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Sustainable energy transformations in an age of populism, post-truth politics, and local resistance

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ABSTRACT

The increase of right-wing populist parties, post-truth politics, and local resistance challenges the policies and politics of sustainable energy transformation. The contributions of this Special Issue address at least one of these political phenomena in the context of sustainable energy transformation. They show that populism, especially right-wing populism, and post-truth politics indicate rising political polarisation on climate and energy policies while local resistance indicates the political nature of sustainable energy transformations. More research is needed to explore the causes, nature, and consequences of the increase in extreme positions on climate and energy policies across political parties and individuals.

1. How right-wing populism, post-truth politics and local resistance challenge sustainable energy transformations

Right-wing populist parties challenge sustainable energy transformations by advocating positions on climate change policies that “place them outside the political mainstream” [1, p. 1]. Moreover, they blame mainstream political parties and elites to subordinate the national authority and national interest in international cooperation in the context of climate change policies. According to such parties, climate-change-related policies such as the transformation of national energy systems to low-carbon are only legitimate if they benefit the nation and their core people directly or even exclusively [2]. In particular, climate change policies and climate change science have been subject to another political phenomenon, specifically, post-truth politics. In this context, the notion of truth can be described as a “common factual basis for deliberation” [3] that is challenged: “But for conservative critics of the global economic and political order, it was not truth per se that needed to be challenged. Instead, their quarrel was with particular truths that liberals and experts accept as self-evident, especially the devastating reality of climate change and the economic merits of global free trade” [3].

It has been argued that right-wing populist parties’ positions on climate policy reveal that climate policy is no longer a valence issue but has become a positional issue [4–7]. The differentiation between valence and positional issues within democratic-party competition was introduced by Stokes [8]. A valence issue is characterised by a high level of consensus about a societal problem and the required solution. Party competition is reduced to the question of which party is most

likely to provide the best problem-solving policy. In contrast, a positional issue is characterised by alternative perceptions of a societal problem, and party competition yields a set of alternative policies to tackle the problem. The definition of a policy issue as a valence or positional issue is not determined by its nature but by the socio-political context. Therefore, the definition can change over time [8].

The positional nature of sustainable energy transitions was revealed much earlier in the context of the transformation processes of energy production systems or energy infrastructures at the local level [9–11]. The contributions of this Special Issue address at least one political phenomenon in the context of sustainable energy transformation: populism, post-truth politics, and local resistance. They show that populism, especially right-wing populism, and post-truth politics not only indicate the political nature of sustainable energy transformations but in this context indicate rising political polarisation.

The term political polarisation refers to the increased division of political parties at the elite level or individuals at the public mass level “into distant ideological camps at the extremes” [12, p. 221]. Political polarisation is a matter of judgement rather than a matter of measurement: “In contrast to judging *levels* of polarization, identifying *trends* in polarization is an easier task. [...] Movement away from the center towards the extremes would seem to be a noncontroversial definition of polarizing, even if judgements about how to characterize the starting and ending points remain disputable” [13]. In the following, the polarisation of political positions on climate and energy indicated by the increase of right-wing populist parties and post-truth politics will be explored. Moreover, the differences and links between these two political phenomena and local resistance will be analysed.

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In the next section, we outline the concept of this Special Issue by presenting the research on right-wing populist parties, post-truth politics, and local resistance in the context of sustainable energy transformations. First, we explain how right-wing populist parties take up issues such as climate change and energy policies by mixing right-wing ideologies with populist features. Then, we exhibit the nexus between right-wing populism and post-truth politics in the context of energy and climate change policies. Finally, we explore the political nature of sustainable energy transformations revealed by local resistance.

1.1. Right-wing populist parties' ideology and sustainable energy policies

The rise of right-wing populist parties is not a new political phenomenon; however, in light of the so-called Brexit, i.e., the vote of the British people to leave the European Union, and the election of Donald Trump as the forty-fifth president of the United States, “2016 was the year in which populism went primetime” [14]. Lockwood [1] argues that the opposition of right-wing populist parties towards climate change policies is explained by ideology rather than by structuralist accounts that draw on the detrimental economic effects of globalisation and modernisation¹ [1]. This argument is undergirded by empirical findings showing that variance in parties' salience given to climate change policies is explained by party ideology rather than by party economic or policy preferences [7]. Here, we focus on right-wing populist party's ideology since right-wing populist parties are generally more adverse towards climate change policies than left-wing populist parties [1].

Although populism is not a well-defined theoretical concept, there is some scientific consensus about its main features. In general, populist political forces attack the established structure of power by claiming to represent the interests of the ‘pure people’ [17–19]. Therefore, populist politics are not marked by a common ideology but rather by a common legitimating framework as well as a political style and mood [17]. Moreover, populism is a thin-centred ideology since it is always attached to another, more pronounced, ideology [17,20]. These features characterise both left-wing populism as well as right-wing populism. Left-wing populist parties also exist in Western democracies, especially in Europe [21]. We focus only on right-wing populism in this paper because the links between right-wing populist parties and climate and energy policies are better-explored than those between left-wing populism and climate and energy policies [1]. In the following sections, we analyse how right-wing populist parties take up issues such as climate change and energy politics by mixing right-wing ideologies with populist features.

Radical right-wing parties² are often labelled populist [16]. The demarcation between radical right-wing parties and radical right-wing populist parties is as much a scientific challenge [23] as the demarcation between populist right parties and populist left ones [21]. Radical right-wing populist parties are characterised by the following features: “They also tend to be populist in accusing elites of putting internationalism ahead of the nation and of putting their own narrow self-interests and various special interests ahead of the people. Hence, the new radical right-wing parties share a core of ethno-nationalist xenophobia and anti-establishment populism” [2]. The populist anti-establishment strategy differentiates populist right-wing parties from radical right ones while right-wing populist parties' ideology and economic preferences differentiate them from left-wing populist parties

¹ The empirical evidence on the predictors of voting support for right-wing populist parties is inconclusive in this regard. Inglehart and Norris [21] provide empirical evidence that voting support for populism is determined by cultural cleavage rather than by economic cleavage, while Oesch's [15,16] findings indicate that economic cleavage is an important predictor for voting support for right-wing populist parties [15,16].

² These parties are labelled as radical since they “challenge liberal democracies, especially through their opposition to pluralism” [22]; however, in contrast to right-wing extremism they are not anti-constitutional [2,22].

[2,21,24]. It has been argued by Inglehart and Norris [21] that populism is characterised by ideological cleavages rather than by socio-economic ones. According to Inglehart and Norris, the populist values revealed by anti-establishment attitudes, an emphasis on strong leaders and/or popular will, nationalism, and traditional values represent one pole of a cultural continuum, while the cosmopolitan liberal values revealed by a pluralistic democracy, tolerant multiculturalism, multilateralism, and progressive values, represent the other pole [21].

According to Rydgren [2], radical right parties build upon the idea of ethno-pluralism stating that different peoples must preserve their unique national characteristics. Therefore, immigration is the most salient issue for these parties. By promoting the idea of national preference, ethno-pluralism also has an effect on other socio-economic policies [2]. Since the concern of this contribution is to explore right-wing populist parties' positions on climate and sustainable energy policies, we focus on the links between right-wing populist parties' positions on socioeconomic and sociocultural politics and climate change and energy policies. Right-wing populist parties differ in their positions on climate change. The specific positions range from denying that climate change exists at all over challenging human-caused climate change to accepting the mainstream view on anthropogenic climate change [1]. However, right-wing populist parties are united by blaming mainstream political parties and elites to subordinate the national authority and national interest in international cooperation in the context of climate change policies [2]. Through international cooperation, the cosmopolitan political elite promote homogenisation and universalisation and therefore threaten the values of ethno-pluralism. Moreover, international agreements on climate change policies are commitments to national policies that require fundamental restructuring of the economy and human behaviour and whose benefits do not necessarily accrue to the nation and its core people directly or even exclusively³ [2,7,23].

Climate policies' imperative to transform national energy systems to low-carbon [26] is also a concern of right-wing populist parties since it refers their economic policy preferences, which are characterised by a focus on benefits for the core people rather than by economic right- or economic-left cleavage [2]. The values of the social market economy, that is, inclusion, redistribution and the levelling of differences among different social groups and classes, are a threat to right-wing populist parties' ethno-pluralism. Therefore, they support the underlying regime of the neoliberal market economy, which is characterised by property rights, contracts, and consumer choice and therefore yields only a modest level of state intervention [22,27]. However, such values “mitigate support for a market economy with *populist justice*” [22]. According to the idea of a populist justice state, interventions into the economy are necessary and legitimate to protect “in-group” people harmed by market forces [22,28].

In the context of sustainable energy transition policy, right-wing populist parties also oppose the restructuring of the energy economy. On the one hand, they seek an economic policy based on a traditional economy that benefits the core people by providing jobs and maintaining social cohesion through community-building [23]. On the other hand, maintaining the provision of energy needs of the core people is given higher priority than climate change mitigation efforts [22]. Although climate and energy policies are not the most salient issues for right-wing populist parties, they challenge both climate policy and sustainable energy transition policies by advocating political positions that differ compared to those advocated by the parties of the political mainstream [1,29,30]. The increase of right-wing populist parties, therefore, involves a polarisation of the climate and energy positions among all political parties.

³ Some right-wing populist parties include environmentalist groups [1]. It is not claimed here that right-wing populist parties challenge sustainable policies per se but that they support only those that benefit their core people directly or even exclusively [25].

Partisan polarisation on climate and energy policies is a rather longstanding phenomenon in the United States [31–33]. In the context of U.S. climate policy history, the withdrawal from the Paris Agreement by the Trump Administration cannot be interpreted as a deviation from the norm. President Trump's Republican predecessor in office, President George W. Bush, also exited from the Kyoto Protocol. In contrast, the Obama Administration put U.S. climate policy back on track with those of most other industrialised nations [30]. However, partisan polarisation on climate policy increased during Obama's terms in office. Beyond opposing government regulation in principle, the Republican elites adopted climate-sceptical⁴ and even climate-denial attitudes [31,35]. Partisan polarisation on climate policy has traditionally been more pronounced in the context of Anglophone countries, such as Australia or New Zealand [5,36]. Nevertheless, it has become evident in EU countries within the past decade (for a comprehensive review please see [1]). An analysis of party manifestos from 18 OECD countries showed that right-wing parties reveal lower levels of climate change salience, i.e., they respond less positively to the issue than left-wing parties [7].

There is some empirical evidence that political affiliation is one of the strongest predictors of climate change scepticism [37,38]. Against this background, it comes as no surprise that increasing party polarisation on climate change and energy policies also involves increasing polarisation on climate change within the general public [31,36]. An Australian case study analysing both political candidate and voter polarisation on global warming shows “political party allegiance to be one of the strongest impediments to progressive climate change policy. [...] If party identification is conceptualised as a form of *identity* similar in form to ethnic or religious identity, one's views of political issues tend to be influenced strongly by the policy positions and “cues” of party leaders. Such “cues” become even more important when political elites are polarised [...]” [36] This argument is undergirded by the recent research that provides empirical evidence on polarisation within the general public on climate change views in the European Union [39], where party polarisation has recently been increasing [1,4,7].

1.2. Post-truth politics climate change scepticism, and the politicisation of science

Increasing political polarisation as indicated by the rise of populist parties has also been linked to the emergence of another current political phenomenon involving sustainable energy transition policies, specifically, post-truth politics⁵ [40,41]. Lewandowsky et al. [40] argue that megatrends such as decreasing social capital, growing inequality, increasing polarisation, declining trust in science, and an increasingly fractionated media landscape have supported the development of post-truth politics. In reference to these megatrends, McCright and Dunlap [41] argue that increasing political polarisation is the main barrier to combatting post-truth politics since it is ‘intimately related’ to these megatrends [41].

Against this background, post-truth politics and populism seem to be linked by both posing a threat to generally accepted values, norms and institutions that are discredited by populist politicians as ‘elitist’: “Populist animus is directed not just at the political and economic establishments but also at opinion-formers in the academy and the media” [17]. Post-truth politics is especially relevant in terms of climate change science. Right-wing populist parties advocate positions of climate change policies that place them outside the political mainstream [1]. By doing this, they challenge the “politics of consensus” or what they perceive as “political correctness” in the context of climate change to distance themselves from the established political parties [2,42]. In

light of the almost universal acceptance of anthropogenic climate change by academic scholars in the physical sciences supporting the findings of the Intergovernmental Panel on Climate Change (IPCC)⁶, social and business scientists, policy makers, businesses, non-governmental organisations, and the general public are mainly focussed on the development and assessment of options that are available for policy, individuals, and organisations to address climate change [44–46].

Again, climate change scepticism and the politicisation of science are not at all new phenomena [47]. The George W. Bush Administration was also blamed for the misuse of science, and the EPA “also omitted important science publications from its official website, a crucial means of communication with the general public”. [48] According to McCright and Dunlap [41], the post-truth era challenges climate change policies even more due to two developments – a growing variety of types of misinformation and increased polarisation.

McCright and Dunlap [41] distinguish four types of misinformation. In the context of climate change scepticism ‘Bullshit’ and ‘Systemic Lies’ are most important. Bullshit is characterised by an informal rhetorical style aimed at ordinary people. The “messenger's ontological position on truth and facts” [41] is characterised by strong constructivism, i.e., “agnosticism about or even disbelief in the existence of external truths and a disrespect of facts” [41]. The aim is not to provide information but rather to persuade the recipient. Breitbart News falls into this category, as does President Trump: “Perhaps the most infamous BSer of our age is President Donald Trump, who spreads it so frequently and effortlessly that observers are challenged to keep up. [...] Trump is an exemplary BSer because he is driven much more by self-serving narcissism than by any ideologically coherent political agenda” [41]. President Trump's famous tweet about “that good old global warming” and the strong winter in parts of the United States is an example in this context.

Although BS is much more popular at the moment, systematic lies are said to be “the most pernicious type of misinformation” [41]. Systemic lies are characterised by realism rather than by constructivism, i.e., acceptance of external truth, and the rhetorical style is formal and aimed at institutions and systems. The American conservative countermovement is categorised by its use of systematic lies. To maintain the industrial capitalist system, the countermovement opposes claims from climate science and ecological social movements [41]. Climate science is also opposed by some European right-wing populist parties [49,50]. Although this type of misinformation is not new [48], processes such as digitisation and the development of so-called new media have strengthened its influence. Therefore, post-truth politics and right-wing populism strengthen each other: “[...] reactionary powers of tradition and nationalism have used new media to conjure false memories of great and glorious pasts [...] they are promising to restore economic prosperity and law and order in a ‘correction’ (one might say in defiance) of longstanding, evidence-based ideas held by both major American political parties” [3].

Populism and post-truth politics seem to accelerate the transition of sustainable energy policies from a valence issue to a positional issue by both revealing and intensifying the cleavages along ideological lines [51].

1.3. Local resistance and the politics of sustainable energy transitions

The positional nature of the sustainable energy transition was revealed much earlier in the context of transformation processes of energy production systems or energy infrastructures at the local level. Although there has been considerable public support for sustainable energy transitions, in many cases at the national level, the

⁴ There is some critical reflection about the use of the word scepticism in the context of climate change since it may be motivated by misleadingly treating scepticism a scientific virtue [34].

⁵ For a critical discussion of the term post-truth, please see [3].

⁶ In 2010, several factual errors in the IPCC's Fourth Assessment Report were discovered. However, the errors did not change the main conclusions of the report and therefore the “politics of consensus” was harmed to a certain extent but did not erode [43].

implementation processes of this transition such as the expansion of renewable energy or transmission lines have aroused local protest [9–11]. Against the background of considerable public support for sustainable energy transitions, the implementation of renewable energy systems at the local has been considered to be a valence issue. It has been assumed that renewable energy systems are generally accepted at the local level and that public opposition and local resistance are deviant and caused by a lack of knowledge [11]. Therefore, local resistance to renewable energy systems has been considered somewhat pejoratively as NIMBY (not in my backyard) syndrome [52]. However, the social science research has shown that local resistance reveals renewable energy's embeddedness in the local socio-economic context, i.e., social and ecological values [11,53–55]. The implementation of renewable energy systems at the local level is not a technical but rather a political challenge characterised by trade-offs. It has been argued that deliberative measures to include citizens in the policy-making process must be organised across different governance levels to align international or national abstract policy interests with regional or local specific policy interests. In the context of sustainable energy policy, citizen participation measures are mainly implemented in the course of regional planning, i.e., in a phase of the policy-making process when the scope for decision-making is highly restricted by political decisions that have previously been made at higher governance levels [56].

The preliminary evidence reveals right-wing populism and post-truth politics on the one hand and local resistance on the other using each other's positions opportunistically. A study analysing the British UKIP's social media discourse in relation to rurality reveals that UKIP exploits local wind opposition to mobilise support for their wider platforms: "There is much claiming of UKIP being in the vanguard of a revolt against renewables, but largely by UKIP spokespeople and candidates with very little evidence presented to support these claims. UKIP does not engage in any depth with rural issues either the politics of rural areas or the politics of the rural other than stereotypes about village pubs (Farrage) or passing references to hunting with hounds (Helmer)" [49]. Conversely, a German study provides preliminary evidence that arguments expressed by climate-sceptical organisations have also been used opportunistically by local protest groups to back their positions [57].

While the positional nature of sustainable energy transformation is a longstanding phenomenon, preliminary research addressing the links between local and protest movements and between increasing populism and post-truth politics also indicate increasing political polarisation in this context.

2. This Special Issue

Although political phenomena such as populism and post-truth politics address sustainable energy transformation policies and politics, "there is a surprising dearth of academic research that investigates its nature and causes" [1]. Thus far, the research has shown that increasing right-wing populism and post-truth politics indicate increasing political polarisation on energy and climate policies (see chapter 1). The contributions of this Special Issue investigate the political polarisation of sustainable energy transformations as indicated by populism, post-truth politics, and local resistance in three sections. The contributions in the first section explore the political and social tensions indicated by populism and post-truth politics in the context of sustainable energy transformations. The papers in the second section address the rise of right-wing populism and elite climate change scepticism and its influence on people's beliefs and attitudes towards sustainable energy transitions. Finally, the contributions in the third section explore the political nature of sustainable energy policies at the local level.

2.1. Social tensions within sustainable energy transformations

The contributions of this section of the Special Issue analyse the

political economy of sustainable energy transformation. They show that political conflict has always existed in the context of sustainable energy transformations although to different extents and with different consequences such as those explored by the contributions of Jefferson [71] and Leiren/Reimer [72]. The contributions of Stegemann/Ossewaarde [73] and MacArthur/Matthewmann [74] show that increasing populism and post-truth politics indicate increasing the political polarisation of sustainable energy transformations and concern both politics and policy. On the one hand, new political actors appear and challenge established political structures and discourses [73]. On the other hand, social tensions materialise in the implementation of sustainable energy transformation by involving conflicting social processes of decentralisation and globalisation [74].

Michael Jefferson shows that political phenomena such as post-truth politics have always shaped the discussions, political processes and policies of sustainable energy transitions with sometimes detrimental consequences. He explores the political economy around climate change science and low-carbon energy policy and illustrates how the politics and lobbying that have occurred in this context have resulted in the sub-optimal development of different low-carbon energy generation technologies and the misuse of renewable energy subsidies in the United Kingdom. To avoid such undesirable developments, Jefferson makes a case for better employment of the precautionary principle when deploying a low-carbon energy policy to strengthen the efficacy criteria.

By analysing the shift from feed-in tariffs to auctioning in the context of German renewable energy law (EEG) from a historical institutionalist perspective, Merethe Dotterud Leiren and Inken Reimer show that the path and goals of renewable energy policy have always been polarised within national policy-making. While feed-in tariffs tend to favour new actors in the energy production sector such as individuals, small companies, and communities, auctions tend to favour the established actors, i.e., the big companies. They explore how coalitions of interests in Germany have changed against the background of political and social developments such as the introduction of state aid guidelines by the Commission of the European Union or the rising energy costs due to the EEG's success. The issues of costs and insolvency have made defenders of the feed-in-tariff vulnerable to displacement. As a consequence, politicians have continuously and incrementally revised the EEG by adding elements of greater market-orientation.

Julie MacArthur and Steve Matthewman argue that while populist developments and economic protectionism are problematic trends, they also reveal the social tensions inherent in sustainable energy transition processes that require critical analysis and nuance. By analysing struggles of the Indigenous populations in Aotearoa New Zealand, namely, the Māori, over both energy transition policy and governance issues, they illustrate the tensions between the de-centralisation of the energy system on the one hand and its embeddedness in globalised liberalised markets on the other. They conclude that a just energy transition needs not only to be physically renewable but also socially and culturally sustainable.

Laura Stegemann and Marinus Ossewaarde analyse how the post-truth phenomenon has discursively changed the European green growth discourse in environmental directions from a neo-Gramscian perspective. According to this perspective, the green growth discourse can be considered to be a hegemonic discourse through which the so-called "historical bloc", i.e., a discourse coalition of established networks of governmental and business actors, seeks to establish widespread acceptance of the current power relationships. To maintain the historical bloc' preferred neoliberal economic model, the very core of the green growth discourse is the integration of economic and environmental value. Right-wing populist movements are considered to be counter-hegemonic forces embedded in an overall strategy to be emancipated from European, supranational energy policies. Stegemann and Ossewaarde argue that these counter-hegemonic positions are integrated into the hegemonic green growth discourse by applying the

empty term sustainability in the green growth discourse whose definition is subject to energy political power relations. They conclude that the term sustainable energy transformation is a major challenge for the radical rethinking and restructuring of Europe's energy politics.

2.2. Populism and public opinion on energy transformation

The contributions of the second section of the Special Issue explore how political processes such as increasing right-wing populism and elite climate change scepticism influence people's beliefs and attitudes towards sustainable energy transitions and result in the increasing polarisation of sustainable energy transformation at the public mass level. The contributions of Batel/Devine-Wright [58] and Kammermann/Dermont [59] show that people's beliefs about sustainable energy policy are influenced by both right-wing parties' ideas of ethno-pluralism [58] as well as their opposition towards climate change policies [59]. The contribution of Trotter/Maconachie [60] shows that people's beliefs on energy policy are not per se prone to populism and post-truth politics. This is especially true if populism and post-truth politics provide only a legitimating framework or a political style. Dasgupta/DeCian [61] reveal that these findings are alarming since public opinion is an import factor influencing the implementation of environmental policy measures.

Susana Batel and Patrick Devine-Wright adopt a socio-historical approach to analyse how the rise of right-wing populism and post-truth politics in Britain influence people's senses of identity at regional, national and European levels. Based on survey data collected among United Kingdom residents in 2007 and 2012, they explore people's beliefs about the 'Energy Union' and related ideas and practices regarding energy issues at the national and European levels. They illustrate the importance of examining and obtaining an understanding of intergroup relations, for example between Britain and the European Union, and of dynamics at different scales, such as increasing populist movements, as a barrier and/or a facilitator of the deployment of renewable energy technologies within and beyond national boundaries.

By adopting political science approaches that refer to the influence of belief systems on policy-making, Lorenz Kammermann and Clau Derrmont analyse both elite and voter attitudes towards clean energy policy in the context of a popular vote on Switzerland's ambitious new energy strategy in May 2017. Their analysis yields two important results. First, climate change scepticism is a sufficient but not a necessary condition for opposition towards clean energy policy. Second, elite stakeholders communicate to voters their beliefs and specifically their aversion to renewable policy. In particular, elite opposition to renewable energy policy is an important source for voters' decision heuristics. Therefore, the increase of right-wing populist parties might also lead to increased polarisation on sustainable energy transition policies within the public.

Philipp Andrew Trotter and Roy Maconachie show that energy policy is not only an issue captured by Western right-wing populist parties but also by Sub-Saharan African Leaders, namely, the Ugandan President Yoweri Museveni. In contrast to right-wing populism in Western countries, populism in Sub-Saharan African countries is characterised by a political strategy employed by a charismatic leader who claims not to originate from the established political class. They explore that the Ugandan government's attempts to present its electricity service deliverance as considerably more effective and encompassing than it actually is and that it draws on a rhetorical style that can be considered to be Bullshit according to McCright/Dunlap [41]. However, this rhetorical style fails to persuade the public. As a consequence, the people intend to take matters in their own hands rather than waiting on the government to provide electricity.

Shouro Dasgupta and Enrica De Gian synthesise existing contributions from the applied economics literature using econometric approaches to examine the influence of institutions and governance on environmental policy, environmental performance, and investments at

the national level. Their review shows that the influence of public opinion on environmental policy outcomes is a "double-edged sword". The literature provides ample evidence that public opinion has a substantial positive impact on the implementation of environmentally friendly laws and regulations; however, a lack of public support can act as a major barrier.

2.3. The political nature of energy supply at the local level

The contributions of this section of the Special Issue explore the factors that influence political support and individual attitudes towards sustainable energy transformation policies at the local level. Although political ideology is not of great importance [62], sustainable energy transformations are highly politicised processes at the local level. These contributions show that sustainable energy transformation processes are highly complex since the people's attitudes and beliefs concerning sustainable energy transformation policies differ across scales. Gözl/Wedderhoff provide empirical evidence that the local acceptance of renewable energy is determined by the socio-institutional context at the regional level and therefore may vary by region [63]. Blumer et al. show that the factors determining individual attitudes on specific technology measures differ from those determining individual attitudes on overall sustainable transition goals. Political ideology is rather an important factor concerning the latter [64]. However, these findings do not suggest that sustainable energy policies are not politicised issues at the local level. In contrast, Giordano et al. [65] and Calero Valdez et al. [66] show that local protest against renewable energy indicates the political nature of renewable energy infrastructure. As a consequence, local protest creates progressive political participation to solve political conflicts of renewable energy infrastructure democratically. Graff et al. [67] show that not only the perception of renewable energy infrastructure but also the perception of social challenges involved in sustainable energy transformation is determined by the socio-institutional context. These differ even across regions and communities that are on the frontline of sustainable energy transformation and yield different responses to national policies and politics.

By integrating different social science's acceptance approaches, Sebastian Gözl and Oliver Wedderhoff develop an acceptance model of renewable energy at a regional scale. The model includes technology-related attitudes as well as the perception of both socio-institutional stakeholders and fairness as predictors. They test the model empirically with a representative German sample. Their results provide empirical evidence that the trust in socio-institutional stakeholders and the perception of both procedural and distributional justice affect the acceptance of wind turbines in the immediate vicinity but also yield regionally different effects. Therefore, they conclude that renewable energy expansion is not merely determined by technology acceptance but also by the socio-institutional context at the regional level.

Referring to the literature on the social acceptance of energy infrastructure, Yann B. Blumer, Lukas Braunreiter, Aya Kachi, Rebecca Lordan Perret and Fintan Oeri explore the role of beliefs in public support for energy issues at the local level. They address the well-known paradox of public support for sustainable energy transition on the one hand and local resistance to the expansion of renewable energy technologies on the other by investigating the factors that influence public support for the Swiss Energy Strategy 2050 and two related specific technological measures: the expansion of hydropower and deep geothermal energy. The results show that individual attitudes towards national energy transition goals are significantly influenced by political ideology as well as expectations about the future energy system and knowledge of energy-related issues. However, none of these factors matter significantly with regard to individual attitudes towards specific technology measures. It seems that attitudes towards specific technologies are instead driven by individual evaluations of specific technological characteristics.

Referring to both the literature on social acceptance as well as

public opinion in the context of renewable energy development, Leanne S. Giordano, Hilary S. Boudet, Anna Karmazina, Casey L. Taylor, and Brent S. Steel analyse 53 proposals for wind energy development in California, Idaho, Oregon and Washington to better understand both the level of local opposition and the factors and processes that shape opposition across a wide range of proposals. Their results show that opposition mobilisation activities are fairly common but also relatively moderate. Opposition is mainly motivated by threat whereby threat-framing is more important than the objective indicators of threat. However, threat-framing is not a sufficient condition for political mobilisation but must be combined with an objective threat, intellectual resources and/or political opportunities. The article, therefore, shows that local opposition to wind energy expansion exhibits the political nature of renewable energy transformation and is not detrimental but progressive democratically in solving related trade-offs.

By focusing on the individual self-concept and demographic properties of individuals, André Calero Valdez, Johanna Kluge, and Martina Ziefle analyse the factors that influence individual attitudes towards protest in the energy technology context. According to their results based on survey data collected among German residents in 2017, individual protest attitudes are mainly determined by income, protest experience and political efficacy. The latter refers the belief of a person that his or her actions within a political system could lead to change. In contrast, the influence of the topic of protest on individual attitudes towards protest is rather weak. It seems that energy infrastructure is as much of a protest issue as human- or animal rights. They conclude that protest should be respected as a form of political and democratic participation behaviour that should be handled with care.

Michelle Graff, Sanya Carley, and David M. Konisky analyse how communities in the United States are faring in light of the burgeoning energy transition. They evaluate energy thought-leaders' perceptions of energy transition in communities on the frontline of the U.S. energy transition, namely, Detroit, Michigan; St. Louis, Missouri; and Appalachian coal country. Their analysis indicates that the energy transition yields uneven geographic effects even across these frontline communities. Stakeholders reported a groundswell of new sub-national collaborations and activism within the energy realm and were rather concerned about the energy policy developments at the federal level.

3. Conclusion

Sustainable energy transitions are especially exposed to political phenomena such as increasing right-wing populism, post-truth politics and local resistance since they are not only determined by technological innovation and market implementation but also by socio-political processes. Their embeddedness in socio-institutional processes beyond techno-economic ones is a crucial characteristic of sustainable energy transition [68]. It is caused by its origin that is problem- rather than opportunity-driven and by its substance that consists not only of technological innovation but also of political regulation of energy supply and consumption as well as climate change policies [69]. As a consequence, national governments' climate and energy policies are central to sustainable energy transitions. In Western democracies, national government policy is heavily shaped by party competition. Political parties are important for political decision-making processes in shaping attitudes as well as representing voters' attitudes and preferences in parliament [7].

Energy policy has always been a politicised issue in the sense of what people and policy-makers consider to be their core social goals or the core problems to be approached [26]. In contrast, increasing populism, especially right-wing populism, and post-truth politics, do not refer to a political struggle over a climate and energy policy paradigm but how climate and energy policies are subject to increasing political polarisation across the political elite and the public mass. Against the background of the idea of "socio-energy systems" [70], the increasing political polarisation of climate and energy policies indicated by

populism and post-truth politics require much more research. Socio-energy systems provide a policy framework for energy transformations to "recognize that, at times, the linkages in socio-energy systems may flow entirely through social dynamics, that socio-energy systems dynamically shape and get shaped by the larger social, cultural, and political contexts in which they are embedded, and that people and organizations are complex entities – with histories, identities, and cultures – that require careful and sophisticated analysis" [70].

This insight reveals a conceptual bias of this Special Issue. Populism and post-truth politics are political phenomena indicating political polarisation in the context of sustainable energy transformations, while local resistance is a political phenomenon indicating the political nature of sustainable energy transformations. However, the contributions on local resistance in this Special Issue show that much more research on the links among populism, post-truth politics and local resistance is needed since these are not isolated phenomena and increasingly influence one another. In general, much more research is needed to explore the causes, nature, and consequences of the increase in extreme positions on climate and energy policies across political parties and individuals.

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