

MASTER

INNOVATION AND RESEARCH FOR SUSTAINABILITY

MASTER'S FINAL WORK

DISSERTATION

THE INFLUENCE OF POPULISM ON THE ENERGY TRANSITION IN GERMANY

FREDERIK NIKLAS WAGNER

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GLOSSARY

- JEL Journal of Economic Literature.
- MFW Master's Final Work.
- SET Sustainable Energy Technology
- PRRP Populist Radical Right Parties
- NIMBY Not In My Backyard
- SEA Sustainable Energy Acceptance
- PAI Populist Attitude Index
- AfD Alternative für Deutschland (Alternative for Germany)
- BSW Bündnis Sahra Wagenknecht
- SPD Social Democratic Party
- CDU/CSU Christian Democratic Union
- FDP Free Democratic Party
- EU European Union
- CB Concerns and Barriers
- PB Perceived Benefits
- GHG Greenhouse Gas
- IEA International Energy Agency
- IW Köln German Economic Institute (Institut der deutschen Wirtschaft Köln)
- CSRD Corporate Sustainability Reporting Directive



ABSTRACT

The energy transition is a critical component of climate change mitigation, yet its success depends not only on technological advancements and policy frameworks but also on societal acceptance. In Germany, however, this transition faces growing resistance due to the rise of far-right populist parties, which frame sustainable energy policies as elitist and economically harmful. This political shift threatens the country's decarbonization efforts and, with it, broader climate targets. This thesis examines how populist attitudes influence the social acceptance of sustainable energy technologies (SETs), focusing on the recent controversy surrounding heat pumps. Using a survey-based quantitative approach, two indices were developed: the Sustainable Energy Acceptance Index (SEA) and the Populist Attitudes Index (PAI). Analysis of 335 responses reveals a statistically significant negative correlation between populist attitudes and the acceptance of SETs (r = -0.22, p<0.001), supporting the hypothesis that stronger populist beliefs are linked to lower acceptance of renewable energy. Political party preference played a key role, with AfD supporters showing the lowest acceptance of SETs, while Die Grünen voters exhibited the highest. These findings underscore the challenge of increasing political polarization in Germany's energy transition. Countering populist narratives and improving communication on the benefits of renewable energy are essential to securing public support for climate policies.

KEYWORDS: Populism; Sustainable Energy; Social Acceptance; Political Attitudes; Energy Transition; Public Perception

JEL CODES: Q42; Q54; D72; H23; P16; Z13



TABLE OF CONTENTS

Glossary i
Abstractii
Table of Contentsiii
Table of Figuresiv
Table of Tables iv
Acknowledgments v
1. Introduction 1
1.1 Background1
1.2 Problem statement
1.3 Research question and hypothesis
2. Literature Review
2.1 Populism 5
2.2 Sustainable energy technologies
2.3 Social behaviour and perception of SETs 11
3. Methodology
3.1 Research design
3.2 Sustainable Energy Acceptance Index (SEA)
3.3 Populist Attitudes Index (PAI)
3.4 Data collection and sampling
3.5 Data analysis
3.6 Ethics and data handling
4. Results
4.1 Survey results and descriptive statistics
4.2 SEA and PAI scores and correlation analysis



5. Discussion	
6. Conclusion	
Bibliography	
Appendices	

TABLE OF FIGURES

FIGURE 1 – Vote shares in 31 European countries, weighted by population size, of (1)	
ar-left, (2) far-left populist, (3) populist, (4) far-right populist, and (5) far-right parties,	fa
etween 1993 and 2022; Source: Rooduijn et al. (2024)	b
FIGURE 2 – Political party preference amongst survey participants	
FIGURE 3 – SEA by age group	
FIGURE 4 – PAI by age Group	
FIGURE 5 – Average political orientation by age group	
FIGURE 6 – SEA by political party preference	
FIGURE 7 – PAI by political party preference	

TABLE OF TABLES

Table I	
Table II	
Table III	



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THE INFLUENCE OF POPULISM ON THE ENERGY TRANSITION IN GERMANY

By Frederik Niklas Wagner

1. INTRODUCTION

1.1 Background

Climate change remains one of the most pressing challenges of the 21st century, with global temperatures rising at an alarming rate due to human-induced greenhouse gas (GHG) emissions (*Calvin et al., 2023*). The energy sector is a key contributor to this crisis, as fossil fuel-based electricity generation continues to be a dominant source of emissions worldwide (*Calvin et al., 2023*). In response, the energy transition - shifting from fossil fuels to renewable and sustainable energy technologies - has become a top priority for governments, businesses, and societies. The deployment of renewable energy technologies such as wind, solar, and heat pumps is essential for reducing emissions and mitigating the effects of climate change, while enhancing energy security in the current times of geopolitical uncertainty (*IEA, 2024*).

While technological advancements and policy measures have driven significant progress in the global energy transition, its success does not only depend on technologies and economic viability, but also on societal acceptance. Social acceptance plays a crucial role for the pace and effectiveness of renewable energy adoption. Although many renewable energy technologies offer clear environmental and economic benefits, they often face public resistance due to various socio-political, economic, and psychological factors (*Wüstenhagen et al., 2007*). Public opposition has often been observed in the form of resistance to wind farms, scepticism towards electric mobility, and most recently, strong reactions against sustainable heating solutions, particularly heat pumps in Germany (*Quecke, 2024; Schwenkenbecher, 2017*).

In the current political climate, populism has become an increasingly influential force, which is shaping public opinion on sustainability policies. While populism exists in both left- and right-wing variants, this thesis focuses specifically on *far-right populism*, as it is the dominant form influencing energy discourse in Germany today. Accordingly, unless otherwise stated, the term "populism" refers to far-right populist narratives and attitudes.

Across Europe and many other countries around the world, populist movements have grown in strength and size, often portraying climate policies as elitist impositions that threaten national identity and economic stability *(Lockwood, 2018)*. Germany, in particular, has seen a rise in political fragmentation and public scepticism towards sustainable policies, influenced by right-wing populist narratives. The recent success of the far-right party Alternative for Germany (AfD), especially in eastern Germany, highlights the increasing resistance toward sustainable energy policies *(Alkousaa, 2024)*. These developments raise important questions about how populist attitudes may shape public acceptance of renewable energy technologies and influence the trajectory of the German "Energie Wende" (energy transition).

1.2 Problem statement

Energy transitions are not merely technical challenges, but rather reflect deeply political and societal issues. While Germany has set ambitious climate goals, including the phasing out of coal by 2030 and carbon neutrality by 2045, public resistance to renewable energy projects poses a significant obstacle to achieving these targets *(Boudet, 2019; Luderer et al., 2021)*. Misinformation, political polarization, and economic concerns have fuelled public scepticism toward renewable energy technologies, delaying much-needed energy reforms, such as in the German heat pump debate *(Mathiesen, 2023)*. A key barrier to renewable energy adoption is the political divide in public opinion.

Populist narratives often portray climate policies as restrictive or economically harmful, increasing resistance among certain voter groups *(Forchtner & Kølvraa, 2015).* In Germany, this was evident in the heat pump debate in 2023 and 2024, where opposition was driven by concerns over affordability, state intervention, and distrust in political elites *(Quecke, 2024).*

Despite existing research on populism's influence on environmental policy, its effect on social acceptance of sustainable energy technologies remains underexplored. Most studies focus on policy rather than individual attitudes *(Cetkovic & Hagemann, 2020)*.

This thesis aims to address this gap by exploring the extent to which populist narratives influence the public's willingness to embrace renewable technologies, offering new insights into the social consequences of populism in the context of energy transitions.

1.3 Research question and hypothesis

Given the increasing influence of populist narratives on political discourse and public opinion, this thesis seeks to explore the relationship between populist attitudes and the social acceptance of sustainable energy technologies. The central research question guiding this study is:

• To what extent does populism influence social acceptance of sustainable energy technologies?

To systematically analyse this relationship, the following hypothesis is formulated:

H1: Higher levels of populist attitudes are associated with lower levels of acceptance of sustainable energy technologies.

This hypothesis is tested using a quantitative approach, employing the development of two survey-based indexes – the Sustainable Energy Acceptance Index (SEA) and the

FREDERIK N. WAGNER

Populist Attitude Index (PAI) – and the statistical analysis of the correlation between these two variables. The findings are expected to contribute to a deeper understanding of how ideological and political beliefs help shape the public attitudes toward energy transition policies and the adoption of renewable energy.

By focusing on populist attitudes and utilizing a quantitative approach, this methodology ensures a robust exploration of the underlying psychological and ideological factors that may drive or inhibit the social acceptance of sustainable energy technologies. Furthermore, the use of established indices ensures that the findings will be comparable to existing research, contributing to a broader understanding of how populism influences social attitudes toward energy transition.

The next section (Chapter 2) acts as an overview of the existing research within the field and creates a theoretical framework for the rest of the paper. Following on, the methodology (Chapter 3) explains the survey and methods used for data collection, paving the way for the results (Chapter 4), that are portrayed in the subsequent section. There the main findings are shown, which are then explained and analysed in the discussions section (Chapter 5). This section also includes some limitations of the paper and potential improvements. Lastly a conclusion (Chapter 6) rounds this paper off, followed by the Bibliography and Appendix.

2. LITERATURE REVIEW

2.1 Populism

Populism is not a new concept, but it remains one that is extremely difficult to describe. The term populism has in the past been used to describe an array of different ideologies, regimes, movements, leaders, policies, state structures and modes of incorporation, but it has always been defined with very little precision (Jansen, 2011). As Ernesto Laclau states, "we know intuitively to what we are referring when we call a movement or an ideology populist, but we have the greatest difficulty in translating the intuition into concepts" (Laclau, 1977, p.143). Especially in the last few decades many different definitions and descriptions have arisen, but one that has gain prominence is from Cas Mudde (Mudde, 2004). The author describes populism as an ideology that separates society into two groups, namely "the pure people' versus 'the corrupt elite'", and puts forward the argument that politics should be an expression of the people's general will (Mudde, 2004). Studying more recent literature such as the work of Cetković and Hagemann (2020)., the author reinstates that this has prevailed as the most adequate definition of the term. For simplicity, this thesis will refer to populism as an ideology. An ideology can be described as providing a description of social reality, while also embodying a variety of political ideals that represent the best possible form of social organization (Eccleshall et al., 2003).

Populism has several features that distinguish it from other types of ideologies. As explained by Akkerman et al. (2014)in their study on populist attitudes in voters, there are three core features that constitute populism: the sovereignty of the people; an opposition to the elite; and a Manichean division between "good" and "evil". Populism sees the people as a backbone and the heart of democracy, which has often been called

FREDERIK N. WAGNER

the "heartland" (*Akkerman et al., 2014; Taggart, 2002; Zaslove, 2008*). The Manichean division between "good" and "evil" refers to the people versus the elite, the latter of which are seen to be a threat to the purity and unity of the sovereign people (*Akkerman et al., 2014*). These features are common to all forms of populism. However, when examining populism historically and in contemporary contexts, it is essential to distinguish between left-wing and right-wing populism. While both forms employ similar techniques and rhetoric, the underlying ideologies differ significantly.

Right-wing populism is generally anti-liberal, advocating for free-market policies coupled with a nationalist overtone *(Tushnet, 2019)*. According to Ostiguy and Casullo *(2017)*, right-wing populism can be seen as defensive, often times trying to return to a societal state that once was. In contrast, left-wing populism supports political liberalism, while aiming to achieve social welfare through greater equality and more international collaboration *(Tushnet, 2019)*. This is described as "transformative populism" by Ostiguy and Casullo *(2017)*, in that it attempts to create a societal version that did not exist before. Geographically speaking, left-wing populism is often observed in Latin America, whereas right-wing populism is seen most commonly in Europe, especially in recent times *(Mudde & Rovira Kaltwasser, 2013)*. Throughout this thesis, the form of populism that will primarily be studied is right-wing populism, since this is much more widespread in the area that will be investigated, which is the Bavaria region, in Germany.

The rise of populism in Europe has drastically altered the political landscape, especially in Germany, where radical right-wing parties like AfD have gained considerable support. Across Europe, populist radical right parties (PRRP) such as Chega in Portugal, Brothers of Italy, France's National Rally, or Hungary's Fidesz have built their success on anti-establishment rhetoric *(Huber et al., 2021)*. As Jens Rydgren points

FREDERIK N. WAGNER

out, these parties construct their narrative by presenting themselves as defenders of the "common people" while positioning the "political class" as detached and corrupt (2018). This strategy allows them to tap into public dissatisfaction without being seen as antidemocratic (Rydgren, 2018). In contrast, left-wing populism, such as the Bündnis Sarah Wagenknecht (BSW) in Germany, has also gained some ground as can be seen in the most recent European elections, as well as state elections in Saxony and Thuringia, achieving as much as 16% in September 2024 after only being founded in January of the same year (Politico, 2024). BSW is similar to right-wing populists in Germany in its critiques to the establishment, but emphasizes socioeconomic issues like inequality and welfare, rather than national identity. However, this type of left-wing populism remains far less widespread than its right-wing counterpart in Germany and other EU countries. This is depicted very well in Figure 1, which shows vote shares of left- vs. right-wing populist parties in the 31 European countries, between 1993 and 2022. It shows that right and far-right populist parties have a vote share of as much as 15 percent, whereas left and far-left parties have only slightly increased their share over the past two decades in Europe. Since 2022, these numbers have only risen for right and far-right populist parties, as can be seen from the most recent state elections in Saxony and Thuringia, where the far-right party AfD collected a substantial vote share of over 30%, and won the elections (*Politico*, 2024).



FIGURE 1 – Vote shares in 31 European countries, weighted by population size, of (1)
far-left, (2) far-left populist, (3) populist, (4) far-right populist, and (5) far-right parties, between 1993 and 2022; Source: *Rooduijn et al. (2024)*.

Environmentally- or sustainability-wise, radical right-wing populist parties often reject the scientific consensus on climate change, framing environmental policies as elitist agendas that harm national economies and burden ordinary citizens (Lockwood, 2018). This opposition frequently aligns with a broader anti-science stance, particularly regarding climate action, which these parties portray as an unnecessary imposition on national sovereignty (Forchtner & Kølvraa, 2015). This is reflected in the attitudes of people who vote for right-wing populist parties (Kulin et al., 2021). Studies, such as those by Ćetković and Hagemann, have shown that while populism negatively affects climate policy, its impact on energy policy remains less clear (2020). Much of the existing research, including that of Ćetković and Hagemann, primarily examines the influence of populism on policy frameworks (Ćetković & Hagemann, 2020; Huber, 2020). While policy changes are critical, little attention has been paid to how populist rhetoric shapes public perception and social acceptance of sustainable energy. This thesis aims to address

this gap by exploring the extent to which populist narratives influence the public's willingness to embrace renewable technologies, offering new insights into the social consequences of populism in the context of energy transitions.

2.2 Sustainable energy technologies

Sustainable energy technologies (SETs), such as solar, wind, hydrogen, and heat pumps, are central to achieving global climate goals and transitioning towards a lowcarbon economy. These technologies offer the potential to significantly reduce greenhouse gas emissions, enhance energy security, and lower dependency on fossil fuels (IEA, 2020). For example, in Germany's energy transition (Energiewende), these innovations are essential for phasing out nuclear energy and minimizing reliance on coal and natural gas (Emmerich et al., 2020). However, despite their environmental and economic benefits, the deployment of these technologies still faces substantial social barriers. Public acceptance is a key issue, as many technologies suffer from a lack of local support despite general agreement that there is a need for cleaner energy solutions (Schwenkenbecher, 2017). The discrepancy between general public support for renewable energy and local opposition, often referred to as the "Not In My Backyard" (NIMBY) phenomenon, underscores the complexity of public acceptance (Emmerich et al., 2020; Schwenkenbecher, 2017). Psychological factors such as trust in government and industry, perceived risks, and a lack of understanding about the benefits of new energy technologies also play critical roles in shaping public attitudes (Boudet, 2019; Emmerich et al., 2020). According to Emmerich et al. (2020), studies suggest that while there is broad support for renewable energy technologies, local concerns about potential environmental, economic, and social disruptions lead to resistance, creating challenges in implementation.

The controversy surrounding heat pumps in Germany in 2023 and 2024 demonstrates particularly well how public perception and acceptance of SETs can be shaped by both political discourse and media coverage (*Mathiesen, 2023*). According to various different news outlets in Germany, public scepticism toward heat pumps increased hugely as political parties, particularly the AfD, capitalized on the uncertainties surrounding funding and subsidies, as well as the public political debates about the topic (*Quecke, 2024; Walker, 2024; Welt, 2024a*). Abou-Chadi et al. (2024) note that this scepticism can be seen in voters becoming more critical of green heating standards, a shift that other political parties then leveraged to gain traction. Similarly, Simone Peter, president of the German Renewable Energy Federation, further emphasized how populist narratives positioned heat pumps as a scapegoat, undermining transition efforts towards more sustainable energy technologies (*Staude, 2023*).

The influence of populism and media narratives on public perception highlights the need to analyse how these factors contribute to the acceptance of SETs. In doing so, it is essential to investigate the causative relationships between populist rhetoric and shifts in public opinion, particularly as other factors, such as public political debate and the relative affordability of alternative technologies, also shape the public's stance on energy solutions. While these factors play a role, populist parties like the AfD and BSW in Germany exploit these factors in volatile political and social circumstances, such as the heat pump debate, to gain political traction and influence public opinion to align with their agendas. This tactic has proven effective, as evidenced by the rise in voting numbers for these parties, such as in Saxony and Thuringia in the recent elections, where the AfD gained over 30% of the votes, by leveraging the uncertainty about renewable energy projects as a major part of their campaign (*Alkousaa, 2024; Politico, 2024*). They often

FREDERIK N. WAGNER

frame sustainable technologies as elitist or economically burdensome, which resonates with voter concerns during uncertain times *(Schaller & Carius, 2019)*. The challenge this poses for Germany's energy transition is highlighted by Matthias Diermeier, a researcher at the German Economic Institute (IW Köln), who emphasized that "the success of the energy transition will be decided in the east. However, it is precisely here that sensitive resistance has developed, which the AfD is increasingly mobilising politically" *(Alkousaa, 2024)*.

When analysing the causal impact of populism on social acceptance of SETs, the direct effects of populist rhetoric should be distinguished from the indirect effects mediated by other factors, such as economic incentives or media portrayal. Baron and Kenny's model of mediation can be applied here to better understand how populist messages interact with other variables to influence public attitudes *(Baron & Kenny, 1986)*. For instance, while populist rhetoric may directly frame sustainable technologies as harmful, the relative affordability of these technologies, public political debates, and media representation also shapes public perceptions. This distinction between direct and indirect influences will be revisited in the discussion of results, to clarify how much populism alone impacts public attitudes toward SETs, and how much can be attributed to broader societal and economic factors.

2.3 Social behaviour and perception of SETs

Understanding public behaviour and perceptions toward sustainable energy technologies is necessary to ensure their successful adoption and with so achieve a successful energy transition. While technological advancements and policy implementations are essential, they are not effective without widespread public acceptance. The social dimension of energy transition, which entails the way people

perceive, react to, and engage with new technologies, can facilitate or challenge the deployment of sustainable energy solutions (*Wüstenhagen et al., 2007*). This is a topic that has received research attention from social scientists in the past, with diverse theories being used to explain the causes for acceptance or denial of SETs. However, in the past a large part of the literature has only described, rather than explained the phenomena of social acceptance and perception of such technologies, which Boudet and others have found through their research analysis (*Boudet, 2019; Devine-Wright, 2005; Ellis et al., 2007; Wolske et al., 2017*).

A common misconception in some of the past literature and theories is that single factors are the explanation for public perception of SETs. However, with more research, the rejection of one-dimensional explanations increased and more nuanced and complicated explanations took over *(Boudet, 2019; Oltra et al., 2012)*. Many social behaviour theories have been examined, and the four most important factors highlighted as shaping public perceptions of new energy technologies are: (i) technology; (ii) people; (iii) place; and (iv) process *(Boudet, 2019)* (Table I).

These four factors, demonstrate the complexity of public perceptions surrounding sustainable energy technologies. In the case of heat pumps in Germany, resistance has been shaped by concerns over their technical costs and efficiency (technology), the impact on local communities and environments (place), and the perceived lack of fair and transparent governmental processes surrounding subsidies and regulations (process) (*Quecke, 2024; Walker, 2024*). Additionally, demographic factors such as age, income, and political values (people) have further fuelled scepticism, with conservative-leaning individuals and lower-income households perceiving heat pumps as economically burdensome and intrusive. This resistance has been enhanced by typical populist rhetoric,

framing heat pumps as elitist impositions, thereby complicating their acceptance (Lockwood, 2018; Quecke, 2024; Walker, 2024).

TABLE I

Des	Description of the four main factors shaping public perception of SETs ^a		
Factor	Description	Example	
	Public perceptions are shaped by the	Risks like noise (wind	
Technology	technical features of SETs, including	turbines); privacy	
	perceived benefits, risks, and performance.	(smart grids).	
People	Demographic and psychological factors, such as values, trust in institutions, and political affiliation, influence acceptance.	Environmental concerns; political views.	
Place	Local opposition is often tied to place attachment and the perceived impact of SETs on local environments and communities.	NIMBYism; rural vs. urban divide.	
Process	Fairness, transparency, and public engagement in the decision-making process are crucial for securing acceptance.	Lack of community involvement can increase resistance.	
		1 (2007)	

(a) Source: Boudet (2019); Devine-Wright (2009); Wüstenhagen et al. (2007).

Similar to Boudet's view on the public perception and social acceptance of sustainable energy technologies, the Social Representations Theory, as proposed by Serge Moscovici, also offers a compelling framework for understanding how new technologies like SETs are received and interpreted by the public *(Batel & Devine-Wright, 2015)*. According to SRT, social representations are collectively constructed, meaning that people make sense of unfamiliar objects or ideas by anchoring them in their existing knowledge and cultural norms. This process of "anchoring" and "objectification" allows individuals to see new technologies within already familiar concepts, making the unfamiliar more manageable for them *(Batel & Devine-Wright, 2015)*. For example, wind farms or solar panels might be viewed through different pre-existing frames such as environmental progress, economic burden, or aesthetic disruption, depending on the social context, therefore having different effects on their perception of that technology immediately. Batel and Devine-Wright argue that this theory is particularly useful for understanding the social acceptance of SETs because it captures the complexity of public attitudes, where positive views on a macro level (supporting sustainability) can coexist with local resistance to specific technologies or projects (e.g., wind farms or solar infrastructure) (2015).

Considering the multidimensional nature of social representations is necessary when explaining why public acceptance of SETs is often inconsistent. Acceptance is not merely an individual decision but a socially constructed phenomenon influenced by cultural, institutional, and local factors, as also argued by Hilary Boudet (*Batel & Devine-Wright, 2015; Boudet, 2019*). In this sense, resistance to SETs is not purely a matter of selfishness or ignorance (as implied by outdated models like NIMBY), but rather a reflection of the broader socio-psychological processes in which people try to balance change, maintain stability, and preserve their sense of identity (*Batel & Devine-Wright, 2015*). As previously mentioned, place attachment and local identity, for instance, play a significant role in whether communities embrace or resist new energy projects, especially when these projects are perceived as imposed from outside, disrupting local landscapes or ways of life (*Boudet, 2019; Devine-Wright, 2009*). This deeper understanding sheds light on the nuanced dynamics of community responses, thereby helping to reveal how conflicting attitudes about new energy projects and technologies can coexist within the same communities or individuals.

Social Representations Theory therefore also helps to clarify how populism can influence the social acceptance of SETs. Populist rhetoric often frames sustainable technologies as the imposition of 'elites' on 'the people', anchoring these technologies in a broader narrative of power struggle between ordinary citizens and distant,

FREDERIK N. WAGNER

'untrustworthy' authorities (Lockwood, 2018). This rhetorical framing allows populist leaders to tap into existing social representations, such as local opposition to wind farms, and intensify them by linking them to larger identity and power conflicts, as seen in the campaigns of the AfD in recent state elections in Germany (Kuner, 2024). By doing so, populist parties amplify the resistance to SETs, positioning these technologies not as environmental solutions but as symbols of top-down governance that ignores local needs and concerns. Lockwood, as well as Forchtner & Kølvraa (2015; 2018), highlight how populist movements often align themselves with anti-environmentalist stances, presenting climate policies as elitist and disconnected from the realities of the common citizens. Therefore, by leveraging the socio-psychological processes identified in the Social Representations Theory, populist parties can foster a deeper, more emotionally resonant resistance to SETs, explaining their powerful influence within certain regions or demographics in the past decade.

An array of additional theories has been used to describe and explain public perception and social acceptance of SETs, such as the Theory of Planned Behaviour, the Value-Belief-Norm Theory, the Diffusion of Innovation Theory, and the Social Practice Theory (*Boudet, 2019*). However, these theories primarily focus on individual decision-making processes, environmental values, and social norms, without addressing the role of political ideology and identity-driven opposition. In contrast, the Social Identity Theory, Framing Theory, and Dual-Process Theory offer more relevant insights, as they specifically capture how populist rhetoric shapes public attitudes by reinforcing group identities, framing SETs as elite impositions, and triggering emotional responses that override rational deliberation (*Arowolo, 2017; Kahneman, 2012; Tajfel & Turner, 1979*).

FREDERIK N. WAGNER

Proposed by Henri Tajfel and John Turner (1979), the Social Identity Theory suggests that individuals derive a significant part of their self-concept from the social groups they belong to, whether those are based on nationality, political ideology, or economic class (*Trepte & Loy, 2017*). Populist movements, particularly those on the right, often exploit this by framing the debate around SETs as a conflict between "the pure people" (ingroup) and "the corrupt elite" (outgroup), as articulated by scholars like Cas Mudde (2004). By positioning the elite as the primary drivers of environmental policies, populists tap into existing anxieties among certain social groups who may feel left behind by globalization or green transition policies (*Lockwood, 2018*). This ingroup/outgroup dynamic fosters a sense of solidarity within the ingroup while creating scepticism or outright hostility toward SETs, which are portrayed as elitist or harmful to the "common" people's interests.

In line with the Social Identity Theory, the Framing Theory also plays a crucial role in understanding how populist leaders manipulate narratives around sustainable energy technologies. According to Framing Theory, the way an issue is presented to the audience (which is the "frame"), influences how people process and interpret that information *(Arowolo, 2017)*. As depicted by Arowolo, there are two levels of framing: "framing in communication" and "framing in thought," the latter of which refers to the mental representation, interpretation, and simplification (or even manipulation) of reality *(2017)*. Populist leaders in Germany often use this approach when discussing renewable energy technologies like wind farms, solar panels, or heat pumps, shaping how people think about these SETs. For example, populist rhetoric from the AfD (particularly from their candidates' social media pages) has frequently framed these technologies as an unnecessary burden on the people due to the high cost of new technologies *(Alkousaa, 2024)*. Through this, populists simplify complex issues into emotionally resonant

narratives of national identity and economic harm, often fuelling anger amongst the population. A study by Rico, Guinjoan and Anduiza, showed that an increase in feelings of anger amongst voters is positively correlated with stronger populist sentiment *(Rico et al., 2017)*. As a result, even individuals who might otherwise support environmental initiatives can be swayed to resist these technologies because of the influence of the economic and nationalist frames.

In addition to the Framing Theory and Social Identity Theory, which elicit how populists tap into deep emotional reactions, the Dual Process Theory explains how populist rhetoric triggers immediate emotional responses that can override rational decision-making. The origins of the theory probably date far back to the 17th century, but Wason and Evans (1974) first suggested it in 1974. Daniel Kahneman (2012) later described it in a way that explains human cognition operating through two systems: a fast, intuitive, and emotional system (System 1), and a slower, analytical, and rational system (System 2) (Forgas et al., 2021; Kahneman, 2003). Populist leaders often appeal to System 1 by exploiting people's immediate fears and anxieties, especially during times of widespread worries and problems. Consequently, individuals may become more emotionally unstable and seek quick familiar solutions, making them less inclined to engage in rational, long-term decision-making (Gavrilov, 2023). This psychological dynamic has been a key element in the recent success of populist parties, as they utilize these emotional responses to gain traction and support. The research of Rico et al., however, suggests that feelings of fear do not positively relate to support for populism, which in this case goes against the effects that the Dual Process Theory suggests. This goes to show that the topic requires further research to really understand how populism

influences people's behaviour and, more specifically, how populism may affect social acceptance of sustainable energy technologies.

3. Methodology

The following section explains the choice of the research methods, including research design, data collection, sampling strategy and data analysis.

3.1 Research design

The research approach followed in this thesis combines the use of primary (survey) and secondary data (literature review). A comprehensive multi-step literature review was conducted combining multiple academic databases and AI-assisted tools. The initial phase involved gaining a broad understanding of the topic by using keyword searches on platforms like the Web of Science¹, Scopus², and Google Scholar³, with terms such as "populism," "energy transition," or "social acceptance of sustainable technologies". This helped to create an overview of the existing literature and identify key studies that formed the foundation for further research. In addition to these traditional databases, AI-driven search tools such as Consensus⁴, Perplexity⁵, and Elicit⁶ were used to uncover additional relevant studies and gain insights into emerging trends and topics within the field. These tools were useful in locating papers that may not have been brought to light through conventional academic searches. Once a foundational set of literature was established, the research continued primarily through a forward and backward referencing technique. By reviewing the references of key papers and identifying more recent works citing these foundational studies, it was possible to expand the literature pool and ensure a more comprehensive coverage of the field. Additionally, the works of influential authors were identified and focused on, such as those of Cas Mudde, who has made significant

¹ <u>https://clarivate.com/</u>

² https://www.elsevier.com/products/scopus

³ <u>https://scholar.google.com/</u>

⁴ <u>https://consensus.app/?home=true</u>

⁵ <u>https://www.perplexity.ai/</u>

⁶ <u>https://elicit.com/</u>

contributions to the study of populism (Akkerman et al., 2014; Mudde, 2004; Mudde & Rovira Kaltwasser, 2013; Rooduijn et al., 2024). By examining the literature from these leading scholars, it was possible to further refine the scope of the review and ensure it was informed by the most authoritative and relevant studies. This systematic approach provided a solid foundation for writing the literature review and developing the theoretical framework for this thesis.

This study employs a quantitative research design to explore the extent to which populist attitudes and beliefs influence the social acceptance of sustainable energy technologies (SETs) in Bavaria, Germany. The research used a survey-based approach, measuring both populist attitudes and the acceptance of SETs, followed by a statistical analysis to examine the relationship between these two variables. For this, two indexes were calculated to allow for statistical analyses between populist attitudes and sustainable energy acceptance – the SEA (Sustainable Energy Acceptance Index) and the PAI (Populist Attitude Index). Each index is composed of eight questions that are measured on a Likert scale from 1 to 5 (see Appendix 1 and 2). An average score is calculated for each index, based on the responses to each set of questions. The following sections explain each index and its calculation in more detail.

3.2 Sustainable Energy Acceptance Index (SEA)

The Sustainable Energy Acceptance Index (SEA) serves to assess the social acceptance of SET, in the particular case of this study, heat pumps. The SEA was developed using existing research uncovered by the literature review, and includes papers by Boudet, Devine-Wright, Wüstenhagen et al. (Boudet, 2019; Devine-Wright, 2005; Emmerich et al., 2020; Oltra et al., 2012; Schwenkenbecher, 2017; Wolske et al., 2017; Wüstenhagen et al., 2007). From these papers, a set of key factors that best explain the

acceptance of SETs was chosen, including perceived benefits (PB), concerns and barriers (CB), trust in government and industry (T), and attitudes towards SET (AT). These factors act to directly assess the participants view and acceptance of heat pumps – which were chosen as the focus technology in this survey, due to their relevance in Germany recently.

The calculation of the SEA uses survey questions 1 through 8, with higher scores of the Likert scale (ranging from 1 to 5), indicating higher social acceptance of SETs, proxied in this study by the acceptance of heat pumps (see Appendix 2).

3.3 Populist Attitudes Index (PAI)

The Populist Attitudes Index (PAI) uses a framework developed by Akkerman, Mudde and Zaslove (2014). The PAI was designed in 2011 to support the measurement of the population's populist sentiments in the Netherlands, using a professional survey company (Akkerman et al., 2014). This index captures the key elements of populism, which include sovereignty of the people, opposition to the elite, and a Manichean view of society (Akkerman et al., 2014). The elements that compose the PAI framework served as the foundation for the survey questions, therefore enabling comparability between our findings and previous research on populist attitudes, as well as across different contexts, in this case, between Germany (Bavaria) and the Netherlands,

The calculation of the PAI uses survey questions 9 through 16, with higher scores of the Likert scale (ranging from 1 to 5), indicating stronger populist attitudes (see Appendix 2).

3.4 Data collection and sampling

According to research by Schönbrodt and Merugini (2013)., for surveys "reasonable trade-offs between accuracy and confidence start to be achieved when n approaches 250". The are few occasions where a survey sample size that is lower than n=150 can be

justified (Schönbrodt & Perugini, 2013). Therefore, the minimum survey sample size for this study is set at n=150, aiming at n=250 as the optimal sample size. When using online sample size calculators (e.g. SurveyMonkey⁷ or CheckMarket⁸) with a confidence level of 90% and a margin of error of 5%, the sample size should be n=273, which falls close to the aimed n=250 (Checkmarket, 2025; SurveyMonkey, 2025).

The method of data collection for the survey was chosen based on the high number of samples needed. To be able to reach such a high number of participants, the survey was distributed through SurveyMonkey, an online platform that allowed for greater accessibility and convenience. The survey link was initially shared via personal networks, including friends, family, colleagues from work and university, and other personal contacts, who were asked to further distribute it. By leveraging existing social networks, the methodology ensures higher response rates while maintaining the study's ethical standards regarding anonymity. However, it must be noted that this also introduces a certain bias, as the participants may have similar worldviews, because of their shared social network. This potential bias is picked up again in the discussions chapter.

3.5 Data analysis

Once collected, data is statistical analysed to explore the relationship between populist attitudes (as measured by the PAI) and the social acceptance of SETs (as measured by the SEA). Descriptive statistics are used to describe and summarize datasets and to compare how the PAI and SEA scores vary across key demographic variables, such as age, gender, political preference, and living situation. Measures of central tendency (mean, median) and dispersion (standard deviation) are employed to summarize the distribution of

⁷ <u>https://www.surveymonkey.com/mp/sample-size-calculator/</u>

⁸ https://www.checkmarket.com/sample-size-calculator/

responses. Additionally, visual representations such as histograms and bar charts are utilized to illustrate the spread of responses and highlight potential trends or discrepancies within different groups. These analysis provides the foundational insights for a correlation analysis, supporting the understanding of how different factors contribute to, and influence populist attitudes and sustainable energy acceptance.

A correlation analysis is applied to determine whether the hypothesis that higher levels of populist attitudes are associated with lower levels of acceptance for SETs is supported by the findings. Correlations are calculated using the Spearman's Rank Correlation test, that ranges between -1 and 1, with 0 being no correlation at all, -1 being a perfectly negative correlation, and 1 being a perfectly positive correlation.

For the purpose of this analysis, an average political orientation index was also created and calculated for each age group, on the basis of the preferred party. Various online sources enabled an analysis, by ranking parties using a score of political orientation on a spectrum from the far left to the far right, with 0 being very left and 10 the far right (Carsten, 2021; SINUS-Institut, 2020; Wagner, 2023).

Data was loaded into RStudio for cleaning, processing, and analysis and handed as an excel file. Calculations and visualizations presented in the results chapter (and in Appendix 3, 5 and 6) are generated in RStudio⁹, with ChatGPT¹⁰ utilized as a support tool to troubleshoot coding challenges and enhance the efficiency of data handling.

3.6 *Ethics and data handling*

This study adheres to strict ethical guidelines to ensure the privacy and confidentiality of all participants. All respondents were informed about the purpose of the study, their

⁹ <u>https://www.r-project.org/</u> ¹⁰ <u>https://chatgpt.com/</u>

rights to withdraw at any time, and the anonymity of their responses. No personally identifiable information was collected, and all data was stored securely, ensuring that access is restricted to authorized researchers only. The data was collected anonymously to protect the identities of the participants. The study also follows the principles of informed consent, meaning participants are fully aware of the research topic before agreeing to take part (see Appendix 2).

4. Results

This chapter presents the results of the survey and of the analysis conducted to explore the relationship between the Populist Attitudes Index (PAI) and the Sustainable Energy Acceptance Index (SEA). These findings are contextualized within the theoretical framework described by in the literature review (Chapter 2).

4.1 Survey results and descriptive statistics

A total of 335 respondents participated in the survey, of which 279 participants entirely completed the survey, corresponding to a completion rate of 83%. The aimed sample size of n=250 was reached and exceeded. The age distribution ranged from under 18 to over 65-year-olds, with the 45-54-year-old age group being the most represented (See Appendix 3). Gender wise, there were a few more men (53%) than women (44%) but results show an overall balanced distribution.

Stated political preferences showed that the CDU/CSU (Christian Democratic Union) and Die Grünen (The Greens) were the parties receiving most support by the participants in this survey, followed by the Social Democratic Party (SPD) and AfD (See Figure 2 and Appendix 4).



FIGURE 2 – Political party preference amongst survey participants.

Noticeable in Figure 2, is that the NAs and "Prefer not to respond" options had quite a high percentage. This is likely because some participants might not feel comfortable with sharing such an opinion in a survey, even though the answers are handled anonymously.

4.2 SEA and PAI scores and correlation analysis

TABLE II

Description of the four main factors shaping public perception of SETs^a

Factor	SEA	PAI
Mean	3,16	2,63
Median	3,25	2,5
Standard Deviation	0,866	0,812

(a) Source: Own elaboration using *RStudio*.

In terms of age-related patterns, younger participants (up to 34 years) exhibit higher average SEA scores, whereas older participants (above 35 years) present lower average SEA scores as seen in Figure 3. A notable exception is the participants aged 65+ that exhibit a high SEA score.



FIGURE 3 – SEA by age group.

In contrast to SEA, PAI scores do not exhibit a strong linear trend across age groups as seen in Figure 4. However, some patterns emerge, such as higher PAI scores among middle-aged and older respondents compared to younger individuals. Notably, the age groups from 45-64 show particularly high variance in PAI scores, which may indicate a diverse range of political perspectives within this demographic. Furthermore, a noticeable exception is that participants aged 55-64, show the second lowest PAI score.



FIGURE 4 – PAI by age Group.

As mentioned in the methodology, an average political orientation was also calculated for each age group, based on the preferred party. Figure 5 presents these results, suggesting that, on average, with increasing age, the political orientation in this region moves further to the right of the political spectrum, while showing an outlier at the age group of 35-44 years, who stands the furthest to the right, amongst all age groups.



FIGURE 5 – Average political orientation by age group.

When looking at the living situations of survey participants, the results show a distribution of 52% homeowners and 39% renters. This suggests a bias toward homeowners in these results, compared to the national housing trends in Germany, of 39% homeowners and 57% renters, according to a study from Immowelt *(Welt, 2024b)*. The relationship between the living situation and SEA/PA scores, shows no significant correlation (see Appendix 5 and 6). Noticeable is that for social housing the SEA score is very low and the PAI score very high, however as there was only one participant in this category, so no valid conclusions can be drawn.

Results about party preferences and their relation to SEA and PAI scores show that supporters of Die Grünen present the highest SEA scores, while AfD voters scored the lowest SEA (Figure 6). On the contrary, PAI scores were highest among AfD supporters and lowest among Die Grünen supporters (Figure 7).



FIGURE 6 – SEA by political party preference.



FIGURE 7 – PAI by political party preference.

Although these findings already give an indication of the validity of the proposed hypothesis – that populist attitudes drive sustainable energy acceptance – this was further

tested with a correlation analysis, using the Spearman's Rank Correlation. Results of the Spearman's Rank Correlation test revealed a statistically significant, but weak negative correlation between populist attitudes and sustainable energy acceptance (r = -0.22, p<0.001). The result of -0.22 supports the hypothesis that higher levels of populist attitudes are associated with lower acceptance of sustainable energy technologies. In this case p<0.001 indicates that the negative correlation observed is statistically significant, with less than a 0.1% probability that this relationship occurred by chance.

TABLE III

Pearson's Rank Correlation by age groups ^a		
Age	Pearson's Rank Coefficient	p-value
18-24	-0,0921	0,557
25-34	-0,104	0,442
35-44	-0,356	0,104
45-54	-0,377	0,000414
55-64	-0,120	0,360
65+	-0,324	0,532

(a) Source: Own elaboration using RStudio.

*Age Group of "Under 18" was not included here due to too the few results from this group

To understand if this correlation differs across different ages, the correlation analysis was also broken down by age groups. For example, for the age group of 45-54-year-olds, a negative correlation was particularly pronounced (r = -0.377, p<0.0004). This is also the only age group that presents a statistically significant correlation, as all others either have very weak correlation coefficients or p-values well above 0.05 (see Table III for the full breakdown of results).

5. DISCUSSION

This study examines the relationship between populist attitudes and sustainable energy acceptance in Bavaria, Germany, with a particular focus on age, political party preference, and living situation. Using survey results to calculate a Sustainable Energy Acceptance Index (SEA) and a Populist Attitudes Index (PAI), a detailed analysis is produced to answer the research question of "to what extent does populism influence social acceptance of sustainable energy technologies?".

Results confirm a weak but statistically significant negative correlation between SEA and PAI, suggesting that individuals with stronger populist attitudes are less likely to accept sustainable energy technologies in their region, supporting prior research (such as that by *Kulin et al., 2021; Lockwood, 2018; Schaller & Carius, 2019)* that has linked right-wing populist discourse with scepticism towards environmental policies.

This study further reinforces previous research by demonstrating that such a relationship persists across political preferences, with SEA being highest among supporters of Die Grünen and lowest among AfD supporters, AND PAI following the opposite trend. Again, this aligns with previous studies indicating that right-wing populist parties often frame sustainable energy policies as elite-driven, costly, or even a threat to national interests *(Huber et al., 2021; Lockwood, 2018)*.

The analysis also showed variations in SEA and PAI across different demographic groups, particularly age, by revealing complex patterns that align with and, in some cases, challenge existing research. While younger participants tended to show higher SEA, no significant relationship between PAI and age was identified. However, the analysis of political orientation by age revealed a very interesting trend of increasing right-leaning political preferences with age, with a notable exception in the 35–44 age group, which

FREDERIK N. WAGNER

exhibited the most right-leaning political orientation. This is consistent with broader political science research, which suggests that older generations tend to shift towards more conservative ideologies over time *(Tilley & Evans, 2014)*. The age group of 45-54 years shows the highest negative correlation between SEA and PAI scores, which can indicate that political ideology is more deeply embedded in this demographic, shaping their views on energy policy. It may also reflect broader socio-political trends, as middle-aged individuals tend to be more politically active and ideologically aligned compared to younger respondents *(Erkulwater, 2012)*.

Political orientation plays a major role in renewable energy acceptance, with Die Grünen and SPD supporters displaying the highest SEA scores, while AfD voters exhibited the lowest acceptance of sustainable energy. These findings reinforce previous research showing that right-wing populist parties frequently oppose climate policies, often portraying them as imposed by out-of-touch elites (*Ćetković & Hagemann, 2020; Kulin et al., 2021*). The relationship between political party preferences and SEA in this study aligns with the Framing Theory, which suggests that public attitudes are shaped by the way policies are presented in political discourse (*Arowolo, 2017*). Parties like Die Grünen actively frame SETs as beneficial for the economy and public welfare, whereas AfD portrays them as threats to the national economy. The Framing Theory may explain the large differences in SEA scores observed between the political groups in this study.

Political preferences can also be analysed in regard to the current political situation in Germany. The survey was conducted just before Olaf Scholz (German Chancellor) asked and failed the "Vertrauensfrage" (question of confidence), leading to re-elections, which have now taken place during the finalising of this paper at the end of February 2025. The party preferences found in this survey overall reflect a similar image to those that

manifested in the election. As stated in the results, the political preferences showed that the CDU/CSU and Die Grünen were the parties receiving most support by the participants in this survey, followed by the SPD and AfD (See Figure 2 and Appendix 4). Similarly, in the national German election, the CDU/CSU is the most voted party, however followed by the AfD and SPD before Die Grünen, which is the main difference to the findings in this survey (*Zeier & Grün, 2025*).

Regarding living situations, although these did not show a statistically significant relationship with SEA and PA, some trends emerged. For example, shared flats and student accommodations were associated with higher SEA scores, likely reflecting the younger demographic in these housing types.

A limitation of this study is the potential sampling bias introduced by the method of data collection. Since the survey was distributed online to friends, family, and acquaintances, most of the participants may have been part of a shared social network, which may not fully represent the broader Bavarian (German) population. This non-random sampling may have influenced the results by over-representing certain demographic or socioeconomic groups. For example, the living situation in this survey indicated a higher proportion of homeowners compared to the national average *(Welt, 2024b)*. This could be because the sample included individuals from similar socioeconomic backgrounds, where homeownership is more common. Consequently, this might have impacted responses related to sustainable energy acceptance, as homeowners can have different incentives and barriers regarding SET adoption compared to renters.

Furthermore, the shared social and political environment among participants may have had an influence on the distribution of political preferences and populist attitudes (PA), potentially skewing the results. While this limitation does not invalidate the findings of this research, it is important to acknowledge that the conclusions drawn may be more reflective of this specific network rather than a fully representative cross-section of the general population in Bavaria (Germany). Future research could mitigate this bias by employing more randomized sampling methods or reaching a wider audience to ensure a more representative sample.

A factor that this study was not able to capture due to its slim design, is the causality of the relationship between populist attitudes and sustainable energy acceptance. To explore this, more factors besides populist attitudes would have to be analysed, to gain a deeper understanding about the extent to which populist attitudes are actually responsible for a lower sustainable energy acceptance. This is because other factors such as the relative affordability of these technologies or media representation also shapes public perceptions. Future studies should therefore also aim to capture the causality of the relationship within their study design.

6. CONCLUSION

This study demonstrates that populist attitudes have a genuine impact on the social acceptance of sustainable energy technologies (SETs) in Germany, highlighting a significant political challenge to the energy transition. The findings show a clear negative correlation between populist beliefs and support for renewable energy, particularly among right-wing populist voters. This therefore reinforces the growing body of research, which suggests that populist narratives actively undermine climate change mitigation efforts by portraying sustainable energy initiatives as elitist and economically harmful.

With the AfD gaining a record high 20,8% of the votes in the most recent German national election, on 23 February 2025, the topic of this study is more relevant than ever (Zeier & Grün, 2025). Along with the new Omnibus Regulation from the EU, that sees to cut CSRD demands by 80%, these results can mark the beginning of a period with less progressive climate policy, severely slowing climate change mitigation efforts (ESG News, 2025). These political shifts underscore the urgency of addressing the intersection between populism and energy policy, as public perception plays a crucial role in determining the success or failure of decarbonization efforts.

To counteract growing resistance to renewable energy, policymakers and stakeholders could prioritize strategic communication that directly addresses public concerns, in an attempt to reframe energy policies as beneficial for all societal groups, while countering misinformation. Future research should expand on this study's findings using a randomized, more representative sample to strengthen the validity of the results. Additionally, further studies should explore targeted interventions that effectively engage skeptical audiences, ensuring that Germany's energy transition remains on track despite increasing political polarization.

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APPENDICES

APPENDIX 1 – SAMPLE SCREENSHOT OF THE SURVEY QUESTIONNAIRE (SURVEY MONKEY)

The influence of populism on the German energy transition

1. Welcome to this survey for Frederik Wagner's Master Thesis

Thank you very much for your time to take part in this survey. Your participation is highly valued!

Your responses will remain anonymous, with no personally identifying information collected or linked to your answers. The data gathered is solely for academic analysis as part of my master's thesis at the Lisbon School of Economics and Management (ISEG). Only aggregate results will be presented, ensuring individual anonymity. All information will be stored securely, kept confidential, and will not be shared with third parties. By participating, you agree to contribute anonymously to this research, and you may withdraw at any time.

* 1. Do you consent to the anonymous use of your answers from the survey for the sole purpose of this research?

I consent



0 of 22 answered

The influence of populism on the German energy transition

2. Sustainable Energy Acceptance

In this section, I aim to understand your views on sustainable energy, specifically regarding heat pumps. You'll be asked questions about your thoughts on their benefits, potential concerns, and overall support for this technology. Your answers will help to understand public attitudes toward sustainable energy solutions and any factors that may influence their acceptance.

1. I believe heat pumps are an effective way to reduce energy consumption and carbon emissions.

I strongly disagree	Completely agree	
0		
2. I would support the installation of a heat pump in my home or neighbo	ourhood.	
I strongly disagree	Completely agree	
0		
3. Heat pumps provide long-term financial savings through lower energy	bills.	
I strongly disagree	Completely agree	
0		
4. The upfront cost of installing a heat pump is a major concern for me.		
I strongly disagree	Completely agree	
0		
5. I am worried that heat pumps might not be as reliable as traditional he	eating systems.	
I strongly disagree	Completely agree	

Nr.	Label	Question
0		Consent:
		"Your responses will remain anonymous, with no personally identifying information collected or linked to your answers. The data gathered is solely for academic analysis as part of my master's thesis at the Lisbon School of Economics and Management (ISEG). Only aggregate results will be presented, ensuring individual anonymity. All information will be stored securely, kept confidential, and will not be shared with third parties. By participating, you agree to contribute anonymously to this research, and you may withdraw at any time." Do you consent to the anonymous use of your answers from the survey for the sole purpose of the research?
		- Check box "I consent"
		SEA:
1	AT1	I believe heat pumps are an effective way to reduce energy consumption and carbon emissions.
2	AT2	I would support the installation of a heat pump in my home or neighbourhood.
3	PB1	Heat pumps provide long-term financial savings through lower energy bills.
4	CB1	The upfront cost of installing a heat pump is a major concern for me.
5	CB2	I am worried that heat pumps might not be as reliable as traditional heating systems.
6	CB3	I am concerned that heat pumps may negatively affect the aesthetics of my home or neighbourhood.
7	T1	I trust that government policies supporting heat pumps are in the best interest of the public.
		PAI:
8	T2	I believe that companies installing heat pumps are reliable and act in the best interest of consumers.
9	POP1	The politicians in the German parliament need to follow the will of the people.
10	POP2	The people, and not politicians, should make our most important policy decisions.
11	POP3	The political differences between the elite and the people are larger than the differences among the people.
12	POP4	I would rather be represented by a citizen than by a specialized politician.
13	POP5	Elected officials talk too much and take too little action.
14	POP6	Politics is ultimately a struggle between good and evil.
15	POP7	What people call "compromise" in politics is really just selling out on one's principles.
16	POP8	Interest groups have too much influence over political decisions.

Appendix 2 - Survey questionnaire

Demographics:

17	How old are you?	
1/	- Under 18 / 18-24 / 25-34 / 35-44 / 45-54 / 55-64 / 65+	
10	What is your gender?	
18	- Male / Female / Non-binary / Transgender / Other	
10	What is your country of origin?	
19	- Open text field	
	f state elections were tomorrow – which party, would you vote for?	
20	 Prefer not to respond / SPD / CDU-CSU / Grüne / FDP / AFD / Linke / Freie Wählen BSW / Other (please specify) 	r /
	Which of the following best describes your living situation?	
21	- Renting an apartment / Own an apartment / Renting a semi-detached house / Own a semi-detached house / Renting a detached house / Own a detached house / Student accommodation / Social housing / Other (please specify)	



Appendix 3 - Age distribution of the survey participants (generated with RStudio).

Party	No. of "Votes"	Percentage
CDU/CSU (Christian Democratic Union)	90	32.3%
Die Grünen	80	28.7%
Prefer not to respond	36	12.9%
SPD (Social Democratic Party)	22	7.9%
AFD (Alternative for Germany)	16	5.7%
FDP (Free Democratic Party)	13	4.7%
BSW (Bündnis Sahra Wagenknecht)	6	2.2%
Die Linke	5	1.8%
Other (please specify)	Tierschutzpartei, Volt	1.4%
NA	7	2.5%

APPENDIX 4 - POLITICAL PARTY PREFERENCE AMONGST SURVEY PARTICIPANTS.



Appendix 5 - SEA by living situation

Appendix 6 - PAI by living situation

