the role of everyday life stories in the creation of social relations and identity politics. Small stories research gives a flexible framework that takes into account the content, the context, and the platform. The method uses three levels of analysis that are interconnected: ways of telling, sites, and tellers, which are explained later. With an emphasis on the narrative action, small stories research works well to understand what the message is about but also to analyze how the message is distributed (Bamberg & Georgakopoulou, 2008; Georgakopoulou, 2014).

This research paradigm has been used in various contexts and with diverse types of content (Georgakopoulou et al., 2023). In a recent study of the Finnish parliament debates, researchers used small stories to analyze narratives and arguments depicting what the future could be with the implementation of a new policy. With narrative positioning analysis, they investigate social interactions, social norms, and identity. They concluded by explaining that sharing projective stories works with the three aspects of positioning and contributes to enhanced persuasion

(Rautajoki et al., 2023). This study demonstrates the benefit of using small stories research for futuristic narratives.

3.4 Plan for Analysis

3.4.1 Unit of analysis

The podcasts have been partitioned into several units of analysis or parts. The mini-fiction at the beginning of the podcast is the first part. Then, the debate led by the journalist is also cut into smaller parts. As it seems that each time music is played, the journalist changes the theme and asks a new question, music has helped determine when to cut in units of analysis. Each podcast has around twenty units of analysis.

3.4.2 Semantic Analysis

A semantic analysis is important to understand what is present in the text (and what is not) and categorize parts of the text by themes. The analysis used a deductive approach utilizing the three themes identified in the literature review: technology, economy, and responsibility. It has been completed with an inductive approach to identify more themes by using the 3 criteria from thematic interpretation: recurrence, repetition, and forcefulness (Owen, 1984). Recurrence means that the same idea is implicitly shared several times but not always presented using the same words. Repetition is when the same words are used to talk about something. Forcefulness points out a change in the tone of the discourse. For audio format, it could be a change in the volume, a pause, or vocal intonation (Owen, 1984).

3.4.3 Futuristic Master and Counter Narratives Identification

To identify master narratives within the text, the five criteria developed by McLean and Syed have been used: *utility*, *ubiquity*, *invisibility*, *compulsory nature*, and *rigidity* (2016). Master narratives have been recognized when the text contains one or several of the following criteria:

- Pieces of advice on how to behave and how to interact with others (*Utility*);
- Pervasive messages or repetitions about representations of the culture (*Ubiquity*);
- Impregnate messages, unconsciously adopted by people, tend to show up when someone acts in contradiction with them (*Invisibility*);
- Messages that define the moral, what is good, and what is bad (*Compulsory nature*);
- Messages that tend to give advantages to those in power (*Rigidity*) (McLean & Syed, 2016).

It does not seem that researchers have defined criteria to identify counter-narratives, but based on the literature review, counter-narratives have been recognized when the text contains messages that:

- Openly contradict or contest an established master narrative;
- Try to neutralize master narratives;
- Seem to be beneficial for marginalized populations;
- Seem not to support the hegemonic system.

As I want to clearly identify master and counter-narratives included in the depiction of the future, I added another criterion for both master and counter-narratives identification, which is the futuristic context of the message.

3.4.4 Futuristic Master and Counter Narratives Analysis

Fairclough defines three types of meaning to deeply analyze texts: “Action, Representation and Identification” (p.27, 2003). Action corresponds to the way the text interacts with the event and implies social relations. Representation means what is the function represented within the social world. Identification refers to the ways someone is being and identifying in the social context. Those three types of meaning are interconnected with genres, discourse, and styles at the stage of social practices (Fairclough, 2003). They have been used to analyze how the master and counter-narratives are shared with the audience, look over what is included and what is not, study the ways speakers are presenting them, and investigate speakers’ positionality.

Additionally, the small stories research method is helpful to seize the co-construction of master and counter-narratives. The analysis uses three levels of analysis that are interconnected: ways of telling, sites, and tellers. Ways of telling refer to linguistic choices, the stories and the events themselves. Sites correspond to the places within the stories but also where the stories are told. Tellers mean here the persons who are communicating.

3.5 Procedures Step-by-step

3.5.1 Step 1: Transcription, translation, and proofreading

The audio format of the podcast series is available on the ADEME's website as well as on Spotify; however, the transcripts of the podcasts are not available online. I reached out to the press contact listed on their website, but unfortunately, even the ADEME does not have the transcripts. This is why the first step was to transcribe the four podcasts. This step was time-consuming because I did not use any software. Once that is done, the conversations have to be translated from French to English. For this step, I tried several online translators, and the one that gives the best result is called DeepL. Proofreading was necessary to ensure that the translation was accurate and reflected the original version. The analysis has been run on the English version with the possibility of checking back the French version if needed.

3.5.2 Step 2: Text and codebook preparation

Podcasts have been studied one after the other. Each podcast has been cut into small parts according to the unit of analysis defined and analyzed in the order of the text, starting with the mini-fiction. First, texts have been analyzed on Google Docs with one document per podcast. Then, texts were transferred to Google Sheets with a separate sheet to describe the codebook and give the definition of variables and themes used to run the analysis.

3.5.3 Step 3: Analysis

Semantic Analysis: The analysis started with the semantic step to point out the major themes featured in each mini-fiction. The semantic analysis was extended to the full podcast to see if other themes emerged during the debate.

Futuristic Master and Counter Narratives Identification: Each unit of analysis has been examined to identify the master and counter-narratives that describe the future characteristics of a carbon-neutral society. Based on the semantic analysis, the master and counter-narratives have been categorized by themes.

Futuristic Master and Counter Narratives Analysis: The master and counter-narratives identified have been analyzed to understand their meaning, construction, and implication. The text was evaluated by paying attention to the language and the structure of sentences. The negotiation of the master and counter-narratives by the experts during the debate has been examined as well.

3.5.4 Step 4: Themes-codes Development and Data Reduction

For this study, both deductive and inductive code approaches have been used. Based on the literature review and the theoretical framework, deductive codes were created. Codes have been organized by categories in order to analyze the *what*, the *who*, and the *how*. The *what* was used to characterize the content as master or counter-narratives and to code for the themes present within the narratives. If three themes have been detailed in the literature review (technology, economy, and responsibility), more themes were discovered through the analysis. The *who* was used to understand who is speaking and which population they are speaking for. The *how* was used to analyze the meaning of the narratives and their negotiation by the experts.

The data reduction process is important to select themes that are relevant to the study and the research questions. Themes might be grouped or excluded if not pertinent to the study.

According to the master and counter-narratives identified and what I am looking for, I chose which themes of the content should be focused on, played down, or even set apart.

3.5.5 Step 5: Discussion

The last step consists of a review of the analysis to draw conclusions. I analyzed the four podcasts as a whole to identify connections between themes and between master and counter-narratives and consider the broader context in which this podcast series has been created.

3.6 Trustworthiness of the Proposed Study

For qualitative studies, it is important to consider the trustworthiness of the project. I will discuss here five criteria: *credibility*, *transferability*, *dependability*, *confirmability*, and *reflexivity*, as suggested and explained by Korstjens and Moser (2018).

The best way to ensure credibility is to conduct persistent observation. It means that I spent a lot of time reading and reading again the transcripts of the four podcasts. The preparation of the data contributed to that. Working on the transcription and the translation took time, but was also helpful to get familiar with the content. The analysis was also done by doing intensive readings of the podcast transcripts. The concepts and the codes were revised during the analysis as needed to guarantee that I reached an in-depth analysis.

Regarding the transferability of my study, I provided a detailed description of the context and the content to allow readers to decide if my findings are applicable to other settings (other countries, for example). The literature review already explains the socio-political context of France regarding the climate crisis. For the analysis, I continued to provide insights and examples from France for the readers to seize the conjuncture.

Dependability has been ensured by using the same analysis process on each podcast and also spending the same amount of time on each podcast. I also took the same amount of examples

from each podcast to provide the same amount of analysis on each scenario. Related to that, confirmability has been guaranteed by maintaining transparency in my analysis. The codebook clearly describes how I conducted the analysis, and I kept records of each step taken to analyze the data.

As for my reflexivity statement, I want to share a little bit about myself. I am from France, and I moved to the US four years ago when I was 29 years old. With a degree in chemical engineering and a specialization in environment, I have always been passionate about humans' impacts on the environment and especially on climate. Through years of personal research, I have developed solid knowledge of the science behind climate change but also on the solutions that are needed to address the crisis. Even after four years in the US, I still follow French news and French politics closely. I definitely recognize that being French, being a woman, and being well educated on the climate crisis make me think in a certain way and potentially make me have biases. I acknowledge that my position on the prospective pathways France could take can have an impact on my analysis. If my vision of a thriving society in 2050 is not really clear and is probably utopian, I still want to share my opinions on the three themes identified in the literature review. First, I do not see technology as part of the solutions, and I think we should reduce our technology usage to become less dependent on it. In terms of the economy, I think developed countries from the north should slow down their growth to reduce their carbon footprint and let the countries from the south develop. Regarding responsibilities, I believe that governments need to implement more regulations to limit carbon emissions and also develop solutions to reduce people's dependence on fossil fuels (for transportation, for example).

4.1 Meaning and Context

Critical discourse analysis is a method that is highly based on the meaning of the text and also on its context. This is why this section provides more information about the ADEME and its position regarding the French government, some definitions of key terms, a description of each scenario, and a short biography of each expert.

4.1.1 The ADEME

The French Agency for Ecological Transition, called the ADEME, is a governmental organization under the supervision of the Ministry for Ecological Transition and Territorial Cohesion, the Ministry for the Energy Transition, and the Ministry for Higher Education and Research. The budget of the ADEME highly depends on subsidies and funding from the government. The ADEME can be compared to the EPA for the United States in the sense that it provides expertise, distributes grants, and raises awareness on environmental issues. However, the ADEME does not write regulations nor enforce them. Also, the agency has a certain freedom in its actions. To give some examples, in 2020, the ADEME wrote a controversial report on carbon capture and storage technologies, explaining that the implementation potential is limited, refuting techno-optimistic opinions (Marchand, n.d.). Another example is the Black Friday campaign on television launched in November 2023 to discourage people from buying new products to protect the environment. This campaign created a lot of dissatisfaction among the French government itself (Newton, 2023). Those examples demonstrate that the ADEME can create and distribute counter-narratives.

4.1.2 Wording Explanation

As I analyzed texts and their meanings, it is important that I provide definitions and explanations of some of the key terms used in the podcast series. As this analysis is done between two languages, some commentaries are needed to grasp all the nuances.

Sustainability

The podcast series uses the term “sustainable” several times, mainly to discuss sustainable food. In fact, the experts got going on a thoughtful explanation of sustainable food. This term “sustainability” is interesting to analyze because there is no perfect translation in French. In the original version, the experts are talking about “une alimentation durable,” because the term “durable” is largely used to refer to anything environmentally friendly. The term “soutenable,” which would be the literal translation for sustainable, is rarely used. This is probably why the experts are providing explanations to define what they were talking about.

Efficiency

Another word that is often used is efficiency. In the debates, the experts are talking about energy efficiency, but they are not giving a definition. The researcher Haie explains that efficiency means producing more while using fewer resources and consequently using resources in a sustainable way and limiting environmental impacts (2021). According to the European Parliament, energy efficiency refers to “the ratio of output of performance, service, goods or energy, to input of energy” (Erbach, 2015, p. 2). The author also explains that improvements can be made at all steps, from energy production to energy usage. Examples range from LED technology and building insulation to smart grids (Erbach, 2015).

Sufficiency

Sufficiency is a word that is often used in the podcast series, and it needs some explanation. In the original French version, the experts are talking about “sobriété” which would literally mean sobriety. However, “sobriété” can have a different meaning in French. It does not only refer to not drinking alcohol or soberness but also to talking about living with simplicity or frugality and avoiding anything unnecessary. In English, the word “sufficiency” carries the same meanings and is used by scientists in the IPCC reports. The sixth assessment report provides the following definition: “Sufficiency policies are a set of measures and daily practices that avoid demand for energy, materials, land and water while delivering human well-being for all within planetary boundaries.” (Shukla et al., 2023). Sufficiency is one of the solutions presented by the IPCC.

4.1.3 The Four Scenarios

The scenarios present four different pathways France can take to achieve carbon neutrality in 2050. Each of them proposes a different strategy and emphasizes a specific aspect of society. Each mini-fiction at the beginning of the podcast gives an idea of the scenario, but it is pretty short to understand the strategy and the limits of each scenario fully. During the discussion with the experts, the journalist Natacha Triou provides a little bit more details on each scenario. To be sure that I was fully understanding the nuances between scenarios, I collected information on the ADEME website. Here is a synthesis of each scenario based on both information shared in the podcast and the website.

Scenario 1 - Frugal Generation

Significant changes in people's behaviors and lifestyles to reduce their carbon footprint. From transportation to construction and consumption, all aspects of society are affected. New constructions are limited to focus on the renovation of existing buildings and homes. Nature is

protected and used to store more carbon within soils and forests. Mobility is reduced to the necessary and prioritized walking and biking. Frugality and sufficiency are fostered and lead to energy and goods consumption reduction. This scenario does not involve technologies such as carbon capture and storage (*Scenarios*, n.d.; Triou, 2022a).

Scenario 2 - Regional Cooperation

The governance of the society has evolved to allow decisions to be made mainly locally and give more space to non-profit organizations, citizens, and private sectors to collaborate and encourage local production and consumption. Energy sufficiency and efficiency are promoted, as well as a transition to an economic system based on sharing. This scenario is based on significant changes in the food system. Buildings are made to share spaces and services. Thermal renovation is also making progress. Sustainable alternatives to cars are developed, such as cargo bikes and tiny cars. Natural carbon sinks are preserved, and technological solutions for carbon capture and storage are developed where emissions cannot be avoided (*Scenarios*, n.d.; Triou, 2022b).

Scenario 3 - Green Technologies

Technological innovations have helped design solutions for more energy efficiency. People's habits and lifestyles have not changed significantly. The agriculture system has evolved toward an intensification with the use of synthetic fertilizers. Crops are also used to produce more energy. Building construction ensures the usage of low-carbon materials and energy efficiency for the new buildings, but it still consumes a lot of natural resources. There is no major shift in the transportation sector. The main focus is on electrifying the sector. Technologies of carbon capture and storage are developed to work for the biomass and biorefinery industry (*Scenarios*, n.d.; Triou, 2022c).

Scenario 4 - Restoration Gamble

People have kept the same way of living and still consume without limit. The demands for energy and materials are high, and the impacts on the environment are more and more visible. Efforts are placed on the economy and technology to restore ecological systems. Biomass is heavily used to produce energy. Cities are getting bigger, which leads to more land degradation. In this scenario, carbon neutrality relies on technologies to capture and store CO₂, with different types of technologies implemented (*Scenarios*, n.d.; Triou, 2022d).

4.1.4 The Experts

During the podcast, the journalist introduces each expert and provides some details on each one's career history. Knowing a little bit more about each expert is helpful in understanding their position regarding solutions proposed in each scenario. Based on their experiences, their knowledge, and their jobs, experts might bring different kinds of arguments.

Céline Guivarch, Ph.D.

Céline Guivarch is an interdisciplinary climate scientist modeling the economic consequences of climate change. She is a research director at Ecole des Ponts ParisTech, and researcher at the International Research Center on Environment and Development (Centre International de Recherche sur l'Environnement et le Développement - CIRED). Her research explores the interactions between the economic system, new technologies, people's lifestyles, and climate change. She was a lead author on the IPCC Sixth Assessment Report that was released in 2022. Céline Guivarch is also a member of the French High Council on Climate, created by President E. Macron in 2019 to provide recommendations on policies and advice on strategies for mitigating climate change to the government (Sánchez, 2020; Triou, 2022a).

Chloé Charles

Chloé Charles worked for prestigious French restaurants for several years and learned with the best chefs. Since 2017, she has been an independent chef who focuses on sustainable food and minimal food waste. She is the sponsor of “Ecotable,” an eco-responsible catering label. She is also the co-founder of Reductio, and she helps restaurants to reduce their food waste. Chloé Charles created her own space in 2022, Lago, which is rather a function room than a classical restaurant (*Chloé Charles*, n.d.; Triou, 2022a).

Sarah Lamaison, Ph.D.

Sarah Lamaison started her studies in France at the Ecole Polytechnique, where she studied chemistry and environmental sciences. She then pursued her studies at the University of Cambridge and then College de France and Stanford University, where she researched CO2 conversion. She co-founded the French startup Dioxycle in 2021 and raised more than \$9 million. Dioxycle develops technologies to convert CO2 into useful products such as ethylene. The startup was selected to be part of the Breakthrough Energy Fellow in 2021 and was named in the Forbes 2023 30 Under 30 list (*Decarbonizing Everyday Products*, n.d.; *Sarah Lamaison*, n.d.; Triou, 2022a).

Dominique Méda, Ph.D.

Dominique Méda is a sociologist and a professor at Paris Dauphine University since 2011. She is the director of IRISSO, the Interdisciplinary Institute of Research in Social Sciences. Her research focuses on the place of labor in society, the place of women in the workforce, the relationships between economy and politics, and the indicators of wealth. She has been working on the ecological transition since 2010 and developed the idea of a post-growth economy and its

impacts on society. She regularly writes articles for the newspaper *Le Monde* (*Beyond Growth*, n.d.; *Dominique Meda*, n.d.; Triou, 2022a).

4.2 Futuristic Master and Counter-Narratives Identified

Each podcast starts with a pre-recorded mini-fiction played by actors. It consists of a three- to four-minute dialogue that helps to understand how life looks like in 2050. While listening to the conversation, the audience perceives the impacts of climate change and the evolution of society. Each mini-fiction is very different, as it reflects on the corresponding scenario. The goal of this section is to answer research questions 1 and 2:

(RQ1): What futuristic master narratives can be identified in the depiction of the fictitious carbon-neutral society designed by the ADEME in their dedicated podcast series?

The five criteria defined by McLean and Syed have been used to detect master narratives: utility, ubiquity, invisibility, compulsory nature, and rigidity (McLean & Syed, 2016). The lens that is used to analyze master narratives is climate justice. For each scenario, I looked for clues that reveal social and cultural pressure on individual agencies that would prevent climate action. But I also looked for solutions to understand who is represented and who benefits from those solutions. I scrutinized solutions that would exclude or not consider some parts of the population based on their gender, race, or revenues, for example. The aim is to analyze how climate solutions are constrained by master narratives within a context of social power, inequalities, and climate justice. A summary of the master narratives is provided in Table 1.

(RQ2): What futuristic counter-narratives can be identified in the depiction of the fictitious carbon-neutral society designed by the ADEME in their dedicated podcast series?

As detailed in the method section, counter-narratives are detected when there is a contradiction or neutralization of master narratives and when the narrative seems to be beneficial for marginalized

populations or seems not to support the hegemonic system. Again, climate justice was used as a lens to look at the future and define those counter-narratives. For each mini-fiction, I searched for ideas and solutions that foster climate action. I analyzed solutions that would be beneficial for vulnerable populations. Table 2 presents a summary of the counter-narratives.

Scenario 1 - Frugal Generation

To present the first scenario, the mini-fiction offers a conversation between a mother and her two adult children in a restaurant in Lyon.

(RQ1): Master Narratives

In this scenario, there is a global master narrative of individualism and personal freedom, illustrated with several examples, that prevents people from taking action for the climate. First, there is a narrative that presents the older generation as people who care less about climate change and people who do not want to change their habits. We can hear that in the mini-fiction when the mother says:

“I imagine that there are water quotas for the showers and that you have to manage the composting toilets in your place?” ... “Well then, thanks, but no thanks!!” (Triou, 2022a).

This narrative tends to define how seniors should act and define what is good and what is bad for them. As people in positions of power mainly belong to the senior range of age, this master narrative gives them a justification. They remove their sense of responsibility, and they let younger generations take care of solutions to the climate crisis.

Another example appears when the mother is sharing nostalgia for the old world. She explains that she could fly every year when she was young:

“... on almost every vacation, we went on an adventure by plane with your father!” ... “Those were the good times!” (Triou, 2022a).

Behind this narrative, there is a question of personal freedom that is highly represented. In the old world, when people were not caring about the climate, people could consume without limits and

do what they wanted. Wealthy people are those who consume the most, and they do not want to have restrictions. This idea comes up several times in the scenario, and examples of everyday life are used to emphasize the limit on personal freedom. For example, the restaurant only offers vegetarian options on the menu, and in this context, the mother says:

“I feel like I’m being held hostage!” (Triou, 2022a).

For the mother, meat consumption seems to be the traditional diet, and she does not seem to like vegetarian food as she says:

“Your thing tastes like paper-mâché!” (Triou, 2022a).

Here, meat consumption is also a master narrative because it represents human supremacy over other species and has been reserved for rich people for a long time due to the price. Additionally, meat consumption has a higher impact on climate change compared to a vegetarian diet.

Another master narrative that impregnates the lifestyle is that people need to go far away and take a plane to enjoy the holiday. When the daughter shares her plan to visit the Monts d’Or by bike during summer, the mother replies:

“Still the Monts d’Or! It’s not worth Ha Long Bay!” (Triou, 2022a).

While Ha Long Bay presents stunning landscapes, it is in Vietnam, and the Monts d’Or are only several miles away from where the daughter lives. In fact, only a small part of the population takes flight to go on vacation. It is reserved for the wealthiest because it is expensive.

On the other hand, one could argue that the mother complaining about all the self-sacrifices needed is a counter-narrative because she is talking against the master narrative of self-sufficiency, which could have become the predominant discourse in 2050. However, as the lens used for this analysis is climate justice, it is important to consider the consequences of each narrative. The narrative of personal freedom, no matter the carbon footprint of their behaviors, held by the mother

benefits those who defend the economy of growth (the wealthiest) but penalizes those who are the most impacted by the climate crisis (the poorest). That is why it is a master narrative.

(RQ2): Counter-narratives

The first scenario presents a very different way of living in 2050 compared to what people are currently doing. The new generation has shifted to a sufficient lifestyle to reduce its environmental impact. This produces interesting counter-narratives in the conversation between the two young adults and the mother.

The first and major counter-narrative in the mini-fiction is the vegetarian diet. This counter-narrative openly contradicts the master narrative of meat consumption. The children are not upset about only having vegetarian options at the restaurant. They are enthusiastic about it because they know the benefits. However, they have to convince their mother that it is good for the planet.

“Son: Tell yourself that, thanks to you, meat consumption has been divided by 3 since 2020. The planet says thank you!” (Triou, 2022a)

Co-housing is another important counter-narrative in this mini-fiction. It is presented as an alternative to individual houses or apartments. As shown in the mini-fiction, it can be beneficial for marginalized people, such as people with less income (young or elderly). All generations live together, and there is a strong feeling of solidarity between people.

“Marina: That's super cool. We are about fifteen, and there are all generations.” (Triou, 2022a).

The co-housing place is eco-friendly and encourages sufficiency. It promotes low technology and also low consumption of energy and water (quotas, composting toilets, etc.). Renewable energies are used to provide electricity. The daughter, Marina, seems to enjoy it very much, while the mother does not like the idea. On a side note, it is interesting to see that technology is still present for work or for entertainment (laptop, cinema screen).

“Marina: Yes, and they did it too well: plant walls, solar panels, there's even an individual wind turbine for those who have a laptop.” (Triou, 2022a).

Another counter-narrative is sustainable tourism which defends that people do not have to go far away to enjoy nature. This presents a new approach to going on vacation, promoting low-carbon travel, such as biking instead of taking a plane. This narrative contests the master narrative of flying for vacation.

“We have already planned a holiday in the Monts d'Or this summer. It's 13 kilometers from Lyon, so we'll go by bike!” (Triou, 2022a).

More generally, all those counter-narratives fall under the idea of self-sufficiency in order to reduce environmental impacts, and they tend to neutralize the master narrative of unlimited freedom no matter the impacts. However, there is also a master narrative hidden behind the narrative of self-sufficiency. As explained in the literature review, individual actions and choices are limited by what is available and what the government fosters by its policies. Self-sufficiency can become a master narrative if more responsibility is put on individuals rather than the government or companies.

The last counter-narrative that briefly appears in this mini-fiction relates to political solutions and democracy. The younger generation defends political solutions that foster population participation to implement solutions for the climate crisis, such as popular initiative referendums. This idea of giving more power to the population contradicts the power given to governments, even in democracies.

“Son: Yeah, you see, popular initiative referendums are good from time to time. True?” (Triou, 2022a).

Scenario 2 - Regional Cooperation

(RQ1): Master narratives

The second mini-fiction starts in a collective garden in Nantes, where a man and a woman get into conversation. The man seems to enjoy coming to work in the garden a few hours per week, but the woman is not too sure. She argues that it was easier for her just to go to the grocery store to buy food. This relates to the master narrative of humans' domination over nature. This idea of domination over nature is so much established that people are disconnected from nature. They do not see the need for natural connection through food production because they just want to buy ready-to-cook food at the grocery store and save time.

“You know, at first, it was hard to get used to this new system. Working in the garden for 3 hours a week to get vegetables. Before, all I had to do was go to the supermarket.” (Triou, 2022b).

This discourse tends to take people away from the reality of food production and separate them from nature, mainly for a matter of productivity.

The second narrative relates to meat consumption. Here, two master narratives are intertwined; the personal freedom of eating meat even if it produces a lot of carbon emissions and the domination over nature as people kill animals for their meat. Meat is described as an exceptional meal that people would make for friends or family. Still, it reinforces human domination over nature and the wealthiest privilege of having such a meal.

“Enzo: Oh no, we're going for a boeuf bourguignon instead.

Lydie: Hmm!

Enzo: Yes, I know a farmer not far from here who slaughters his animals on green cabbage. It's not cheap, but I can't tell you the quality of the meat.

Lydie: Well, that's a party! Meat's not something you get every day...” (Triou, 2022b).

(RQ2): Counter-narratives

The second scenario offers a multitude of counter-narratives that the listener discovers while following Enzo into a few places. First, Enzo arrives in a collective garden where he talks

with a woman. With this conversation, the audience understands the characteristics of the collective garden. People have to work 3 hours per week in the garden, and they get free vegetables in exchange:

“Enzo: Free organic vegetables that grow 15 minutes from our house. That's the idea!”
(Triou, 2022b).

This counter-narrative defends that local food production, where people have to contribute to the production, is a better alternative than industrial agriculture.

In their conversations, they twice refer to new ways of organizing society, especially building usages. The school also receives the elderly to form a mix of generations, and the museum transforms into a cinema at night. This is a counter-narrative to the idea that one place has one function. Here, spaces are shared and optimized.

“Enzo: Did you know that the museum on the Place Royale becomes a cinema at 8 pm?”
(Triou, 2022b).

Then, Enzo goes to “Swap me if you can,” a store where people can exchange goods and services. Based on a different economic model, this store promotes swapping instead of buying and creates a counter-narrative to economic growth.

“Lydie: Ah, it's Madame Pujol. She gave Monsieur Brone a haircut yesterday, so he's returning the favor with a saxophone lesson.” (Triou, 2022b).

Lastly, it is also important to note that Enzo is riding a non-motorized vehicle, probably a bike or a cargo bike. If it is not explicitly discussed in the mini-fiction, it is still remarkable and can refer to a counter-narrative that defends a society that prioritizes non-motorized vehicles to limit dependency on fossil fuels. Another example mentions transportation as well when Enzo explains that his friend is coming by train instead of plane.

“Lydie: That's great! How is she coming?”
Enzo: Night train. Oh well, no, flying's not really an option.
Lydie: Oh yeah, it's better to spend one hectic night than go into debt for two generations!”
(Triou, 2022b).

Scenario 3 - Green Technologies

(RQ1): Master Narratives

For the third scenario, the mini-fiction narrates the story of a Parisian lesbian couple looking to relocate to Marseille. They are welcomed by a real estate agent to visit a house. Technology is largely present in this mini-fiction to reflect the corresponding scenario. The first master narrative is that technology is completely in people's service and should be reliable. One of the women is complaining because they are late due to a technical problem with the car:

"M: 30 minutes late..."

Georgina: It's not my fault! It's an electrical problem

M: Yes, but it's mostly the fault of the remote control, which isn't working. It was a good idea to replace the garage mechanics with algorithms that don't understand what they're being told!" (Triou, 2022c).

It shows that humans get frustrated over technology if it is not working properly.

Still related to technology, there are several examples in the mini-fiction that demonstrate that we need it to feel better. First, the real estate agent uses a device to calculate his calorie intake and then manage his weight.

"Real estate agent: Let me just check..."

Speaker: total calories: 900

Real estate agent: Yes!

Speaker: Congratulations, your nutri score is green." (Triou, 2022c).

Another example is the technology room that allows you to practice e-sports and e-tourism:

"M: What's this windowless room?"

Real estate agent: The space dedicated to e-sports and e-tourism. 3 screens and the world at your fingertips." (Triou, 2022c).

In those examples, technology is unconsciously adopted by people as a solution to societal problems, such as health problems (obesity) or loneliness, without considering drawbacks or environmental impacts.

Mitigation and adaptation solutions also rely a lot on technologies. The master narrative of eco-technological solutionism is well illustrated. For example, fire detectors are used to monitor any start of fire around the city.

“Real estate agent: It's another forest fire fanned by the heatwave. An arsonist, no doubt. Don't worry; thanks to the fire detection sensor, we're in the clear.” (Triou, 2022c).

Technologies of carbon capture and storage are also briefly mentioned and seem to be part of the solutions to limit people's carbon footprint.

“M: And that's all we won't have to compensate for with technological carbon sinks.” (Triou, 2022c).

This scenario also highly emphasizes eco-construction to limit greenhouse gas emissions, and the creation of new housing could be a master narrative. For example, the mention of the “Cité Heureuse” in the northern part of Marseille brings questions because this district is known to be the poorest part of Marseille. If the original population had been forced to leave, then there is a master narrative that promotes the creation of new housing to move the population further away.

The construction of single-family houses is also described as good for the city, but it can also raise the question of affordability for low-income families. Land artificialization does not seem to be a problem, and that is why massive urbanization is a master narrative.

“Real estate agent: So, to give you a quick overview, Marseille has changed a lot since 2030. There's been massive urbanization along the main transport routes, brownfield sites have been converted, vacant buildings rehabilitated and there have never been so many houses on the outskirts of the city.” (Triou, 2022c).

(RQ2): Counter-narratives

For this third scenario, the analysis reveals a few counter-narratives. Eco-construction is presented multiple times as a good solution to reduce carbon footprint. When the real estate agent starts the visit, he sings the praises of the materials used to build the house. This example demonstrates that it is possible to construct with cleaner materials.

“Real estate agent: So, we're looking at buildings constructed in 2040. The black walls are burnt wood, an ancestral Japanese technique that consists of burning the wood on the surface. Quite exemplary, I must say, in terms of carbon storage.” (Triou, 2022c).

However, the fact that the city needs fire detection everywhere seems to demonstrate that the climate has continued to warm to an out-of-control stage. This contrasts with all the technological solutions highlighted to improve everyday life.

Another interesting counter-narrative relates to carbon taxes and compensation. It seems that people are paying taxes on products and activities that produce CO₂ and need to compensate for their CO₂ consumption. This could be considered a counter-narrative because people can no longer consume without considering the impact on the climate. However, if zero-carbon options are more expensive, this could also reinforce inequalities because not everyone can afford those options.

Scenario 4 - Restoration Gamble

(RQ1): Master Narratives

The last mini-fiction looks more like a dystopia in which society has moved in a direction where social inequalities are high. The adventure of a couple in the French Alps makes the audience understand the characteristics of this new world. Technology is presented as vital for society as it replaces humans' work and nature. The master narrative that shows technology as the best solution appears multiple times in the mini-fiction. Technology is massively needed for low-carbon electricity production and tends to replace nature:

“M: (shouting) Look at the forest of wind turbines over there! It's superb!

Joseph: Where?

M: (shouting) There!

Joseph: But where?

M: (shouting) Behind the field of photovoltaic panels.” (Triou, 2022d).

Instead of forests and pastures, they are seeing big machines to produce energy. The only animal they are watching is a dancing cow on a screen.

M: Oh look on the panoramic screen it's Bibiche!
Joseph: What? The dairy cow?
M: Yes, I follow her on TokTok. I love her choreography!" (Triou, 2022d).

While a couple is going to a restaurant, they do not interact with humans but with a robot waiter.

Robots are presented as a positive solution to reduce human labor:

"Having to hold down several jobs is no way to live." (Triou, 2022d).

Technology has impregnated every part of life and controls everyone's comings and goings.

Another master narrative presents carbon pricing as an economic tool to reduce carbon emissions.

So people are still flying if they can afford it.

"Joseph: She costs us a lot in carbon points.
M: As long as she makes up for it!
Joseph: Do you have any news?
M: Still at her festival, "Reykjavik on the Rocks". She took a three-day weekend. Apparently, it was worth it to fly there and back." (Triou, 2022d).

(RQ2): Counter-narratives

As stated earlier, this fourth scenario gives the impression of a dystopia. So, the question is: is there a place for counter-narratives in a dystopian society? In their conversation, the couple talks about the robots that have replaced all kinds of humanity. Here, by criticizing the robots, Joseph creates a counter-narrative that emphasizes the need for human connection.

"Joseph: Tell me, sweetie, don't you feel weird about these connected speakers? Even with real waiters, it was more human, wasn't it?
M: Yes, but they couldn't get by, poor things. Having to hold down several jobs is no way to live.
Joseph: Yeah, but work is scarcer. And all these machines everywhere. Don't you ever feel a bit lonely?" (Triou, 2022d).

The fact that robots do not have any feelings or compassion for others raises questions and, more specifically, can pose a problem of mental health for people who feel isolated. Additionally, as people are substituted by robots, there are fewer jobs for people to apply for, which can lead to more poverty, especially for people with less education.

The couple also refers to a carbon points system, which could be a system that gives people a certain amount of carbon to spend, probably associated with a cost. This counter-narrative is interesting, especially as it has been demonstrated that the wealthiest people emit more CO₂ than the poorest by incredible amounts.

“Joseph: She costs us a lot in carbon points.” (Triou, 2022d).

As shared in the mini-fiction, someone who wants to travel by plane will have to pay for the carbon points they are using.

Lastly, the last few sentences of the mini-fiction are also probably a criticism of the omnipresence of technology. People are so overwhelmed by all the screens and technological tools that attract their attention that they do not even see the real landscape.

*“Speaker: I hope you had a good time at the Mont Blanc panoramic refuge.
Joseph: Mont Blanc? Is Mont Blanc around here?” (Triou, 2022d).*

They reach the point of being used to seeing technology everywhere and not caring for the environment anymore. As the couple’s son, some people even prefer to stay home and watch the world through screens without having to experience it for real.

*“M: Thank you! When I think of Fernand locked up in the chalet on a day like today!
Joseph: Yes, he was going to the Sahara today.
M: Around the world in virtual reality!” (Triou, 2022d).*

This disconnection to nature is highly represented in this mini-fiction and creates an interesting counter-narrative inside the dystopia.

Tables 1 and 2 present a recap of all the master and counter-narratives identified in the four mini-fictions.

Table 1

Master Narratives Summary

Master Narratives	Reasoning
People should be able to decide what they want to consume and buy without restrictions.	People's consumption habits and lifestyles are highly dictated by social and cultural norms and also contribute to identity development and community belonging. However, this narrative defends the economy of growth and penalizes those who are the most impacted by the climate crisis (the poorest).
The older generation should not have to change their habits and should be able to enjoy life without restrictions.	The narrative tends to create limitations on personal agency and prevent the older generation from taking action. In fact, people in positions of power mainly belong to the senior range of age, which legitimizes their inaction.
Meat consumption is the best diet because people have always eaten meat.	Food is part of cultural history, and especially in France, meat is at the center of food traditions. It also demonstrates human supremacy over other species, reserved for rich people, with a higher impact on climate change.
The best destinations for vacation are far away, and it does not matter if they require to flight.	People desire to discover the world, and they do not want to be limited. Flying for vacation is reserved for the wealthiest and has a high impact on climate change.
It is easier to go to the grocery store to buy food without worrying about how it has been produced.	It is a convenient cultural habit. For people who have the means, it takes less time to go to the grocery store and buy food. However, it can be more expensive and less suitable for the poorest.
People can rely on technological solutions without having to change their habits.	Technology is a social indicator of success, power, and wealth. It also represents progress at a larger society scale. Accessible to the wealthiest but usually too expensive for the poorest. Improvement in life quality and comfort is reserved for the privileged.
Technological solutions can improve humans' and nature's capacity.	Technology has contributed to society's thriving in history. Technological solutions are needed even if they remove job opportunities by taking low-qualification positions usually held by minorities or if they replace nature.
People have the right to live where they want and the right to choose newly constructed single-family houses.	Owning a single-family house is a societal achievement that provides prestige. Benefits those who have money to buy a single-family house.
People have the right to emit carbon if they can pay the carbon tax.	People will naturally reduce their consumption due to the price. Penalize everyone, but the poorest will suffer more if all prices are rising.

Table 2*Counter-narratives Summary*

Counter-narratives	Reasoning
To address the climate crisis, people have to change their habits and lifestyles. A lifestyle based on sufficiency is necessary.	Reducing consumption is easier and faster than relying on technology to reduce one's carbon footprint. This solution is available to everyone. This narrative contradicts the master narrative of technological solutionism.
People can choose a plant-based diet, that can be tasty and healthy, to reduce their carbon footprint.	Switching to a vegetarian diet is an easy way to reduce carbon footprint and save money. Counter-balanced the master narrative of meat consumption.
Producing food in a collective garden - locally and organically - is healthiest and emits less carbon emissions.	This narrative presents an alternative to the current food system that contributes to building food resilience, fostering community belonging, and helping provide food to everyone, even those who do not have a lot of money.
People can choose co-housing as a sustainable living solution.	This narrative tends to neutralize the master narrative of single-family housing. It promotes social diversity, fosters sufficiency in the lifestyle, and reduces costs.
Local authorities can organize buildings to optimize their usages to reduce carbon emissions.	This narrative questions local authorities' agency to organize building usages to limit carbon footprint and avoid new construction and soil artificialization.
People can choose low-carbon transportation for both everyday commute and vacation.	This narrative contradicts the master narrative of flying for vacation and fosters sustainable tourism. It promotes alternative transportation systems, such as biking or using public transportation, which can also reduce the cost.
An alternative economic system based on sharing is possible and can reduce the impact on the climate.	This narrative promotes an alternative to capitalism and counterbalances the master narrative of growth. It fosters an economy based on sharing and swapping in order to limit consumption and reduce carbon emissions.
People cannot emit carbon without any consequences and have to compensate to offset their emissions.	This narrative tends to counteract the master narrative of carbon pricing by adding the necessity to offset all carbon emissions. It means that money is not enough; solutions for carbon capture and storage have to be used.
People can choose to connect together and with nature to create a better world.	This narrative contradicts the master narrative of technological solutionism. It fosters connections between people for more solidarity and connection with nature to encourage its protection and boost mental health as well.

4.3 Thematic Analysis

Thematic interpretation from Owen has been used to look for themes based on three criteria: recurrence, repetition, and forcefulness (1984). The first theme relates to the connection between lifestyle and climate. This includes well-being and how people enjoy life through hobbies, tourism, and connection with nature, but also how they stay healthy and have physical activities. This also includes ways people use to reach self-sufficiency (or not), such as new habits to reduce their carbon footprint (covering all lifestyles: housing, energy, transportation, diet, tourism, etc.). This theme also takes into account how people rely on technology to access hobbies or health and reduce their impact. There is a great example of that in scenario 4 when the couple is talking about their son, who stayed home to enjoy landscapes from his computer: *“Travelling around the world in virtual reality! Oh, isn’t he doing a little teenage crisis?”* (Triou, 2022d).

The second theme presents how governmental actions at a local or national level can drive climate solutions. This covers the role of governmental actions to reach collective sufficiency (collective garden, co-housing, etc.), political solutions that could allow more population implications in decisions, and also urban planning and building management as shown for the city of Marseille in scenario 3: *“Marseille has really changed since 2030. We have massively urbanized along the transport routes, wastelands have been converted, vacant buildings rehabilitated, and there have never been so many pavilions at the exit of the city.”* (Triou, 2022c).

The third theme shows how the economic system can affect climate change and vice versa. A few interesting examples are shared in the mini-fictions related to a carbon economy with carbon pricing and compensation. There is also an experimentation of a sharing economy that promotes swapping instead of buying. Or, the economy could be based on technology, with jobs taken by

robots, as described in the last scenario: *“Yeah, sure, but the work is rarer. And all these machines everywhere. Don’t you feel a little lonely sometimes?”* (Triou, 2022d).

The fourth theme is centered around the link between energy and carbon emissions. This category refers to both the production of energy and the consumption. Subcategories include renewable energies such as solar panels or wind turbines, energy sufficiency to avoid unnecessary demands, and CO2 emissions related to fossil fuels and ways to mitigate via technologies (Carbon Capture & Sequestration) or natural carbon sinks (forests, soils, etc.). For example, scenario 3 refers to those kinds of technology to offset greenhouse gas emissions: *“And that’s always what we won’t have to offset with technological carbon sinks.”* (Triou, 2022c).

The fifth theme is about transportation and the impacts of each type of transportation on the climate crisis. There are two subcategories: individual transportation, such as electric cars or bikes, and public transportation, such as planes, night trains, and tourism. In scenario 2, Enzo refers to the night train when he explains how his friend is coming from another country: *“Night train. Ah yeah, no, the plane is not affordable.”* (Triou, 2022b).

The sixth theme is related to infrastructures and building management via optimization and sharing spaces and how that can limit carbon emissions. It includes eco-construction and eco-renovation with the use of eco-materials and energy and water sufficiency. This theme also includes housing such as single-family housing or co-housing. The first scenario provides a great example of the renovation of an old city building to create a co-housing structure: *“Imagine that the building is the former town hall of the 7th.”* (Triou, 2022a).

The last theme relates to the relationship between the food system and climate. On the one hand, it needs to be more resilient to climate change, and on the other hand, it can also contribute to reducing greenhouse gas emissions. This theme covers sustainable production, such as local and

organic production with collective gardens and sustainable consumption with a vegetarian diet based on local and organic products. Scenarios 1 and 2 both emphasize the reduction of meat consumption: *“Tell yourself that, thanks to you, meat consumption has been divided by 3 since 2020. The planet says thank you!”* (Triou, 2022a).

Those themes are highly intertwined and are represented in the following figure.

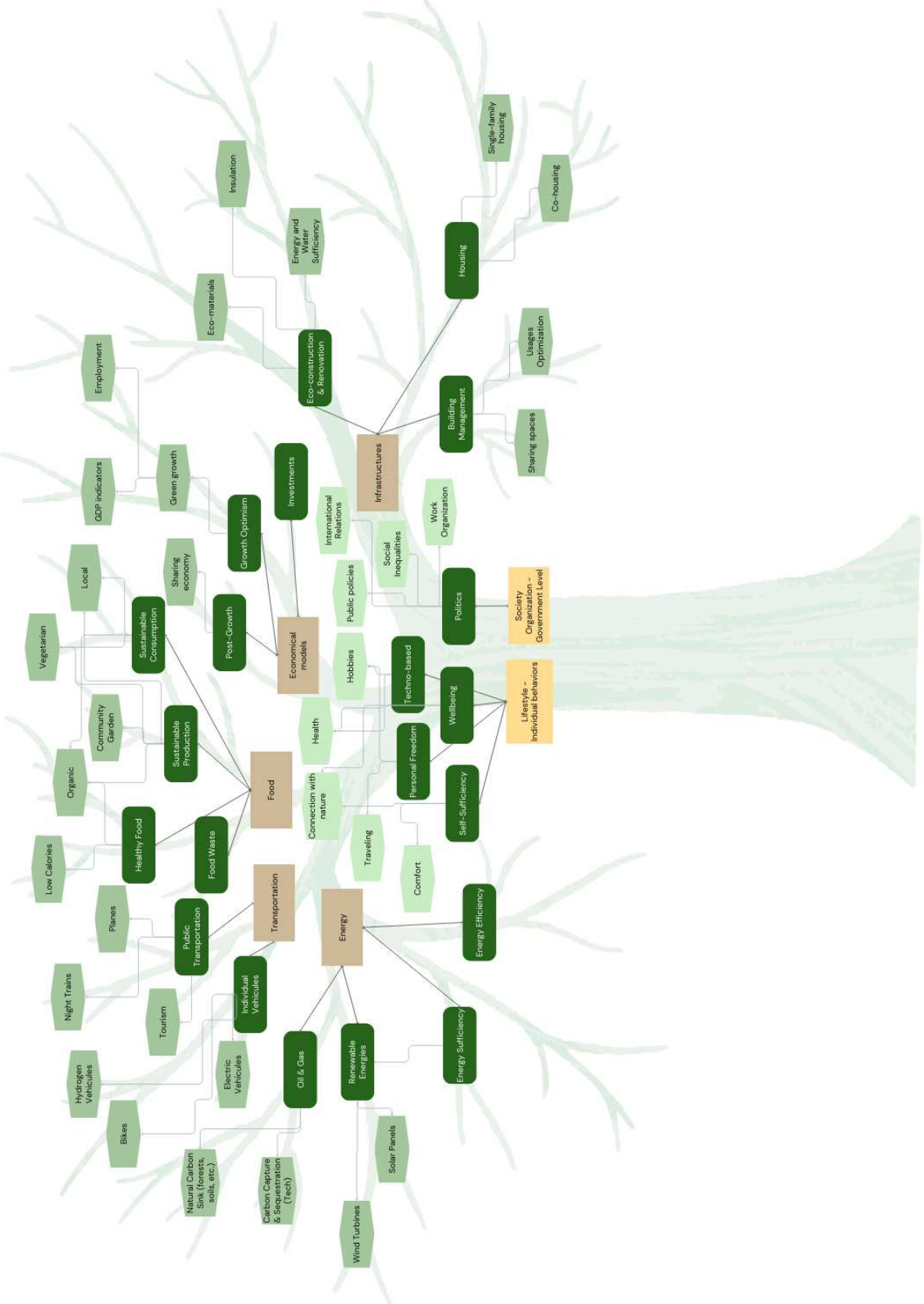


Figure 1: Themes Mapping

Note. The figure is accessible here:

https://www.canva.com/design/DAF9whChWL4/KDiXKfCdCQHGwYQBE85ETZA/view?utm_content=DAF9whChWL4&utm_campaign=designshare&utm_medium=link&utm_source=editor

4.4 Negotiation by the Experts

After listening to the mini-fiction, the journalist asks each expert questions to reflect on the proposed vision of the future. This part answers research question number 3 and analyzes how the panelists negotiate the narratives present in the mini-fiction. For a flowing report, the analysis is presented by themes. Table 3 summarizes master and counter-narratives that emerged during the debates in addition to what was already in the mini-fictions.

4.4.1 Podcast 1

The first debate on scenario 1 brings interesting conversation on the importance of shifting our lifestyle to a more sustainable way of living. Transportation and the food system are also discussed by the experts.

Lifestyle & Individual Behaviors

The master narrative that presents personal freedom as an excuse not to change habits is confirmed by Dominique Méda. She uses a historical argument to explain that as people have been deprived for a long time, they now want to enjoy the possibility of having everything they desire:

“And it's true that we have to remember that humanity has long been deprived of many pleasures, as you said, and that this consumption has many advantages, it's often seen as an expression of freedom but also of a form of identity.” (Triou, 2022a).

She uses this argument to bring another master narrative into the debate, which is the master narrative of economic growth measured through the GDP. She argues here that the need for growth is correlated to the idea that growth provides employment and a better distribution of income, and so it becomes a “social duty.” While she recognizes those master narratives, she also contests them

and explains that we have to “get rid of,” an expression she used several times. She insists on the difficulty of getting out of this system, but she does not give pieces of advice or ways to do it. Here, it is important to note that she is speaking for people who can afford to buy things, and she does not consider the poorest. Also, in her explanation, Dominique Méda uses the pronoun ‘we’ a lot, which could mean that she wants to involve everyone and probably all the experts. Finally, the master narrative describing the older generation who does not want to change their habits seems to be accepted but not discussed in depth.

The counter-narrative of lifestyle as a solution with more sufficiency implemented in people's everyday lives is well discussed by the panelists. Céline Guivarch brings an argument from authority by giving the definition of sufficiency written in the IPCC report. She even insists on the fact that the definition has been written by scientists. She provides additional explanations that reinforce the counter-narrative:

“The current lifestyle of an average European today, for example, is not compatible with the stabilization of climate change and with a whole host of other environmental aspects, the collapse of biodiversity, etc.” (Triou, 2022a).

With this comment, she brings her own perspective to the necessity of sufficiency, taking into account global inequalities. This question of inequalities is also tackled by Dominique Méda to try to refute counter-arguments. She takes into account the poorest in her explanation and argues that the people who will have to make the biggest efforts are the wealthiest because they are those who consume the most. So a lifestyle based on sufficiency is asked of the richest, and she insists on that:

“So I think it's very, very important to repeat this: who consumes too much and therefore who's going to have to make an effort.” (Triou, 2022a).

Additionally, Céline Guivarch adds another interesting point to the debate. She argues that sufficiency relies more on public policies and investments led by the government than personal

choices. This seems to contradict the counter-narrative of sufficiency in everyday life because it brings back power to the government. Again, she cites the IPCC report as an argument from authorities.

“... this question of sufficiency is not a question of individual choice, it's not the responsibility of the end consumer. It's a question of collective choices and public policies to build alternatives...” (Triou, 2022a).

Finally, related to lifestyle, it is noticeable that the counter-narratives about co-housing and sustainable tourism represented in the mini-fiction are not discussed in the debate.

Transportation

The panelists also debate solutions for transportation. In the mini-fiction, the mother was defending the master narrative of faraway vacations reached by plane. If they do not specifically address vacations, Céline Guivarch explains that there is no perfect solution for transportation. She provides some concrete examples of what would be wise to do:

“How we organize our cities, production chains, logistics chains, etc. to avoid moving people and goods, and also how we build alternatives to the car and the plane, which are the modes that emit the most emissions. So we need to invest in rail infrastructure, in public transport, in cycling infrastructure so that bicycles can become more widely used, and so on and so forth.” (Triou, 2022a).

Food System

Regarding the master narrative of meat consumption, the cook chef Chloé Charles explains that French people are eating too much meat in a day and blames intensive farming for that:

“It's really the intensive farming aspect that has accelerated everything, because even in the 18th century, people didn't eat as much meat as they do today, they didn't eat meat almost three times a day if you had an American breakfast. I mean, it doesn't make sense to eat meat three times a day.” (Triou, 2022a).

Her argument is completed by Céline Guivarch, explaining that livestock farming produces a lot of carbon emissions. She cites numbers to emphasize the part of agriculture in global emissions. Chloé Charles also explains that vegetarian cuisine does not have a positive image. As seen in the

mini-fiction, people usually think that it does not taste good, but Chloé Charles argues that it is because people are always expecting some kind of meat on their plate, almost as an obsession:

“But where I'd like to make a criticism is that we're often still comparing plant-based food to meat-based food, with veggie steak, I don't know what kind of sausages, nuggets, etc., because we still can't get our minds off that bit of meat, whereas plant-based food is much more than a pale imitation of meat.” (Triou, 2022a).

After recognizing the master narrative and explaining the roots and consequences of meat consumption, the panelists discuss sustainable food as a counter-narrative. Chloé Charles provides a definition of what sustainable food means.

“A sustainable diet is a diet that is more plant-based, cereal-based, that comes from close by, that therefore doesn't waste but that doesn't forget - and this is part of the definition of sufficiency - that doesn't forget gourmet pleasure and the fact that food is a source, one of the few sources of pleasure for human beings. And that's important.” (Triou, 2022a).

Additionally, Chloé Charles shares her own experience and emphasizes the need to fight against food waste, as it also aggravates the problem of carbon emissions.

4.4.2 Podcast 2

This second debate which talks about the second scenario, is highly dominated by discussions around the food system. The conversation goes beyond food production and includes food consumption. Other themes discussed include infrastructures and buildings management, and the economic system.

Food System

The experts do not support the two master narratives included in the mini-fiction. First, the master narrative of meat consumption is contested by Chloé Charles. She gives an explanation of why people are eating so much meat and tries to explain the causes of the problem. She states that as people are only seeing pieces of meat and not seeing animals as a whole, they do not realize they are eating a living being:

“...we're no longer shown the animals' faces, which means that when you buy an all-parship nugget, you don't even know where the thing comes from. So of course you don't realize that you're eating something that used to be alive.” (Triou, 2022b).

Céline Guivarch brings an additional reflection more based on the impacts of eating meat on the climate crisis, explaining that it contributes to greenhouse gas emissions.

“But when it comes to greenhouse gas emissions, what matters most is what we eat, not where it comes from. The primary determinant is whether we eat animal proteins.” (Triou, 2022b).

Additionally, the master narrative that defends a separation between food production and food consumption is not supported by Chloé Charles. She argues that a global rethinking of society is needed, and as some jobs will disappear, others will be created, especially for food production.

This leads to the counter-narratives around food and their interpretations by the panelists. Chloé Charles explains that local and organic production is better for the environment and should be less expensive. Dominique Méda argues that the system of a collective garden where everyone participates is *“an interesting model for society,”* and she adds that it is not a historical backsliding. She also completes what Chloé Charles was talking about earlier by explaining that local production and distribution will definitely create more jobs and will impact work organization.

“It also means that we need to rethink companies, work organization and the way they're set up in local areas.” (Triou, 2022b).

The use of the pronoun “we” by all the experts shows that they include themselves in the problem and in the solutions.

Infrastructures and Buildings Management

The counter-narratives around buildings' usages are also well discussed. Céline Guivarch explains the problems linked to buildings. She talks about the question of soil artificialization and later brings numbers about greenhouse gas emissions related to this sector.

“On a French scale, that's about 18% of greenhouse gas emissions in France.” (Triou, 2022b).

The fact that she shares numbers reinforces her position as an expert. Once she proposes solutions, she is then more listened to. She presents different levels of action, from energy sufficiency to building insulation and renewable energies.

Later, the journalist asks Dominique Méda about the economic consequences of building less in this sector. Dominique Méda recognizes that there could be less employment in the construction sector but probably more jobs in renovation. She also argues that more jobs will be created in other sectors (such as food production and industry), and she uses other resources to strengthen her argument.

“For example, the Shift Project scenario tells us that over 500,000 jobs will be needed in agriculture. And that's very interesting, because it's as if we had an anti-spill, I don't know if you remember, Alfred Sauvy talked about the spill, so we're reducing employment in the primary sector, which is going into the secondary and tertiary sectors. And I wonder if, with this new ecological society we're talking about, we won't see an increase in employment in both the primary sector, agriculture, and the secondary sector, industry.” (Triou, 2022b).

Economy

The last counter-narrative refers to the economic system and proposes to swap instead of buying new things. The panel seems to agree with that globally but with certain conditions. Chloé Charles shares her own experience within her neighborhood and how they organized a WhatsApp group to share tools. She demonstrates the benefit of such a system in developing social relations with others.

“And it's true that I find that much smarter in the end than having everything individually and saying it's mine, it's my thing. [...] I think it's something that's achievable and that ultimately comes from individual people who propose it and it also recreates the social link between the people who live around you.” (Triou, 2022b).

Chloé Charles and Dominique Méda both argue that rules and even laws would be necessary to organize an economy based on swapping. Again here, Dominique Méda refers to someone else as an argument from authority to strengthen her point:

“This reminds us of the political scientist Eleonore Eurstrum, who reflected on the difficulties, the rules we need to adopt to share things, to share the commons.” (Triou, 2022b).

In a certain way, the counter-narrative of a sharing economy is criticized by Céline Guivarch, as she explains that international cooperation will be essential:

“There's one thing I'm a bit puzzled about in this [scenario]. We're talking about proximity, sharing, at a very local level, but we still need international exchanges and we need international cooperation.” (Triou, 2022b).

It gives the impression of a contradiction here because the mini-fiction proposes a strong community-based approach to the economy, and both Dominique Méda and Céline Guivarch seem to refer to the need for centralized power.

Finally, to conclude on this podcast, I noticed that the panelists did not discuss the counter-narrative about low carbon transportation.

4.4.3 Podcast 3

In this third podcast, technology is a dominant theme that is largely discussed by the four experts. Another major theme that emerges in the mini-fiction is related to infrastructure and buildings and how eco-construction can help reduce carbon emissions. This second theme is only discussed through energy efficiency, probably because they already addressed the topic in the previous podcast. Nevertheless, the master and counter-narratives related to eco-construction are not deeply debated and only focused on energy efficiency. Transportation and economy, which were not predominant in the mini-fiction, appear repeatedly in the debate.

Technology and Energy

It is interesting to see that each expert reacts differently to the master narrative of technological solutionism. The most extreme reaction is made by Dominique Méda as she rejects the master narrative. She qualifies the entire scenario as “ungrounded” and shares her doubts about the strategy developed in this scenario, arguing that technology: “emits a lot of greenhouse gasses

and uses minerals and resources” (Triou, 2022c). She later tempers her position and brings the counter-narrative of sufficiency. She explains that technology needs to be coupled with sufficiency and uses a reference to a well-known French report on energy:

“We really need to combine certain technological innovations - not all of them, in my opinion - with a lot of sufficiency, as proposed in the Negawatt scenario.” (Triou, 2022c).

Sarah Lamaison seems to agree with Dominique Méda and emphasizes the need for sufficiency as well. But she also explains that for industrial sectors, it makes sense to develop technology to recycle carbon emissions into usable products. She also brings an argument from authority by citing the IPCC and explains that technologies of carbon capture and sequestration are needed to reach the 1.5-degree trajectory. To some extent, she reinforces the master narrative of technological solutionism, arguing that technologies are essential. Céline Guivarch agrees with that, adding that as long as we emit carbon emissions, we will have to have technologies to capture them.

Céline Guivarch starts by recognizing that there are multiple effective technological solutions to reduce carbon emissions, but she also completes her thoughts by saying that there are also non-technological solutions based on modifying our habits. She argues that both are needed to limit greenhouse gas emissions. It means that she also agrees with Dominique Méda on the need for more sufficiency.

“So there are technological solutions, it's true. But there are also solutions that are more fundamentally about transforming consumption and production patterns, through efficiency, sufficiency (we've talked about this), collective investment in infrastructure, reorganization of cities, etc.” (Triou, 2022c).

Chloé Charles shares her personal experiences to demonstrate that new technology can be helpful in the context of her job to limit materials and energy consumption.

“I'm not against surrounding myself with technology to be more efficient, and also potentially, I find it interesting from an ecological point of view, because as I was saying, instead of buying four appliances, I only buy one.” (Triou, 2022c).

Energy efficiency can be placed under the master narrative of technological solutionism because it could mean optimizing a system by using technologies. Céline Guivarch warns about the risk of rebound, which means that while less energy is needed, then new usages need energy.

“In fact, when less energy is used, additional uses are made possible, and so more is made. And controlling this rebound effect is one of the major public policy issues in the energy transition.” (Triou, 2022c).

Dominique Méda seems to agree with that as well because she also mentions the rebound effect.

Transportation

While transportation is not a major theme in the mini-fiction, there are some interesting debates among the experts. For example, Dominique Méda criticizes the master narrative that presents electric vehicles as a good alternative to internal combustion engine cars. She does not give a lot of details, but she says:

“If we were to replace the current fleet of combustion-powered vehicles with the same fleet, well, I'm not sure we'd make much progress.” (Triou, 2022c).

Céline Guivarch accepts the master narrative and explains that it makes sense to electrify cars if electricity is produced from renewable energies or nuclear power.

“I have to say it, from the point of view of greenhouse gas emissions, it makes sense to replace an internal combustion vehicle with an electric vehicle” (Triou, 2022c).

However, she also argues that this solution will create other problems, such as mining resources, and so it should not be the only solution. She brings her personal experience as a writer for the IPCC report to argue that it is possible to reduce professional travel and encourage virtual meetings. Even if she accepts the master narrative, she also recognizes the limitations and proposes a counter-narrative.

Another counter-narrative that is mentioned in the mini-fiction is the very high-speed train. France currently has high-speed trains, the TGV (Train Grande Vitesse in French), and the mini-fiction talks about a train that would go faster, the TTGV (Train a Tres Grande Vitesse in French).

Public transportation is a great alternative to individual cars, and trains are already electrified in France and mainly supplied by nuclear power. However, Dominique Méda criticizes the race always to go faster, arguing that more energy is needed.

“And if I’ve read a certain number of recent reports correctly, well even for TGVs, the faster they go, the more they consume.” (Triou, 2022c).

She mentions books and reports she recently read to strengthen her argument. While it could seem unexpected for her to criticize a counter-narrative, she actually encourages reflection on it to avoid a consumerist drift.

Economy

When the economic aspect of the scenario is discussed, Chloé Charles makes a strong remark on the carbon taxes proposed. She argues that those carbon taxes are unfair and penalize the poorest.

“... people who don't have the means to put in place something that allows them to reduce their energy consumption, pay more for their energy because they haven't reduced their energy consumption, and on top of that they pay more tax. So, once again, social inequality increases.” (Triou, 2022c).

Dominique Méda and Céline Guivarch both explain that there are solutions to avoid social inequalities and that politicians have to put fair public policies in place.

“For example, social price, i.e., the first kilowatts of electricity consumption will be free, so everyone will be allowed to use them, and then the more we consume, the higher the tax will be. These are interesting public policies that help combat inequalities.” (Triou, 2022c).

Again here, the counter-narrative of carbon taxes is questioned to ensure that it does not benefit those who already have advantages.

The journalist also asked Dominique Méda what she thinks about green growth. Dominique Méda explains that more and more researchers demonstrate that growth has not been decoupled from fossil fuel usage and then still produces carbon emissions. While she does not cite anyone in

particular, she argues that several researchers support the idea of post-growth. Céline Guivarch concludes by saying that the GDP indicator only measures the economy but does not measure the impacts on the environment. She also adds that new questions should be asked to think about a society without economic growth and the consequences.

“... the question is rather, how do we organize a transition under uncertainty of growth, how do we finance it, what are the right public policies to put in place, how do we make sure it's fair and doesn't leave anyone out in the cold.” (Triou, 2022c).

In some ways, she is asking for new narratives to define what it would mean to live in a society without economic growth. Both Dominique Méda and Chloé Charles agree with that.

Céline Guivarch also raises the question of investment and explains that, according to the IPCC, more investments in solutions to the climate crisis are needed.

“... there is a lack of investment in solutions. We need to multiply by factors of between 3 and 6, depending on the sector and the region of the world. On the other hand, we also looked at the global savings available, the capital available, and there's no shortage of it. It's not a question of increasing investment in green energy, it's a question of redirecting investment which is still mainly directed towards fossil fuels...” (Triou, 2022c).

4.4.4 Podcast 4

This scenario goes way deeper into the dystopia and presents a society where technologies take such a big place that they have replaced nature and humans. The debate by the experts is again dominated by discussion around technology and energy. The second major theme relates to the economy and work organization.

Technology and Energy

There are different types of narratives at work in this debate. First, when the journalist asks Céline Guivarch about “technological sinks and CO2 capture and storage techniques”, Céline Guivarch only talks about nature-based solutions such as reforestation or agroforestry, but she completely avoids technological solutions. She clearly voluntarily did not respond to the question, as if she would have refused the dystopia to create another narrative that put nature at the center

of the discussion instead of technology. And that is probably the first time in the four podcasts that nature-based solutions are so well-developed. Then, the journalist turns to Sarah Lamaison, who defends that some industrial sectors are difficult to decarbonize and that they need solutions to capture and transform CO₂. It is interesting to note that the journalist insists on the fact that those technologies are still in development.

“... these are technologies that are not yet mature, and we really insist on the "work in progress" aspect of these technologies.” (Triou, 2022d).

Céline Guivarch gives a detailed explanation of why all efforts, from technologies to new behaviors, need to be made today to prevent the climate from worsening. She also discusses the ethic of acting now to protect future generations from the “serious and catastrophic effects of climate change.”

“So it seems to me that we're in a situation now where we need to put in place and deploy the solutions that are available today [...] that are capable of significantly reducing emissions in all sectors, using existing technologies, efficiency solutions and sufficiency solutions.” (Triou, 2022d).

However, she also explains that to reach zero carbon emissions, technologies of carbon capture and storage or usage will be needed to compensate for inevitable emissions.

“On the other hand, in order to offset residual emissions, yes, we'll need to, but it's not one or the other.” (Triou, 2022d).

The point of Céline Guivarch is to say that it is not reasonable to wait for those types of technologies to solve the problem. Every action counts to reduce carbon emissions, and every solution should be used now to limit the impact on the climate.

Sarah Lamaison seems to agree with that:

“Yes, because we're talking about technologies that won't be in place before 2040” (Triou, 2022d).

It appears that Céline Guivarch is creating a counter-narrative to eco-technological solutionism. She argues that technology is not the only solution and that sufficiency needs to be

reached as well. While the master narrative of eco-technological solutionism would argue that we just have to wait for new technologies to be developed without changing our habits, Céline Guivarch explained that many technologies are already available and should be used now. She later talks about an “*irresponsible gamble*” and “*delaying tactics*” (Triou, 2022d). She brings arguments from authorities to reinforce her position, repeatedly using science as the reference: “*established scientific fact*,” used twice, and “*scientific consensus*,” used twice as well (Triou, 2022d). She concluded by adding that some people are using the master narrative of eco-technological solutionism to prevent people from taking action.

“It's called delaying tactics, and it's manipulating people. And some people use this kind of rhetoric precisely to maintain the status quo, because they feel they have to benefit from it.” (Triou, 2022d).

The last comment about technology is made by Sarah Lamaison and she argues that scenario 4 does not represent technology well. She shares an example to demonstrate that technology has revolutionized the world and saved people.

“Technology is Haber-Bosch, who created all the fertilizers at a time when there were famines in the world. That's what technology is all about, creating an industry and changing things for the common good, and not just to carry on with business as usual.” (Triou, 2022d).

Economy and Work Organization

Dominique Méda picks up on what Céline Guivarch said and shares about a past event to make a connection with the economy. She relates that reactions to the Meadows report were controversial and that a famous economist argued that people have to be optimistic because “*tomorrow will be better*” (Triou, 2022d). She explains that this discourse is still well-represented among economists. By saying such a thing, she criticizes the master narrative of growth optimism that defends unlimited economic growth.

Chloé Charles and Dominique Méda also debate about the work organization proposed in the scenario and they agree to say that employment is key to social development.

“And we completely forget what work brings. That is to say, social ties and the possibility for everyone to make their contribution to society, to co-construct society, to maintain it, to transform it.” (Triou, 2022d).

Dominique Méda also shares the consequences of such a work organization on social inequalities. She argues that the transition needs to be fair and take into consideration the poorest to avoid them becoming poorer. For that, she adds that huge transformations are needed in the work organization to anticipate the disappearance of jobs.

“Fair means ensuring that everyone does not fall victim to price rises if we have to raise prices, and therefore redistribute. But it also means [...] we'll absolutely have to accompany this transformation in employment and ensure that this transition doesn't weigh heavily on those who risk losing their jobs.” (Triou, 2022d).

The table below shows the additional master and counter-narratives that have been discussed by the experts during the debates and which were not present in the mini-fictions.

Table 3

Additional master and counter-narratives

Master Narratives	Reasoning
An economic system based on green growth is necessary to maintain a high PIB.	This master narrative promotes a green economy that can be aligned with the climate goals and also addresses social challenges and generates more job opportunities at the same time. This narrative benefits those who depend on economic growth.
People should rest assured that economic growth will continue and everything will be fine.	This master narrative defends the idea of growth optimism that says that everything will be all right and everything will resolve itself. This narrative benefits those who depend on economic growth.
Counter-narratives	Reasoning
People can choose to reduce unnecessary travel for both work and vacation.	This narrative promotes technology as a solution to reduce work travel, arguing that most meetings can be done online.

A new economic system is possible (post-growth), one that relies less on growth and limits the impact on the climate.	This narrative counterbalances the master narrative of green growth or growth optimism. It defends the idea that society needs to prepare for the uncertainty of growth and that society can still thrive without growth.
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4.5 Summary of Findings

4.5.1 The Experts

Each expert seems to have a specific way of arguing, probably influenced by their experiences and personality. Céline Guivarch uses a lot of arguments from authority and especially likes citing the IPCC or referring to the scientific community. Dominique Méda works similarly and makes references to people she knows and books she read. She also refers to past events and examples that can help envisage our society in the future. Both Céline Guivarch and Dominique Méda show opposition to several master narratives and argue in favor of multiple counter-narratives with strong arguments on each side. Chloé Charles shares a lot about her personal and professional experiences to explain her views on society and the future. Sarah Lamaison is probably the one who talks the least in the four debates. She mainly talks about her start-up and the technologies that she is developing with her team. Chloé Charles' and Sarah Lamaison's positions on narratives are not always asked by the journalist, and when they are asked, answers are usually not clear enough to understand their positions. They both seem to agree with some master narratives and also approve of some counter-narratives.

4.5.2 The Scenarios

The four mini-fictions present very diverse possibilities to reach the carbon-neutral goal in 2050. To summarize research questions 1 and 2, here is a review of the dominant master and counter-narratives in each scenario. The first scenario emphasizes individual actions and personal engagement to reduce carbon footprint. The counter-narrative of sufficiency is well described with

examples in various parts of the lifestyle. In the second mini-fiction, the scenario relies more on collective action and cooperation but also requires efforts from citizens. Food production and the local economy have been transformed to design a counter-narrative to the unlimited economic growth narrative. For the third scenario, technology is more present and helps for energy efficiency. People have not changed their habits that much, and the impacts on the climate are visible. The last scenario presents a society completely dependent on technology. The master narrative of eco-technological solutionism is well illustrated. Robots are replacing humans, and technology is replacing every aspect of nature. The consequences on citizens are important as social inequalities are rising. If the last scenario brings a dystopian view of a society highly dependent on technology, the three other scenarios are more moderate in the kind of solutions proposed. Another aspect that is important to note is that in all those scenarios, nature seems to be kept at a distance without being integrated into the solutions to address climate change. The goal of designing a carbon-natural society seems to put emphasis on energy production. The role of nature in mitigating climate change is not well explored in the podcast series.

4.5.3 The Themes

Three major themes were explored in the literature review: technology, economy, and responsibility. The master narrative of eco-technological solutionism is highly represented in scenarios 3 and 4, and the discussion by the experts seems to reject this master narrative and shows that it is irresponsible to wait for technologies to be developed to absorb all the CO₂ magically. However, the counter-narrative of low-tech is only briefly mentioned in the first scenario and not discussed by the panelists. Regarding the economy, if scenarios are not always explicit, the debates still discuss the master and counter-narratives. The master narrative of green growth is refuted, and the counter-narrative of post-growth with the development of new indicators is supported by

several panelists. For the theme around responsibility, both the master narrative of individual responsibility and the counter-narrative of collective responsibility are represented in those scenarios. While the experts emphasize the need for sufficiency in people's lifestyles, they also argue that more public policies are needed. However, companies' responsibilities have not been discussed.

The additional themes that have been discussed in the analysis can all fall under those three themes. Transportation and energy are highly related to the theme of technology. The theme named responsibility is, in fact, divided into two subthemes: lifestyle for personal responsibilities and organizing society for governmental responsibilities. The theme around infrastructure and building management depends mainly on governmental policies, and the theme about the food system depends more on personal choices. Again, it is important to note that nature is not well represented in those themes. The fact that the goal was to design a carbon-neutral society tends to focus the topic around energy and technology and tends to diminish the role of nature and the impacts on the environment.

4.6 Discussion

The analysis of the master and counter-narratives featured in fictional stories of possible carbon-neutral societies is complex. The lens chosen for this analysis was climate justice, but someone could have analyzed the text with another lens and written a completely different discussion. The climate justice lens puts the emphasis on the fairness needed in this transition to a carbon-neutral society to ensure that everyone has a chance to be part of a bright future. This lens works well to study the master narratives because of the societal power and cultural restrictions behind them. The boundaries between the two types of narrative can be very thin and highly depend on the interpretation. By recognizing and explaining master narratives, the panelists tend

to reinforce them even if they disagree with them. Also, as detailed in the literature, some parts of the master narrative can be kept intact while other parts are contradicted and revised. This makes the classification between master and counter-narrative complex. It is also important to remember that the counter-narrative cannot exist without the master narrative (Bamberg, 2004; Lundholt et al., 2018). Bamberg stated that “counter-narratives always operate on the edge of disputability” (Bamberg, 2004, p. 363) and it clearly makes sense in the four debates by the experts. In some ways, the classification by the researcher will reflect the panelists' power to persuade.

Now, if we look at the bigger picture, there is a main master narrative about humans' dominion over nature. This master narrative defends the idea that humans are so powerful that they can dominate nature. It connects with the extractivism culture that considers people could utilize every single piece of the earth without considering the consequences on the environment. This belief is the root of a disconnection between humans and nature, which leads to many other master narratives (2), as represented in Figure 2. The disconnection from nature makes people think that technology is the best ally to reduce carbon emissions without considering nature itself as a solution. The economic system based on unlimited growth does not take into account the impacts on the environment. People consider their personal freedom and their comfort in their everyday lives more important than the consequences of their acts on the climate. Those master narratives engender many problems (3), such as resources depletion, social inequalities, and global warming that affect more heavily vulnerable populations.

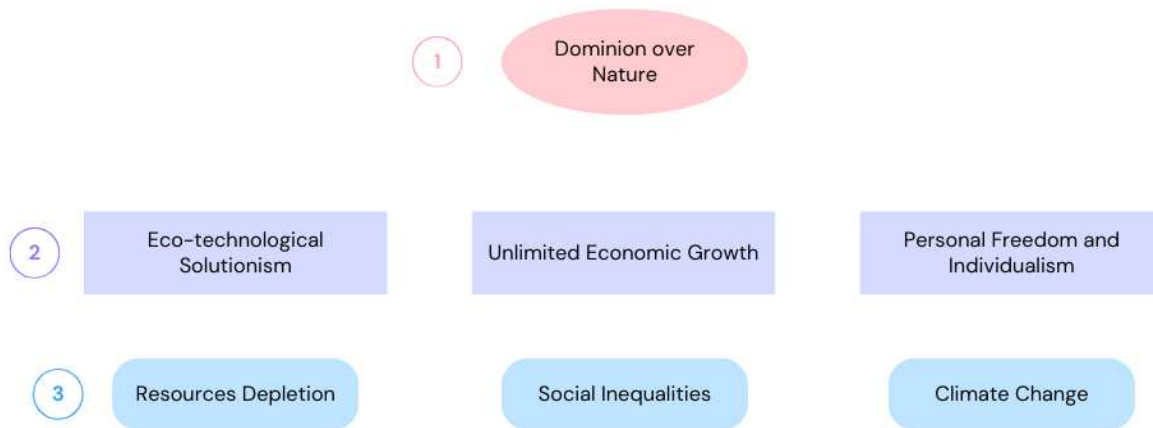


Figure 2: Master Narrative of Domination over Nature

Note. This graphic was created to represent the master narrative of domination over nature (1), the corresponding other master narratives (2), and the consequences (3).

On the other hand, the representation of counter-narratives in the podcast series is more complex. There is a lot of contrast and contradiction inside the counter-narrative explanations. For example, sufficiency is one of the main counter-narratives, but as pointed out by the panelists in the debate, sufficiency cannot be asked of everyone. People who emit the most should be asked to change their lifestyle for more sufficiency. However, the poorest are not those who consume the most energy or products and then cannot be asked to make an effort. Changes in habits and behaviors are difficult, but money should not give a permit to pollute. Also, asking for more sufficiency from people means imputing the responsibility on individuals instead of on the government, even though individual actions cannot resolve all the problems.

Another example is the opposition between sufficiency and technology. The debates tend to oppose them against each other and polarize people, with the ones who are pro-technology on one side and the ones who are pro-sufficiency on the other side. However, they can, in fact, be very complementary. Technologies are already everywhere in our lives, and some existing technologies can also be very helpful in reducing carbon emissions (for more efficiency, for

example), which can complement the counter-narrative of sufficiency. The problem is that technology can cost a lot of money, so it is important to ensure that those technologies are available to everyone and not only to those who can afford them to avoid falling under a master narrative.

The main contradiction appears in the debates when experts refer to the need for governmental actions. They are shown as crucial to ensure climate justice. Public policies are regularly referred to in the debate as the key to fairness in the implementation of solutions. However, this seems to contradict the nature itself of counter-narratives and tends to reinforce government legitimacy in regulating actions.

The exercise of creating a desirable story for the future is very difficult. It is important to note that those mini-fictions are only a few minutes long, and they cannot completely show all the nuances detailed in each scenario on the ADEME website. Every scenario has its specificity, and a large range of actions is represented in those scenarios. However, there are two points that could have been improved.

Minorities' representation:

It seems that minorities and vulnerable populations have been excluded from the future. An effort could have been made to not only represent privileged people but also minorities. Even diversity does not seem to be well represented. The questions that arise are for whom those scenarios have been written and for whom those futures are desirable. It seems that those scenarios were created for the middle class to picture themselves in the future, but not for the lower class. If they only offer a privileged perspective and invisibilize minorities, they all contribute to a big master narrative describing a bright future reserved for the privileged. However, everyone should be able to imagine a desirable future. By picturing themselves in the future, minorities can express their needs, participate in the design of solutions that suit their lifestyle, and contribute to the global

effort needed to address the climate crisis. As stated by Milkoreit, “Envisioning futures also includes moral reasoning and can motivate a reconsideration of ethical principles in the present” (Milkoreit, 2017, p. 5).

Conservative scenarios:

As stated earlier, the scenarios are grounded in a sort of realism that sets aside radical thoughts on the representations of power. If the last scenario brings a dystopian view of a society highly dependent on technology, the three other scenarios are more moderate in the kind of solutions proposed. Counter-narratives are represented but not in a radical approach and without including divergent ideologies. Power representations are not discussed in any scenarios as if it could not be possible to question them. It seems that those scenarios have been written to embody a sort of realism in phase with current representations of power. Obviously, the debates are limited by what is proposed in each scenario and put the experts in a narrative mindset of moderation regarding power representations, which could have led to self-restriction on the counter-narratives. The problem is that those conservative scenarios can also limit the audience's imagination. They tend to restrain people's ability to think out of the current socio-political and economic system. This is probably a choice of the organization, and several things can explain that. First, the ADEME is a governmental organization, so questioning governmental positions can be unnatural and even against their policy. Also, the ADEME probably wanted to create realistic scenarios in order for everyone to envisage a reassuring future. Questioning governmental positions in society can seem alarming and prevent people from picturing themselves in the future.

5.1 Futuristic Climate Narratives

Researchers are actively studying climate change communication to find the best way of engaging people to action. If the doom and gloom discourse has dominated the media communication strategies for decades, now a new form of narrative emerges more oriented toward solutions. A recent study has identified “a future narrative deficit in the IPCC” (Veland et al., 2018, p. 43). If designing solutions and pathways that please everyone is almost impossible, it is still necessary to imagine and create stories that narrate the prospective futures and how to reach those places. Every narrative form and every type of trajectory matter to develop our imaginaries (Veland et al., 2018).

Milkoreit defines the concept of “socio-climatic imaginaries” (2017, p.1) as common visions (desirable or undesirable) of the future considering the changing climate and the economic, technological, and social challenges. The author emphasizes the political aspect of the design of futuristic visions by theorizing the role of power and agency (Milkoreit, 2017). This is exactly why I consider that master narratives play an important role in the construction of desirable pathways to a carbon-neutral society. The framework that I have developed of futuristic master and counter-narratives adds to the current research done on climate change narratives.

The French governmental agency ADEME, which is working on the ecological transition, designed four scenarios to envisage France in 2050. Those scenarios present different alternatives to thinking about the future of France and the actions that need to be taken now to reach carbon neutrality in 2050. The podcast series “Tomorrow is Not Far Away,” which was created in 2022 to introduce the four scenarios, was analyzed to capture the master and counter-narratives and test

the framework defined in the literature review. The method centered around critical discourse analysis provided crucial insights into the dynamics of power and social relations that contribute to the futuristic master and counter-narratives.

The four mini-fictions provide narratives on every aspect of society. They do not only focus on energy but also explore the use of technology, transportation, the food system, infrastructures and building management, and the economic system. Both individual actions and collective actions are proposed. The analysis of the narratives demonstrates that master and counter-narratives are well-balanced in the mini-fictions. Master narratives are grounded in the narrative of human domination over nature, with consequences on those who are the most vulnerable. If the counter-narratives seem interesting and well-thought, the panelists unraveled each of them and demonstrated the complexity of creating a carbon-neutral society that suits everyone and does not neglect anyone. When technology appeared to invade society, the experts brought nature back to the center of the conversation. When sufficiency was lauded, the panelists reminded that sufficiency needs to be asked of the wealthiest. The debates also reveal contradictions as the experts emphasized the need for public policies, even for solutions on the side of counter-narratives.

This analysis reveals that scenarios that demonstrate potential pathways to a carbon-neutral society tend to present a moderate and conformist view of the future. If, at some local levels, solutions presented are radical, at the national scale, the different types of society depicted in those four scenarios are very similar to now. Any major disruptive approach seems to have been ruled out. For example, the regional society organization is discussed, but the power representations are not questioned. Those scenarios are still grounded in a socio-political and economic system that is very close to the current system in the Western context. Solutions that are presented are still part

of this same system. As alternatives offered are limited, the audience's imagination is restrained to a certain view of the future consistent with the actual system. However, the climate crisis calls for radical changes in every aspect of society, so futuristic climate narratives should include disruptive pathways.

Another important finding is that the depiction of solutions to the climate crisis in the future tends to invisibilize vulnerable populations. It is especially clear in the fourth scenario, where robots have taken low-income jobs, but it is also true in other scenarios. If some marginalized groups are represented, such as LGBTQ+ people, racial or ethnic minorities are not included in the scenarios. While the experts occasionally discuss the difficulties for people of lower socio-economic status, marginalized people are not at the center of the discussion. More importantly, all the solutions seem to fit very well for the wealthiest but do not apply well to the poorest and the most vulnerable. This is a tremendous problem because everyone should be able to picture themselves in a bright future to be able to contribute to its creation. Futuristic climate narratives should raise the question of climate justice and help design a fair transition for everyone.

5.2 Limitations

Some limitations are directly related to the dataset itself, and others are more linked to the research methods. First, discussions around imaginary futures depending on the evolution of the climate are not very common. I chose to analyze four podcasts from one organization as they provided different views on what could be our future. The fact that they were produced by the same organization could lead to some bias in the coverage of the problem. As stated earlier, the ADEME is a governmental organization and might have influenced both narratives and discussions. Also, it is important to note that the ADEME did not provide the transcripts, and I had to write them by myself. It seems clear that the producer has edited the podcast series, and even if

it is impossible to know what has been left out, this could have shaped the narratives and their interpretations. Also, the fact that the scenarios are discussed by five women (the journalist plus four experts) could also lead to some biases in the debate. The panel could have benefited from more diversity. Additionally, the podcast series only focuses on carbon emissions as the main goal, but it could have been interesting to investigate contents that take into account other planet's boundaries.

Regarding the method used to conduct this analysis, there are several limitations. First, the translation from French to English could have led to a change in the meaning or could have limited the interpretation of the text. I went back to the French version several times during the analysis to ensure that there were no mistakes in the translation or my interpretation. Another interesting observation is that the analysis of master and counter-narratives highly depends on the lens taken to analyze the text and its context. Here, I chose climate justice because it perfectly fits with the study of master narratives, as they highly depend on the analysis of social power and the constraints on individual agency (Syed, 2017). In fact, master narratives can be very interpretive, and the analysis could have been very different with another lens. The classification between master and counter-narrative also depends on the researcher's interpretation. As explained by Bamberg, some parts of the master narratives can be rewritten while other parts are not discussed or even contradicted, which makes the frontier between the two of them very interpretive (2004).

5.3 Future Research

Some future research could investigate additional stories that describe a desirable net-zero future. It could be interesting to look for other communication formats and spaces to analyze the differences in terms of the construction of narratives. Mediums such as news media could reinforce the government's position by presenting solutions that suit people in positions of power. On the

other hand, social media could offer a different approach, including more disruptive scenarios to attract the audience and have more views. It would be necessary to include the comments in the study to see how the narratives are negotiated. Video games related to climate change scenarios would also be fascinating to analyze. They might present disruptive scenarios as well while showing the entanglement of every action in the society organization. Maybe online forums could be used to analyze the negotiation of the narratives. Diversifying sources would definitely benefit future research and offer a wider range of scenarios. This would also show the process of communication used in different contexts and different formats.

Another way to continue with this analysis would be to study content created by other types of authors. Here, the podcast series analyzed was written by a governmental organization, but it would be interesting to compare it with scenarios written by other types of organizations, such as non-profit organizations or companies, to see if there are other dynamics of power at work that influence the master and counter-narratives. Something that would be fascinating to analyze would be an interview with an artificial intelligence (AI) about the realistic pathways society could choose. If AI is not disruptive in nature, it can still propose realistic solutions and demonstrate the benefits, limits, and drawbacks of each solution. I wonder if its proposition would highly rely on technology, for example. Additionally, a comparison between American and French futuristic narratives could also bring interesting information on how culture influences our vision of the future in the context of climate change.

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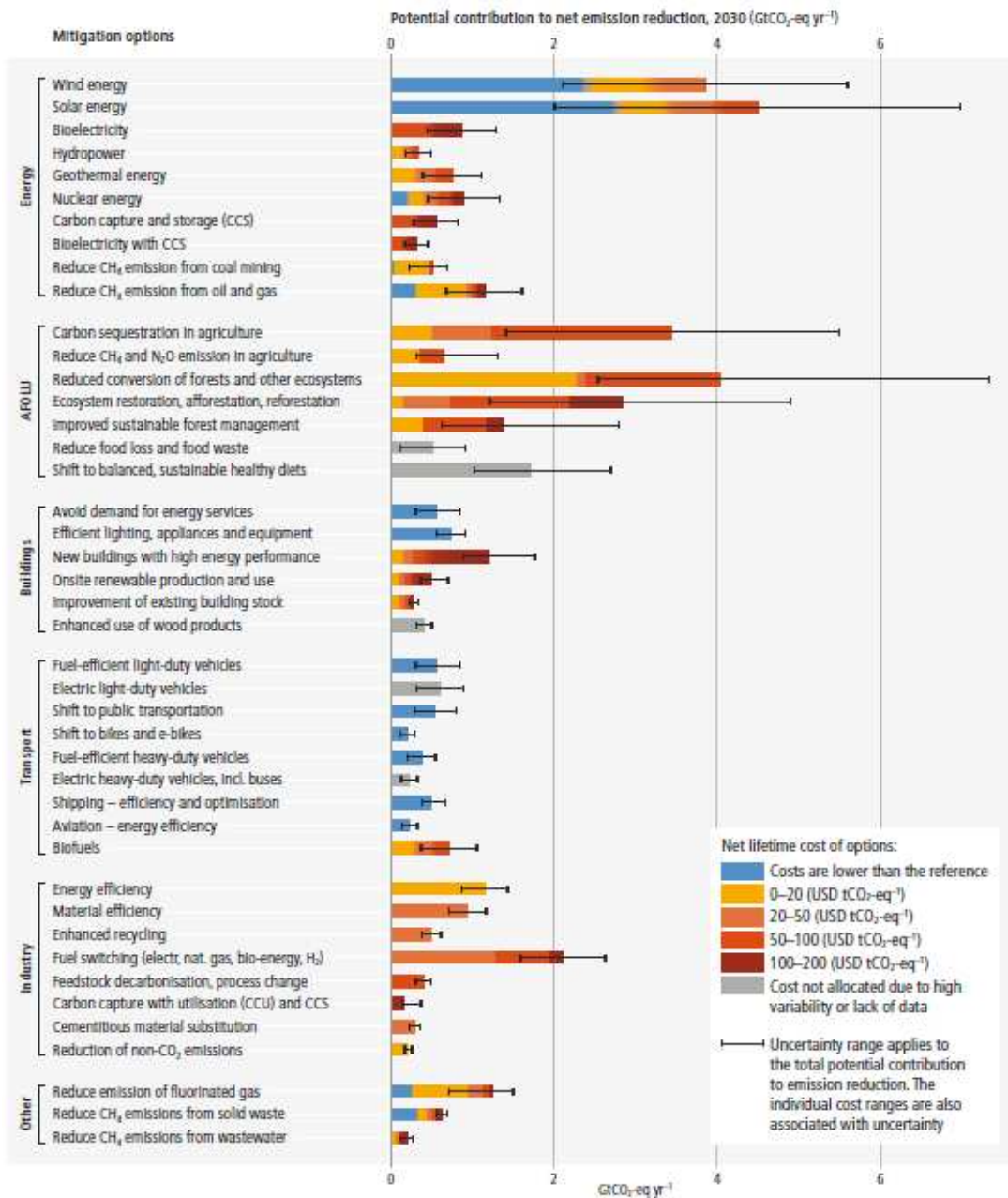
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APPENDICES

Appendix A

SPM.7 Overview of mitigation options and their estimated ranges of costs and potentials in 2030 (Shukla et al., 2023).



Note. Figure SPM.7 in IPCC, 2022: Summary for Policymakers. In: *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.001.

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Appendix B

The transcripts of the four podcasts that support the findings of this study are available from the thesis author, CCD, upon reasonable request.