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Grinding the grid: Contextualizing protest networks against energy transmission projects in Southern Germany

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ABSTRACT

In Germany, citizens' initiatives have opposed the construction of new high voltage power lines for more than fifteen years. This paper presents a qualitative case study of the Franconian region, where the opposition is especially strong and radical. In contrast to classic single point protests, these activists are well-networked and articulate energy and climate political issues – like decentralized energy transition - that transcend local contexts. Based on scientific expertise, they challenge the official grid extension plans that the federal government and transmission system operators advocate. The consideration of core concepts from movement studies reveals that the Franconian protest context shares important similarities with a social movement.

This result is at odds with several acceptance studies on this issue that tend to overlook the conflict's broader context and reduce the reasons behind the protests to a defense of local interests. Thus, the paper offers a new interpretation of these protests: Instead of understanding them only as an obstacle to energy transition, it proposes an acknowledgement of the protests' constructive dimensions.

1. Introduction

The planned extension of the German energy transmission grid has been triggering conflicts for years [1, 2, 3]. The federal government and the transmission system operators (TSOs) consider the construction of new high voltage power lines (HVPLs) to be necessary to facilitate the energy transition – the switch from fossil-nuclear to renewable sources. In spite of all efforts to carry out transparent and participative planning procedures, the protests have not stopped. Rather, since 2004 the grid extension has gradually become one of the German energy sector's crucial areas of conflict [2, 4]. The current plans include about 7,700 km of new and upgraded HVPLs. Part of the planning started more than 15 years ago. However, by 2018 only 1,050 km had been installed [5].

This conflict is multifarious and differs in character and intensity from region to region [2, 4]. On the one hand, the reasons are various points for personal involvement that are obvious (e.g., visual impairment, health risks and the loss in value of real estate). There is a widely shared consensus about the basic necessity for a grid extension in the North German regions, where often more wind energy is harnessed than can be consumed. On the other hand, there is a large region – this paper refers to it as the Franconian Protest Region - which extends across Northern Bavaria and southern parts of Hesse (Figure 1) where many hotspots of protest have sprung up especially alongside two planned HVDC corridors, Suedlink and Suedostlink, henceforth referred to as electricity supergrid highways (EGS).[1] Here, many protest actors fundamentally challenge the projects. Instead, they propose support for decentralized renewable energies while criticizing grid extension for the integration of the European electricity market. Although proponents invoke, in particular, the majority of economic and engineer science based studies, opponents have the support of well-known energy experts like Claudia Kemfert [8, 9] and Volker Quaschning [10].

Against this background, this paper offers a critique of a general tendency towards framing this conflict in a reductionist way in the acceptance literature. However, this sort of academic literature may provide valuable advice on how the application of technologies for which there is a broad consensus in society (e.g., wind power in Germany) may receive more support at the local level. On the other side, this article critically refers to those papers that analyze regional

Abbreviations: CI, Citizens' initiative; CSU, Christlich Soziale Union (Conservative party of Bavaria); ET, Energy transition; EGS, Electricity grid superhighway (refers to the planned HVDC power lines); FPR, Franconian protest region; HVDC, High voltage direct current; HVPL, High voltage power line (>220 KV direct and alternating current); NIMBY, Not-in-my-backyard; TSO, Transmission system operator

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[1] I adopt this notion from Ray Galvin [6] to emphasize the difference from conventional HVPL (operated with alternating current). EGS can transport electricity over many hundreds of kilometers. This technology may become the core of a 'European super grid' [7].

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conflicts from an acceptance perspective even though the challenged technology (or project) is contested not only locally but at a societal level as well.

For the German energy context, this applies not only to fracking and carbon capture and storage, but also to official plans for the extension of the energy transmission grid. Basic questions concerning the national and European energy system are not resolved. Whereas in Germany there is a clear consensus on energy transition (ET), a public debate on new power lines that would also serve the integration of the European electricity market has not taken place. How far will the majority accept that this integration probably means that Germany will import electricity from coal and nuclear power? Moreover, an active involvement of citizens such as (co)owners of wind parks and solar plants – that might reduce the need for new power lines [11] - has been widely excluded by changes to the regulative framework which supports more centralized renewable energy installations [12].

Acceptance literature often tries to enclose conflicts within a local level. For the context of grid extension, this usually means understanding the dispute as just the sum of single conflicts to be solved locally. In this way, acceptance papers may support the established actor coalition, even if their authors do not aim for this. If there are local actors who actually take up this critical discourse – whether combined with individual involvement or not – the role of acceptance research may become even more ambivalent.

When looking at this 3-point-constellation in the Franconian region - (1) societal controversy regarding grid extension, (2) adoption of this controversy by local/regional protesters and (3) acceptance research in this area – in this paper, the focus is on point (2). As this opposition articulates an issue of general interest, it transcends the usual scope of local protests. Against this background, this paper follows the research question concerning the way in which spatially separated opposition parties act more like one collective actor with characteristics more similar to a social movement than the sum of individual protests.

From a social science perspective, this question is relevant for two reasons: Firstly, if the protests are indeed pursuing targets of common interest – as one collective actor - the dominant frame that citizens' initiatives (CIs) opposing new power lines are an obstacle to the development of a sustainable energy system, should be rethought. Secondly, this case offers the opportunity to reflect on the appropriate scope of acceptance research in general.

The paper is structured as follows: Section 2 presents the status of research referring to the social science literature on conflicts over HVPLs, with a focus on the German context. The aforementioned critique of acceptance literature is also unfolded here. Thereafter, I will describe the empirical basis and the applied methods. The decision for the Franconian region is justified and afterwards the choice of theoretical movement concepts to shed light on the protest actors from different angles is introduced (Section 3). By structuring the main empirical results along these approaches, Section 4 analyzes the way in which the protests display similarities to a social movement. In the discussion part, I reflect upon the possible effects of these results – inside and outside social sciences (Section 5). The paper ends with a very short summary of the results and provides general recommendations for social science research, acceptance studies and policy decisions (Section 6).

2. Current state of research and research perspective

At first, this Section presents a short overview of the general conflict concerning the process of the German energy transition. In this context, I will also summarize a critical view on the acceptance perspective. Based on this, a critique of a specific acceptance literature's view is described in a more detailed way. Against this background, a choice of papers on the German context of the conflict over grid extension is

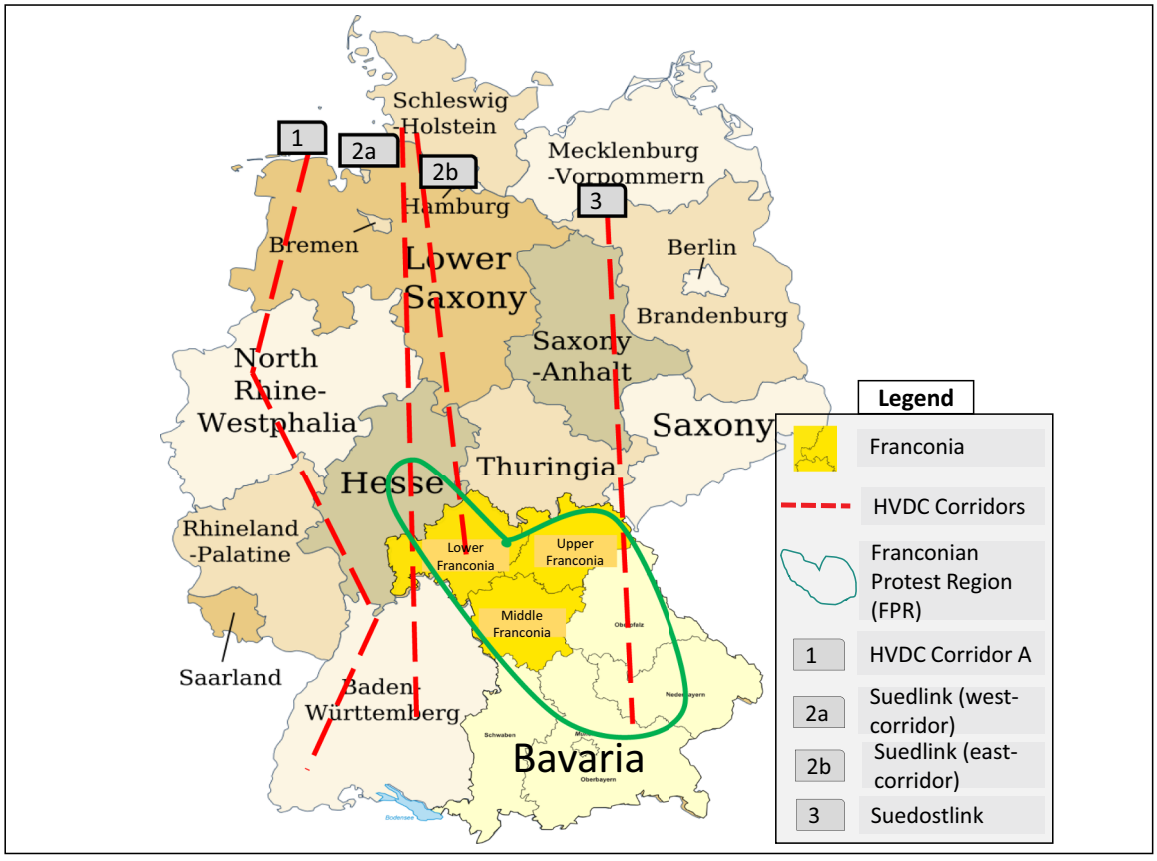

Figure 1. Franconian Protest Region and schematics of projected HVDC corridors

cited. Afterwards, these papers are categorized as an extreme case of the acceptance perspective's basic problem. Section 2.2 deals with diverse literature on grid extension conflicts in Europe, Germany and Franconia.

2.1. Critique of acceptance perspective - Context of grid extension and beyond

Since its actual starting point [13] – the conflict over nuclear energy that escalated during the 1970s – ET [12-22] has been a battle over the socioeconomic structure of the German energy system [19]. Social movements, NGOs, energy cooperatives and other initiatives still influence German energy policy [9, 13, 14, 19, 20]. At the same time, powerful alliances try to prevent an exit from fossil fuels and the creation of sustainable mobility and heating sectors [9]. These alliances support the pervasive narrative that ET would be slowed down especially by local citizens' resistance against power lines and wind turbines [9]. According to this, it is not the interests bound to fossil fuels that hinder a consequent ecological restructuring of the energy system but, rather, the lack of public acceptance [9].

This narrative has become established even in the scientific literature on conflicts over ET. In particular, this refers to papers that address the questions of *why there is no acceptance* and *how can it be induced*? This is problematic because the option of challenging projects as a whole seems excluded. On the contrary, the planned power lines are (indirectly) credited with the putative role of serving the common good. In this way, citizens are relegated to passivity. The proponent coalition aims to avoid protest. Citizens only become the object of a problem if there is a conflict. This orientation of minimizing conflicts cannot be surprising from the planners' view. However, such conflicts might have constructive potential [22], providing a solution that hadn't seemed viable before. As an *informal technology assessment* [23], public protests may also take on a democratic function. Here, protests are not generally seen as an obstacle to be overcome, but rather as a legitimate form of *self-organized* [24] or *uninvited participation* [25].

In spite of this well-known critique of an unreflective acceptance perspective, there are several studies on the conflict over the German grid extension that do not seem to consider these arguments [26-32].

The general problem is an insufficient consideration of the conflicts' broader socio-technical environments. From this angle, the cited studies display five gaps that seem to be the result of such decontextualization:

The *first* is the ambivalence of the grid extension plans. Not even the German government and the TSO argue that grid extension would exclusively serve the transport of renewable energies from coastal regions to industrial centers. In fact, these plans are justified in the corresponding legal texts [33, 34], not only in regard to ET targets, but also in consideration of the European energy market and energy trading. *Secondly*, there is a lack of differentiation between power line projects in coastal regions and those in South Germany. In the North, where wind power is the most important energy technology, the projects' *green* character is hard to challenge.[2] However, the situation becomes tricky when there are coal power plants nearby.[3] *Thirdly*, the general framing of both – protests against energy transmission lines and wind power projects – as objections to ET is another result of decontextualization. *Fourthly*, the viewpoints of CIs are considered a mere expression of opinion, even when they invoke scientific expertise. *Fifthly*, there is an attempt to reduce the significance of the protests to one of an individual expression of concern. In fact, especially in the FPR, the protests are carried out not only by affected citizens, but are also often supported by environmental NGOs and energy cooperatives. Because their results are decoupled from the broader context, as described here, the author classifies the studies mentioned above as *acceptance-positivistic*.[4] Some of the papers cited above even go beyond this pure acceptance positivism and make psychologizing or defamatory statements about the protesting citizens: "Wind turbines and power pylons (…) are seen as intruders in a world that was put together in harmony. The target of the resistance is the restoration of harmony through the expulsion of the intruders." [27]. With regard to the protesters, Jenal [28] diagnosed a lack of ability to understand complexity, an absence of "critical reflection" and a sense of "danger to the familiar construction of the everyday world".[5]

There are also acceptance papers that better take the context into account. Again and again, public discourses point out the contradiction between a large majority consenting to the installation of wind turbines or power lines in general, as long as they are far away, but the opposition to them when there are projects planned next door [36]. This critique of NIMBYism [37], or the idea that a *national-local-gap* is the actual reason for a lack of acceptance, was rejected by Batel & Devine-Wright [38] in favor of a place-based approach. Rather than identifying NIMBYism as the sole cause of protest if distances between home and (contested) sites are under certain limits, they propose a differentiated consideration of local circumstances.[6]

2.2. Literature on conflicts over grid extension: Europe, Germany and Franconia

Conflicts over HVPLs are not a particularity of the German context. The following studies provided results from different European countries: Switzerland [36], Finland [39] and a comparative study on Norway, Sweden and Great Britain [40]. In addition to the papers cited above, there is a considerable number of studies on the German context that go far without making acceptance-positivistic assumptions. With his dissertation, Bräuer (2017) provided two case studies that are empirically well-founded and are conceptually embedded in the theory of social movements [41]. More case studies have been presented as contributions in the anthologies of Marg et al. (2017) [1], Hoeft et al. (2017) [3] and Holstenkamp & Radtke (2018) [42]. Early studies in this research field, like the work of Rau et al. (2010) [43], Schnelle & Voigt (2012) [44], Zimmer et al. (2012) [45] and Bruns et al. (2012) [46], have played a pioneering role. Neukirch (2014, 2016, 2017) dealt with the heterogeneity of regional protest contexts [2, 4] and the reactions of the powerful advocates of grid extension [47]. A core result is that the participation procedures implemented by the established actor coalition are not suited to solving the conflicts, especially in those cases where the protesters challenge the HVPL projects for energy or climate political reasons.

As the region of the presented study includes Lower Franconia, where Ray Galvin (2018a, 2018b) [6, 48] also dealt with power line conflicts, his articles are of special interest for this context.

[2] There are many protests in the North, too. But these are usually more compromise-orientated and often conflicts can be resolved by the construction of underground cable sections or other compromises at the local level [2, 4]. For the argumentation, it hardly makes a difference that most of the studies [26-32] either do not explicitly deal with the Franconian context or examine cases outside the Franconian protest region. Weber & Kühne (2016) [35] at least emphasize the differences between CIs in the North (where the necessity of the projects is basically accepted) and the South (where this is challenged).

[3] E.g., project Ultranet, which is planned to start in the Rhenish lignite mining area.

[4] The author is aware of the fact that there has long been controversy regarding the notion of positivism. Adopting this notion, he criticizes an implicit conservatism of these studies. An analogy to the critique of law-positivism can be seen, which has never been summarized better than with the famous statement of Anatole France: "The law, in its majestic equality, forbids the rich as well as the poor to sleep under bridges, to beg in the streets, and to steal bread." Apart from this critique, the studies cited may provide important insights.

[5] All German citations are translated by the author.

[6] However, these reflections do not seem to have diffused into the arenas where planning decisions are made.

Summarizing the protesters' motivations, Galvin [6] offers three categories: Firstly, classic NIMBY concerns are not relevant for the Lower Franconian protests in the sense that people show opposition due to disadvantages for themselves. Rather, various concerns were articulated that refer to the region as a whole or to disadvantages for certain groups, e.g. farmers [6]. Secondly, technical issues: Most important is that protest initiatives understand Suedlink not to be the only technical solution to continue ET, but merely an option. Thus, the choice for a Suedlink-based solution is seen as a political decision [6]. Thirdly, indigenous issues: Galvin [48] emphasizes that there is a strong cultural identity in Lower Franconian people that is also different from Middle and Upper Franconia. However, this identity is especially distinguishable from that in Bavaria.[7] Among the central issues is the support of the regional economy [6]. ET has already led to some economic disadvantages for the region of Lower Franconia: the 2015 shutdown of the Grafenrheinfeld nuclear power plant that employed about 600 workers directly or through outsourced contract work, supporting the local economy with some € 40 million [6]. Many local citizens are actively involved in wind parks or other renewable energy facilities. More than 30% of Bavaria's wind energy is produced in the Lower Franconian region – encompassing 12.1% of Bavaria's land area and 10.3% of its population [6]. Suedlink, however, terminating in Lower Franconia, would bring electrical energy to the region and compete with existing local renewables. Thus, the contributions of ET are seen as devaluated [6, 48, 49]. Another reason for an increasing tendency towards a polarization of views is that regulation increasingly prefers external investors, pushing local energy initiatives aside ('them and us') [48]. On the basis of this contextualization and, given the fact that most of his interviewees are experts who have been dealing with local renewable energies for many years, Galvin proposes considering how their knowledge may provide important contributions to ET [6]. Whereas the research goal of Galvin was to understand the protesters' motivations by analyzing the specific socioeconomic context of Lower Franconia, the main interest of this paper is to put the focus on the question of *how* protesters in Franconia act. As there are obvious similarities to a social movement, I chose movement studies as the main conceptual point of reference.

3. Materials and methods

3.1. Case selection

Regardless of the protests within the FPR taking up a societal controversy (see above), this region seems especially suited for this study due to additional reasons: Firstly, the FPR is a large region[8] that includes not only great areas of Franconia, but also parts of South Hesse and the (Bavarian) region of Ingolstadt (*large protest region*). Secondly, the FPR is characterized by a relatively *homogenous protest discourse:* The protest initiatives challenge the EGS projects fundamentally and offer alternative solutions.[9] Thirdly, the activities within the FPR are not representative of the heterogeneous protests against power line projects in the whole country [2]. However, because of the large number of CIs[10] and the high density of protests, they are unique to Germany. Therefore, it would be inadequate to characterize the country-wide power line protests without considering the FPR (*strong protests*). Fourthly, in the FPR, people and organizations that are not directly affected by the planned EGS take part in the protests.[11] Moreover, these actors form regional networks. Thus, the FPR clearly seems to be at odds with the way certain acceptance papers (e.g., [26-32]) frame the conflict over grid extension (*networked protests*). Having these characteristics in mind, I will follow the idea of analyzing the protests as one collective actor seen from the perspective of different movement theoretical approaches.

3.2. Empirical basis and methods

This qualitative case study is based on primary and secondary data. Guideline-based interviews with CI spokespersons, political parties and nature conservation associations, participatory observation and a supplementary document analysis are the basis of this examination. Apart from one exception, all interviewees live in Lower, Middle or Upper Franconia or South Hesse. Twelve semi-structured interviews (length 1-2 hours) were conducted, recorded and completely transcribed (Table 1). Of these, seven interviews were made with individual persons and the others with two or more persons together. The interviewed persons are representatives of different organizations that take part in the protest. Because of their central function, all interviewees have crucial influence on the content as well as the strategical alignment of their organization. Most interviewees were aged between 45 and 60 and there was about the same number of women as men.

The following categories summarize core topics that were addressed in the interviews: dominant frames, views on network organizations, networks and contacts to external actors (politicians, scientists, companies), formative events, engagement for decentralized ET, views on participatory procedures and the incumbent actors, strategies and resources, knowledge of protest actors and learning processes. A further empirical basis is the participatory observation of (semi-) open meetings of the protest actors (e.g., talks, network meetings and local inspections). These contexts provided the opportunity for informal talks that complemented the regular interviews. Lastly, a document analysis was carried out: Articles in local newspapers, websites of protest actors, open letters, legal texts and planning documents – altogether approximately 900 documents (published between 2004 and 2019).

3.3. Conceptual basis

The guiding question aims to understand the way in which it makes sense to talk of the protesters in the FPR as one collective actor that articulates messages which go beyond local issues. To follow this idea, selected approaches of social movement theory are applied to this case. Out of these approaches eight indicators introduced hereafter may enable the reader to look at the protests from different angles of social movement theory.

At first, visible protest (e.g., demonstrations) is a necessary but insufficient condition for asserting that protest activities are the expression of a social movement [50]: "We speak of a movement only when there is a network of groups and organizations, which – based on a

[7] Bavaria is understood in a cultural sense here. Geographically, 'Franconia' is Northern Bavaria and Bavaria is Northern and Southern Bavaria. From a cultural perspective, in contrast, 'Bavaria' only refers to the Southern part.

[8] In fact, defining the outer boundaries of the FPR is not trivial. Figure 1 gives rather a rough location of the FPR than a precise geographic definition.

[9] This result is confirmed by Weber & Kühne (2016) [35]: Out of 39 Bavarian citizens' initiatives, 38 basically oppose the construction of the power line projects.

[10] Bräuer [41] estimated the number of CIs that are active against power lines to be 160. According to Weber & Kühne (2016) [35] at the end of 2014, there were 39 CIs in Bavaria. The press officer of the protesters' network organization against Suedostlink estimated the number of active CIs in Bavaria to be 35 (*footnote continued)*
(Interviewee A, Email, 17 March 2019).

[11] I understand people as *directly affected* if they live near the planned HVPL. This notion does not imply a dichotomization between affected and not affected people. From a NIMBY perspective, this would have the consequence that everyone who is not directly affected actually does not have a justification of taking part in protest actions. In contrast, there are different ways of being affected: a mayor who feels responsible for the local economy; a minister of health who demands tighter limits for electro-magnetic radiation; a climate activist who fears that EGS will provide coal power plants the access to the international energy market. In the end, everyone is affected who feels affected.

Table 1
List of interviews

Interviewee-code	Date of interview	Organization of interviewee(s)	Number of interviewees	Function of interviewee/s
A	5 June 2018	Action Alliance against Suedostlink	1	Press officer
B	24 April 2018	CI Oberhausen	1	Spokesperson
C	5 June 2018	CI Leinburg	1	Spokesperson
D	13 February 2018	CI Fichtelwald	2	Spokespersons
E	14 February 2018	CI Creußen	2	Spokespersons
F	16 January 2018	CI Bergrheinfeld	7	Spokespersons
G	13 February 2018	BUND Naturschutz Wunsiedel	1	Spokesperson
H	17 January 2018	CI Wasserlosen	1	Spokesperson
I	23 March 2018	Federal Alliance of Citizens' Initiatives against Suedlink	1	Spokesperson
J	14 February 2018	CI Brand, CI Seußen	2	Spokespersons
K	24 January 2018	CI Sinntal	1	Spokesperson
L	7 February 2018	-	1	Former member of Bundestag (federal parliament)

shared identity – guarantees a certain continuity of the protests. The activities are coupled with the demand for social change. This involves more than just saying 'no' [...] Social movements have shared goals, convictions and perspectives, which enable collective action." (Rucht & Roth 2008), [50]. Similarly, Porta & Diani (2006) [51] characterize a movement by the presence of close informal networks among the members, a collective identity and an opponent that is identified clearly.

The resource-mobilizing approach [52-53] emphasizes strategies and resources (e.g. money, time, knowledge and technical as well as social skills). It seems evident that the accumulation of resources and their strategic use may have a crucial influence on the movement's success. The theory of strategic action fields, by Fligstein & McAdam (2011) [54], created a connection between organizational and movement theories. Via strategic activity, social movements – 'challengers' – seek to improve their field position against the powerful 'incumbents' [54]. However, strategically justified activity remains fragmented and individualized unless this action represents overarching and collectively shared goals. At some distance from rational-choice-based interpretations, Melucci (1985) [55] assumes the need for a collective identity: a cognitive, moral and emotional attachment to a greater community, often accompanied by sympathy for the other community members (Polletta & Jasper 2001) [56]. By advocating the interests of their own group, the members pursue the targets of the movement. Solidarity may emerge out of a strong social entanglement with this group (Fireman & Gamson 1979) [57]: "A person whose life is intertwined with the group (through friendship, kinship, organizational membership, informal support networks or shared relations with outsiders) has a big stake in the group's fate. When collective action is urgent, the person is likely to contribute his or her share even if the impact of that share is not noticeable." Crucial incidents, narratives, foundation myths and heroic tales, as well as joint practices, like the use of symbols, rituals, languages and meeting places, can also support the collective identity [58]. According to Eder (2011) [59], collective narratives virtually suspend the time between two events with shared meaning, thus ensuring the continuity of the movement. Furthermore, the concept of framing is applied. Originally, this approach can be traced back to Erving Goffman (1974) [60] who defines frames as schemes of interpretation that enable a person to give meaning to everyday situations, as well as to greater incidents. The articulation of collective action frames is crucial for social movements [61].

Based on these approaches, eight indicators constitute the conceptual device to be applied to the empirical material. *Diagnostic framing* (1): the problem as seen from the movement's perspective. This is a matter of blaming and assigning responsibility. According to Rucht & Roth 2008 [50], social movements point out problems of wide scope that exceed local contexts. Social movements are constructive. They propose alternative solutions that were not present before or that were rejected by the incumbents (*prognostic framing* (2)). Indicator (3), *motivational framing*, considers the extent to which actors attempt to motivate their comrades to take part in protest activities. The *range of public protests* as well as the meaning and *scope of networks* are evaluated by indicators (4) and (5). Social movements obtain *collective resources* (6) and develop *strategies* (7). Finally, indicator (8) looks at the protesters' *collective identity* (Figure 2).

4. Results

The protests are mostly carried out by citizens who live near the projected routes, but also by groups founded in regions that are no longer part of the power line plans and the BUND Naturschutz.[12] This activist core receives the support of political actors from different parties (Free Voters, The Left, and, in part, The Greens), practitioners of decentralized ET (henceforth: practitioners) such as municipal utilities and energy corporations, and scientists.[13] Figure 3 provides an overview of these protests' embedded character. Such a view is in clear contrast to the idea of isolated CIs showing opposition due to – partly irrational - reasons of individual or local concern (see above).

4.1. Movement indicators

4.1.1. Diagnostic framing[14] (1)

Within the FPR, every citizens' initiative was originally founded to take action against power lines planned nearby. As in other parts of Germany, the fear of local effects was addressed: negative health effects caused by electromagnetic fields, loss of real estate value and negative effects on nature and landscape. However, in the FPR, one important category of reasons for protest transcends the local sphere. All interviewees assume that the contested EGS projects would neither serve climate protection nor ET. Rather, the actual driving force for grid extension is identified as the integration of the European market and the TSOs' profit interests. During stormy weather, a large share of the electricity demand is produced by wind power plants. Thus, referring to critical experts, the protesters argue that the new projects would at first provide additional grid capacity for lignite plants, with low marginal

[12] BUND Naturschutz is the Bavarian section of Friends of the Earth Germany.

[13] Scientists like Prof. Volker Quaschning (HTW Berlin) do not explicitly refer to the protesters' position. But he clearly states that a lack of grid extensions may not be a reason to slow down the installation of renewable power facilities. Emphasizing the necessity of energy storage technologies and accelerating the electrification of mobility and heat sectors, he indirectly supports the protesters' position [62]. Other scientists who criticize the government's policy of energy transition were invited by the CIs to hold public lectures.

[14] Framing is understood as schemes of interpretation as well as strategies that are consciously applied by the protesters.

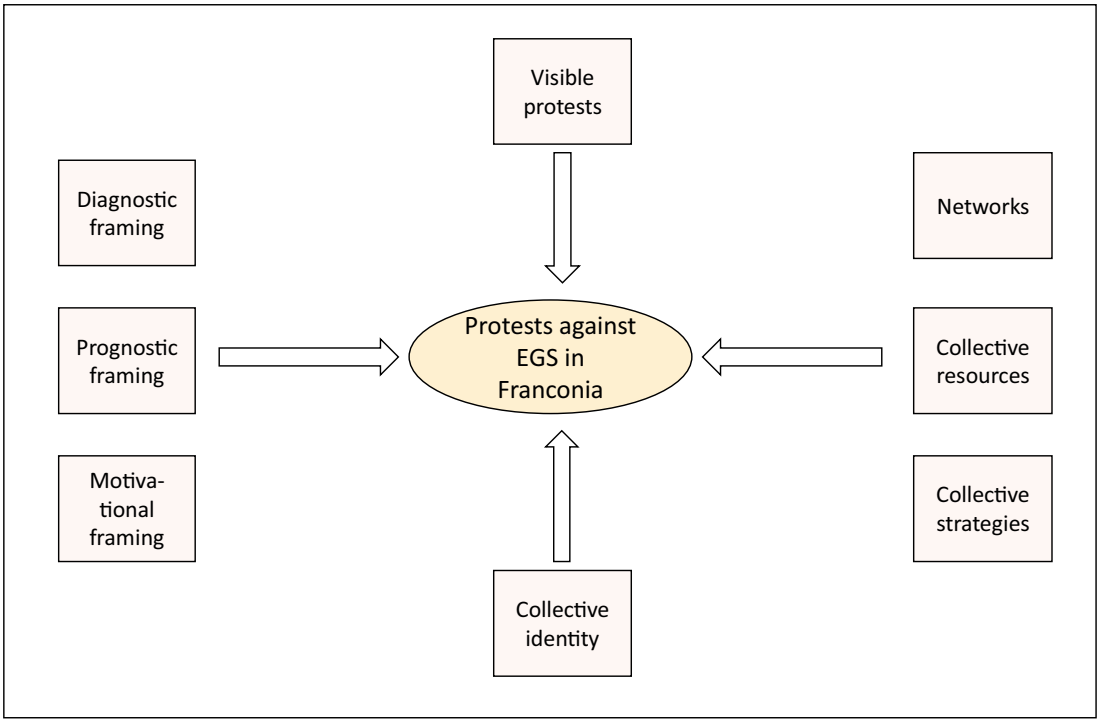

Figure 2. Indicators for investigating the FPR's movement-like characteristics

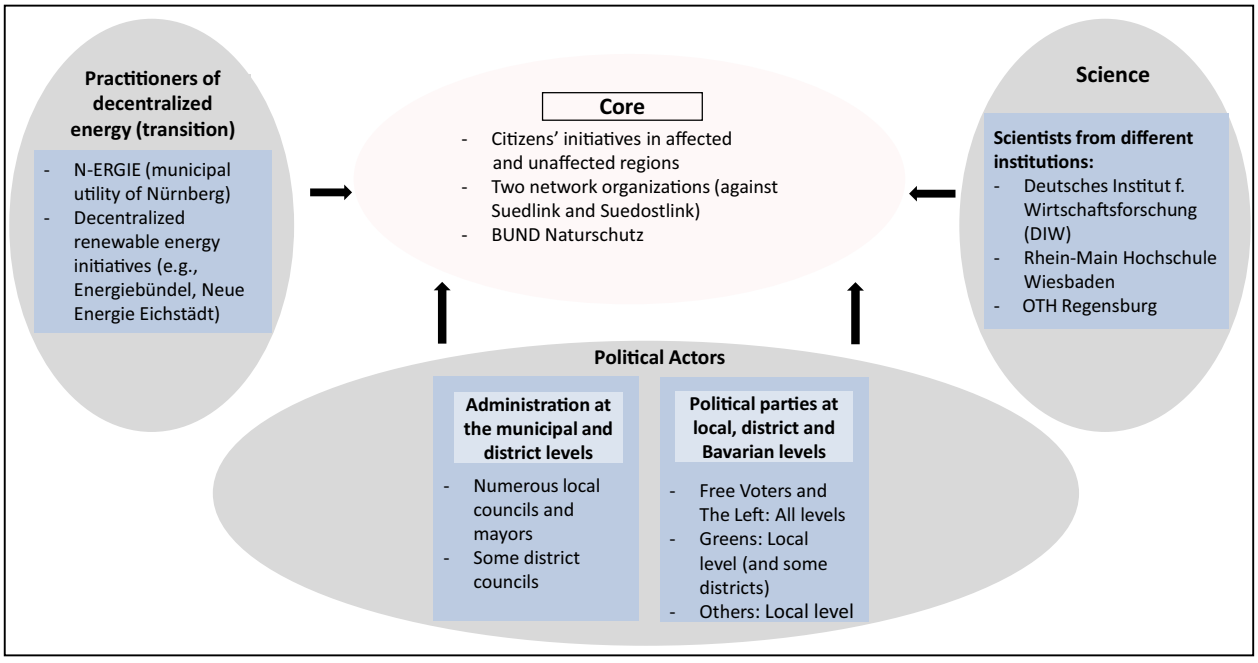

Figure 3. Protest actors and supportive environment

costs for exporting electricity. Moreover, the government and TSO are criticized for non-transparent planning. The protesters point out that the TSO not only receive a guaranteed yearly profit of 9.05 % on the capital that was invested in the power lines, but also have crucial influence on the planning. Therefore, they reject the EGS not only as overhead lines, but as underground cables, too. This costly option was thought of as a concession to the protesters by the government. A spokesman of the CI Oberhausen summarized: "If I don't need a power line at all, then I certainly also don't want its more expensive variant [B]." Likewise, and consequently, a collaboration with a country-wide alliance of concerned counties that advocate for underground cables as a compromise has not taken place.

The step toward protests becoming a movement can only be taken if crucial issues like ET and climate protection are addressed in a persuasive way, which is sufficiently achieved by considering scientific knowledge (see above). It is typical of social movements that there is some degree of heterogeneity. Not every CI member is as well-informed or radical as the interviewed CI speakers who have a large impact on the protest discourse.

4.1.2. Prognostic framing (2)

The protesters not only consistently criticize the status quo, but also

advocate for an alternative solution: Decentralized ET with smaller plans for grid extension.[15] Especially Suedostlink (Figure 1) is seen as a 'coal-power-line'. Consequently, the protesters have made a plea for a rapid coal phase-out. There is also a strong demand for a reduction in the cross-national electricity trade, especially with France and Eastern Europe, because of numerous coal and nuclear power plants that operate there. Additionally, the protesters demand that energy should be used more efficiently (e.g., by increasing combined heat and power). These proposed alternatives – instead of constructing the projected EGS – are consistent with the diagnostic frames. There are several reasons that these frames are authentic (and not only simulated by a minority of activists for strategic reasons): The protesters consent to the local use of renewable energies. They demand the removal of the '*10*-H-Rule' [C] that made the planning of new wind turbine projects almost completely impossible [63].[16]

Previously, especially in the FPR, a considerable number of wind turbines was installed and many CIs understand this as a regional contribution to ET. This contribution is seen as endangered due to the projected EGS [B]. Several activists have gained knowledge that concerns grid extension, the energy system in general and alternative technologies. Two interviewees operate photovoltaics to cover their own energy needs [B, C]. Together with a small group of protesters, one holds lectures on decentralized energies and motivates listeners to invest in private photovoltaics, too [B]. Although the energy experts mentioned above may have different priorities, on the whole they support the prognostic and diagnostic frames. The same applies to BUND Naturschutz and several practitioners. Two CIs in Upper Franconia established contacts to anti-lignite activists in Eastern Germany. They hired a bus to support a demonstration in Brandenburg [D, E]. Congruently, there is a clear distancing from opponents of ET, such as 'Vernunftkraft' or the right-wing AfD party. Organizations like these are explicitly excluded by the network organizations [A].

4.1.3. Motivational framing (3)

Consistent critique and offering alternative solutions alone would be insufficient for protests to develop into a movement. Rather, the critical-analytical perspective must be complemented by a call for action. The names of many CIs already include motivational frames: *CI Fichtelgebirge says NO, CI Seußen resists* or *Bergrheinfeld says NO to Suedlink*. Several CIs' websites displaying calls for demonstrations cite a famous slogan that has been attributed to Bertold Brecht: *He who fights can lose. He who doesn't fight has already lost*. Most of the CI speakers interviewed clearly articulated motivational frames. Terms like *(our) resistance, (our) movement* and *confrontation* are commonly present. One CI speaker emphasized that "somewhere citizens have stood up and that earlier, anything was accepted that came from the authorities – and now that is being challenged for the first time" [F]. Confronted with Suedlink, a speaker of BUND Naturschutz summarized the local discourse: "We have to resist!" [G]. A similar frame was articulated by protesters in Lower Franconia: "We've got to do something now!" [H].

4.1.4. Visible protests (4)

Every movement is characterized by visible protests. Mere calls for activity are not sufficient: Action must indeed take place. The first great protest action relevant to the whole FPR context took place on 29 January 2014 in Nuremberg [65]. During a public presentation of the Suedostlink project by the planning TSO, about 2,000 people started loud protests, almost forcing the cancellation of the event. On 5 May 2014, there was a large demonstration in Ingolstadt, with more than 3,000 participants, against the visit of chancellor Merkel. Later, comparable mass actions became rarer. In contrast, small or mid-sized demonstrations with up to a few hundred participants have been characteristic. Often, single CIs or small alliances coordinated these activities. The website of the network organization against Suedostlink provides an archive on numerous public protest events in the FPR context [66]. Between February 2014 and December 2018, under the heading *Events*, more than 750 documents were stored. Although the protests' public visibility clearly decreased after 2015[17] there is still a significant number of demonstrations and other protest activities.

4.1.5. Networks (5)

In contrast to CIs in Northern Germany – where protests are motivated by local concerns in most cases and where CIs often work alone [2, 4] – among the protest actors in the FPR there are close networks. Here, the existence of two network organizations is very important: one against Suedostlink, the other against Suedlink. Most CIs in the FPR are either members or cooperate with one of them. Both network organizations see themselves as nationwide associations, but their activity clearly concentrates on the eastern resp. western part of the FPR. Below the FPR level, there are more local networks among neighboring CIs. The most important network partner of the CIs is the BUND Naturschutz, which actively supports the protest events. Therefore, it belongs to the core of the protests (Figure 3). Being networked is a crucial characteristic of a movement. Moreover, networks enable a movement to mobilize resources. For connections with the supportive environment – politicians, scientists and practitioners who usually do not take part in protest actions, (Figure 3) – the issue of resources is especially relevant. To avoid duplications, the network relationships are described in more detail in the following paragraph, which also considers the resource issue in the same step.

4.1.6. Collective resources (6)

Every successful movement seeks the mobilization of resources. This is a necessary precondition for implementing strategies. Many resources only become available as a product of networks and cooperation.

Resources from the supportive network environment

Scientists. Often, the CIs are confronted with the criticism that their resistance lacks a techno-economic-scientific basis. Whereas the majority of the energy economists support the grid extension plans, there are some experts who advocate a basic restructuring of these plans. Thus, they reinforce the CIs' discursive position. In the framework of the *energy dialogue* that was launched by the new Bavarian government in December 2018, Prof. Michael Sterner (OTH Regensburg) stated that decentralized ET without nuclear power and reduced grid extension would support local added value. It would also provide cost savings for the final energy consumer (59.9 Euro per MWh compared to 66.0 Euro per MWh) [11].

Political actors. There are multifarious connections with politicians at the municipal, county and Bavarian levels [C, H, I]. The ability of parties to provide resources like these grows with their size and reputation: public calls to support the protests, using contacts to regional media, increasing the presence of the issue in parliamentary debates, supplying rooms for public meetings, establishing contacts with decision makers, granting privileged access to relevant information and the provision of monetary means (e.g., for the financing of independent expert assessments, lawyers and legal proceedings). Especially during the early phases of the conflict (2014-2015), such resources were more available than they are today. Before the decision to build Suedlink and

[15] The author confirms Galvin's result that the activists do not refer to a more decentralized ET in an ideological way, but rather in "technology-focused narratives" [6]. For example, several interviewees point to power-to-gas as a key technology to save excess energy and overcome periods without wind and solar power at the same time.

[16] The '10-H-Rule' was introduced by the former Bavarian government in 2014 [64]. It implies that the distance between a wind turbine and houses must be at least 10 times the total height of the wind turbine. Without the installation of additional wind parks, decentralized ET would be excluded [11].

[17] The number of documents published yearly developed as follows: 2014: 391, 2015: 207, 2016: 80, 2017: 43, 2018: 50 [66].

Suedostlink mainly as underground cables in December 2015, the protests were massively supported by the CSU (Bavarian conservative party) and Horst Seehofer, Chief of the former Bavarian CSU-led government of Bavaria [D]. After the 'underground cable compromise', which was accepted by the Bavarian government, but not by the majority of the CIs, cooperation with the CSU at the county and municipal levels virtually stopped [A].[18]

Today, the protests are still supported by Free Voters, The Left, as well as by some county sections of The Greens and numerous municipal politicians of different parties. Recently, Free Voters – which became part of the Bavarian government in 2018 – was the strongest political force supporting the CIs. The following example illustrates the growing abilities of this party: Hubert Aiwanger (Free Voters), Minister for Economic Affairs, established an 'energy dialogue' in which a critical discourse took place (see 4.1.5). Encouraged by this, Aiwanger – who had been one of the protesters' spokesmen before he became minister – questioned anew the need for the planned EGS [67]. Furthermore, there are continuous connections to federal politicians of The Left party and contacts to several members of the Federal Parliament whose election district is located within the FPR.

Practitioners. In a manner similar to that of the BUND Naturschutz and 'allied' scientists, practitioners also consider the extension plan to be an obstacle for (decentralized) ET and climate protection. Thus, they strengthen the CI's diagnostic and prognostic frames. Often, the CEOs of municipal utilities (e.g., N-ERGIE Nuremberg) or speakers of energy initiatives (e.g., Energiebündel Eichstätt) are invited to public talks by the CIs [B, C, F]. Some practitioners see themselves as political actors who actively take part in public protest actions against planned EGS or even work within a CI.

Resources from the core

BUND Naturschutz. This organization is the CIs' most important alliance partner. Public protest activities are often prepared together, which enables a larger number of participants. As the following example illustrates, the support is mutual: in April 2018, CIs were present when opponents of the energy transition held a demonstration directly in front of the BUND Naturschutz's headquarters in Eichstätt [68]. Moreover, the power line protests are actively supported by a recognized environmental organization that advocates consistent climate protection and decentralized ET. Negative descriptions by politicians and TSO speakers – e.g., the NIMBY accusation [47] – often picked up on by the media – can be counteracted.

Network organizations and local networks. Both network organizations, the one against Suedlink and the other against Suedostlink, fulfill a crucial function for the spread of information. One of them provides documents like newspaper articles or press declarations that might be relevant for the protesters on their website every day [69]. Frequently, their own press declarations are issued. In this way, important contributions are made to confirm and develop diagnostic, prognostic and motivational frames [A, I]. Both organizations periodically organize meetings where the CIs come together. Here, the people discuss collective strategies. These meetings support the construction of networks and framing processes. Sometimes the network organizations play a leading role in the planning of protest events. If public actions are initiated by local CIs, usually one of them assists in the mobilization. Finally, there are networks of neighboring CIs that invite each other's members, thus increasing the number of participants [E, H, J].

CIs' own resources. Regardless of the network, the activists also dispose of their own resources. These include all the work that is needed for the operative functioning of a CI: planning and conducting meetings as well as public actions, the creation of networks and the acquisition of funds for such purposes. Moreover, the activists provide specific knowledge and have abilities that they apply (e.g., as lawyers, electronic engineers or employees of an authority). Lasting for years, the conflict's persistence has supported individual and collective learning processes. For example, many activists have learned how to read scientific studies and understand planning processes [A, D, E].

4.1.7. Collective strategies (7)

The main target of all protesters in the FPR is to hinder the planned power lines from being constructed. To achieve this, the activists pursue different strategies:

Public pressure through protest actions (1): This is the traditional strategy of social movements to make their voice heard. Regardless of the fact that the protests of today do not have the same intensity as those in 2014/15, many CIs still choose this form of activity.[19]

Networking and 'backroom-diplomacy' (2): In Section 4.1.5 and 4.1.6, the importance of networks for the mobilization of resources is emphasized. In contrast to strategy (1), the network resources are not used to strengthen protest events. Rather, the focus is on the development of contacts to decision makers, in order to persuade these persons or to acquire relevant information [F, H, I].

Bottom-up information, education, promotion of decentralized energy solutions (3). This strategy aims to prove the feasibility of decentralized ET without new EGSs. Applied especially by a group of activists from the region near Ingolstadt, it uses the following instruments: implementation of public presentations, promotion of the purchase of solar panels with batteries for private households and school visits to decentralized energy systems [B].

Legal action (4). Basically, strategies (1-3) aim for success via processes of learning and mobilization. Facing 'accomplished facts' of ongoing planning procedures, the underlying assumption of this strategy is that the projects can now only be stopped by means of legal action [D, E]. The focus is on possible violations of the Aarhus-Convention because of lacking participation (which, according to the protesters, should have taken place from the start of the planning).

In summary: Firstly, there is no master plan, but heterogeneous strategies have been pursued. However, these approaches are complementary, not contrary. Each strategy strives for the cancellation of the projected routes.[20] Secondly, it is evident that these strategies can only be implemented because of accumulated resources. The relevance of each strategy, concerning its influence, spread and success, is beyond the scope of this paper.

4.1.8. Collective identities – symbols, narratives, events (8)

The definition of a movement's collective identity is anything but trivial and this is not the aim in this context. However, through the introduction of three indicators, this will be an attempt to determine the collective identity's rough contour based upon collected fragments: *collectively used symbols, formative events* and *recurring narratives*.

Overall, there are three symbols with a strong presence at public actions: the yellow safety vest, the yellow and red St. Andrews cross and the monster-pylon that is printed on numerous posters and is part of many CIs' logos (Figure 4).

In particular, a strong protest action in the Meistersängerhalle of Nuremberg (see above) against project planner Amprion was a formative, identity-creating event in 2014 [A, H]. However, after 2015, new CIs were founded and their members did not experience this action. Their coordinated alliance actions strongly focus on energy and climate political characteristics of the projects. Compared to this, public

[18] Therefore, in July 2015 a division of the protests took place [A].

[19] Facing the recognition that the targets cannot be achieved via public protest alone, it was partly a conscious strategic shift to follow other strategies as well [C, E, F, I]. One interviewee spoke of a "wild beginning phase" when confrontational activities dominated [A].

[20] The following quote by a CI representative from Upper Franconia is prototypical. Although different strategies are applied, there is a consensus on the target: "Decentralized energy transition without lignite and nuclear power from abroad." [J]

Figure 4. Collectively used symbols

protest events initiated by individual CIs often emphasize aspects of local concern more strongly. However, it does not matter if issues of general relevance are a priority or not: All the public activities, conducted after the CSU stopped their support in 2015, were too small to remain in the collective memory. At the local level, in contrast, the protests exert an identity and community-creating effect. For example, there is a CI in the South of Bayreuth that gave the impulse for the revival of the village fair which was welcomed by the majority of the inhabitants.[21] The absence of events that include the whole FPR is a barrier for the creation of overarching narratives that seem missing.

In contrast, a shared identity stems mainly from different frames which the protesters express and that can be summarized as the following: *We are those who will suffer the disadvantages of new power lines that are planned in the name of TSOs' profit interests. International energy corporations will continue to sell coal and nuclear energy all across Europe. We are lied to by those who claim that new power lines are needed for the energy transition*.

Thus, for this context, shared experiences are not as important for the construction of a collective identity as shared negative future expectations.[22] Moreover, another movement-related element that also supports the development of collective identity is a consensus on who the opponents are: TSOs and central government as well as regional politicians who are blamed for supporting the HVPL projects.

4.2. Franconian EGS opponents as a regional protest movement

The FPR displays diverse characteristics of a social movement: forming networks, articulating frames, addressing great issues and proposed alternative solutions, mobilizing resources and conducting multifarious public activities of protest. Mainly due to their networks, the CIs have accumulated resources that increase their capability for strategic action. Although the protest actors agree on the basic rejection of the EGS projects, they have chosen different strategies. This arbitrary-appearing heterogeneity seems to be an expression of the actors' lack of convergence. They act according to their capabilities, persuasions and dispositions. This lack of consistency mirrors the fact that the collective identity is not determined positively, but rather, is based on the collective concern and on the resistance against the same opponent. In summary: The activities in the FPR display many characteristics of a social movement. Thus, it is basically different from defensive protests, pursuing constructive targets instead.

However, a comparison with the movements against nuclear power and climate change reveals important differences:

Firstly, the size of public actions. Whereas protest actions in the FPR are usually carried out by a few hundred persons and only in individual cases by up to 3,000 people, during 2010 and 2011, tens of thousands repeatedly took part in anti-nuclear-demonstrations. This scale was reached for the first time in autumn 2018 by the German anti-coal movement and several times by Fridays-for-Future in 2019.

Secondly, the share of 'affected' people. It is evident that, in the FPR context, the share of persons directly affected is significantly higher when compared to the anti-nuclear- or climate-movement. Credibility and persuasiveness are especially strong when the supporters of a movement do not act primarily in favor of personal interests (like avoiding the loss of value of real estate) or regional motivation for protest.[23] In fact, the Franconian CIs receive direct or indirect support from many persons not (directly) affected (Figure 3 and footnote 11).

Thirdly, structural differences. The mobilizing power of the anti-nuclear and climate-movements results, in great measure, from threats that are not geographically specific: Once out, radiation and greenhouse gases are virtually anywhere and can become a concern for anyone. Like nuclear and climate disasters, protests against them may take place anywhere. In contrast, we could hardly expect people demonstrating against Suedlink on the Isle of Wight.

Fourthly, symbolic places. Gorleben, Wackersdorf and the Hambacher Forst – old and new sites of resistance – have become symbolic places that support the emergence of a collective identity and collectively shared frames of meaning. These places have become discursive points of reference.

Although the protests in the FPR are not part of a social movement in the same way as climate- or anti-nuclear protests, they do display

[21] The CI spokesperson described the village fair: "Everyone was there, from the whole village (…). You saw people who live here, and I didn't know." [E]

[22] Future scenarios that are threatening, but assumed collectively to be realistic, are also characteristic of the anti-nuclear and climate movement.

[23] It seems no surprise that many advocates of grid extension try to reduce the protesters' motives for individual concern. The protesters would even be ready to jeopardize ET's success [47].

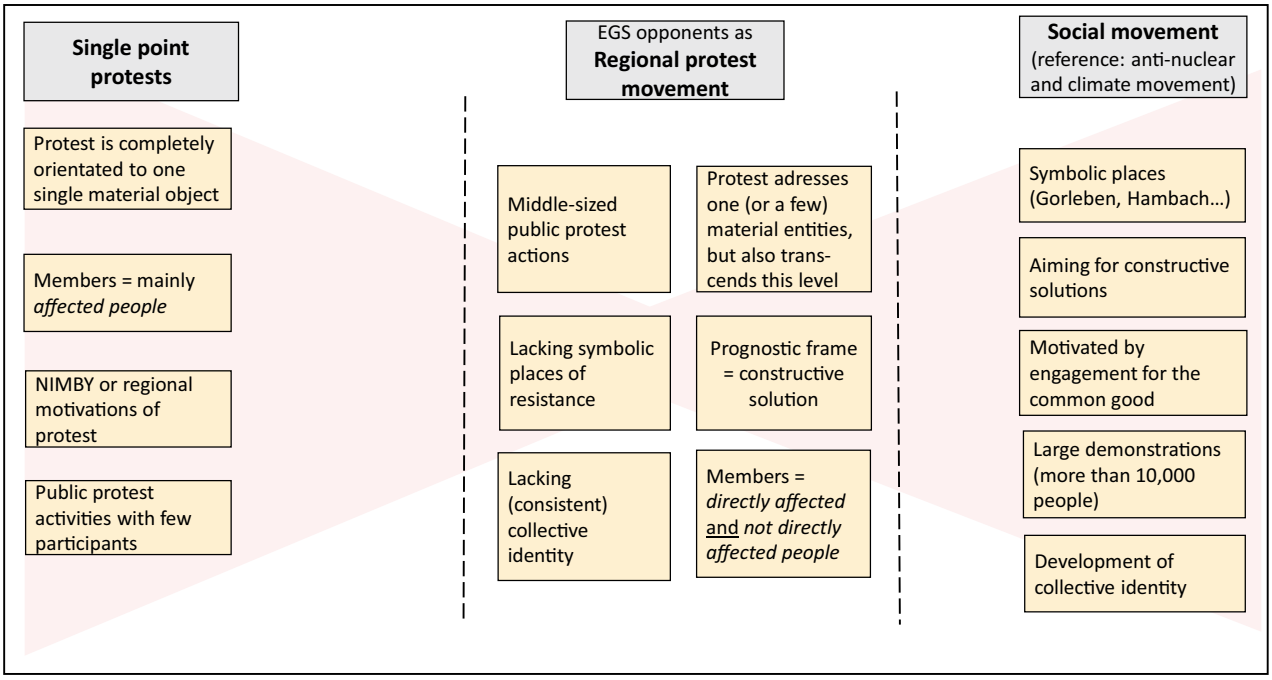

Figure 5. Franconian EGS opponents in the continuum of single point protests and a social movement

many characteristics of such a formation. In the bipolar continuum between individual protests and movements, the protests against EGS projects in Franconia hold a middle position (Figure 5). I dare to define these activities as a *regional protest movement*, an actor type that displays a number of similarities with a social movement, but, at the same time, is less integrated, less networked and lacking an overarching collective identity as well as continuous mass mobilizations.

5. Discussion

The extension of the German energy transmission grid is an object of political conflict that is also carried out in the scientific sector. The CIs and other actors opposing the construction of projected EGSs not only take up this discourse. Although they often act in a fragmented way or are committed to smaller networks, they articulate their positions as one actor with movement affine characteristics. On this basis, the paper offers to discuss the following issues:

(1) *Acceptance research in areas with general conflict.* Acceptance research seeks to explain why local people do not consent to a project. 'General concerns' such as *EGSs would support the coal and nuclear industries* are usually framed as one concern among others and are isolated from the societal debate. Thus, such research may unintentionally reinforce the incumbents' discourse: *There are only local issues and interests, a general controversy either does not exist or is irrelevant.* As it is not the task of science to promote such discourses, acceptance researchers might pay more attention to whether nation-wide controversies are taken up in the chosen area of investigation.

(2) *Combining surveys with qualitative research*. It is striking that all studies that are labeled as *acceptance-positivistic* here, work with surveys. These methods suggest an easy option for defining the research field's limit. However, the danger of decontextualization is strongly increased. As pointed out above, the latter often coincides with an adoption of the incumbents' position. This might seem especially comfortable when confronted with 'technical' issues.[24] As a consequence, it could be useful to take the advice of Batel and Devine [38] (and others) to apply survey methods more carefully and to combine them with qualitative case studies. The same applies to the recommendation of Cuppen (2018) [22]: To deal with emerging actors and modifying attitudes, longitudinal analysis with data gained from social media profiles (Facebook, Twitter, etc.) as well as interviews and discourse analysis may be appropriate complements to surveys.

(3) Highlighting the constructive dimension of conflicts. Conflicts should not be reduced to something that hinders a determined plan from being implemented. If canalizing or even suppressing remains the first priority, the constructive character of many conflicts will remain unrecognized [6, 22, 48].

Still, we are dealing with the consequences of decisions made by governments which are legitimized through democratic elections. The underlying question that emerges here again is the relationship between representative and grassroots democracy. This paper strongly emphasizes that the protesters' proposals not only serve local or regional interests, but also involve energy and climate policy at the national level. This makes the protests against EGS more compatible with the movements for energy democracy and climate protection. E.g., there are clear similarities between the protests in the FPR and the movement for energy democracy: a plea for decentralized ET, the phasing out of fossil fuels and more democratic participation [73]. Of course, a progressive agenda itself cannot strengthen or weaken the activists' democratic justification. However, it might change our view on them and moreover strengthen these movements.[25]

Finally, there are several limitations of the presented study that might become tasks for future research: Firstly, the definition of the 'Franconian Protest Region' explicitly refers to a geographic unit. According to Galvin [6, 48], it would also make sense to understand 'Franconian' in a cultural, identity-related way. Whereas Galvin

[24] Besides, even within their rationality, the established actors are not infallible, as the following example shows: In 2010, the German Energy Agency (dena) predicted that the precondition for a share of 39 percent renewable electricity would be an extension of the transmission grid by 3,600 km [70]. Although this share was achieved at the end of 2019 [71], the length of new HVPLs constructed was only 1,242 km by September 2019 [72].

[25] Their targets seem also justified as they are widely coherent with the agenda of sustainability (United Nations Development Programme) [74].

provided results for Lower Franconia, it might be fruitful to deal with Franconia-specific or 'Anti-Bavarian' elements that may support identity-creating effects in all regions of Franconia. Secondly, there are numerous studies working either on single protests or social movements. The phenomenon of networked regional protests that are no social movement, but which display several movement characteristics, have occurred repeatedly. As this intermediate field seems widely neglected so far, it might become an important research topic to studies on social movements. For this purpose, a more elaborated and empirically-based analytical framework is necessary.

6. Conclusion

Many of the protests against new power lines in Germany take place in the Franconian region, and display specific characteristics. These protests are carried out by a broad coalition that consists of numerous CIs, the BUND Naturschutz, scientists, regional energy initiatives and municipal utilities, as well as regional politicians and parties. The protesters articulate issues of general relevance: climate protection, the structural interest of TSOs in the construction of new HVPLs (which, at the same time, influences the planning), scenarios of massive grid extension in Germany and neighboring countries and the question whether the energy transition should better take place in a more decentralized way.

The protests have a constructive dimension because they propose alternative solutions that are based on scientific expertise. In particular, the protesters' network connections provide access to important resources that enable strategic action. Overall, I understand these protests as a regional protest movement and, propose to consider the following implications for social sciences, acceptance research and policy:

Implications for so*cial sciences and acceptance research*. A lot of research on individual protests, as well as on social movements, has already been done. Nevertheless, there is a lack of analytically and empirically justified theories to deal with collective actors that are *in-between* (see Section 5). The critiques of certain acceptance studies show the importance of considering the broader field context. Especially when dealing with complex socio-technical fields, researchers need to have a wide knowledge of this context in order to avoid decontextualization. Otherwise, there is always the danger of unintentionally reinforcing the status quo. Generally, future studies should combine surveys with case studies and other qualitative methods. Finally, acceptance research ought to take special care when dealing with local conflicts as to whether they might be part of a broader conflict in society.

Policy recommendations. There is a way to achieve both targets: to overcome the conflicts concerning grid extension (widely) and to continue the energy transition. Basically, lacking grid capacity should no longer be a justification for policy-makers to slow down the planning of wind parks and photovoltaics. Otherwise, ET probably cannot succeed in time. It took more than 15 years to install about 1,200 km of new HVPLs [72]. Considering this, it seems hardly plausible that another 6,600 km will be put into service by 2030 [33, 34]. Due to synchronizing wind power projects with the construction of new HVPLs since February 2017, [75] hardly any wind park projects have received a license in the North.

Without a change, the ambitious climate political targets for 2030 will be out of reach.[26] In times of ongoing climate change, slowing down the installation of renewable energy plants cannot be an option. Rather, the conflict over grid extension may become a starting point for a more decentralized ET. Instead of excluding new wind power projects in Northern Germany, sector coupling – roughly spoken, the electrification of heat and mobility sectors by excess wind (or solar) energy - should be introduced (e.g., by offering subsidies for municipalities in 'wind-power-regions' for the construction of district heating systems). In Southern Germany, decentralized ET, implemented mainly on the basis of solar and wind power as well as of combined heat and power units, could be supported actively. In favor of accelerated ET, an increasing installation of wind parks (offshore and onshore), photovoltaics, solar thermal systems [77] as well as district heating and heat pumps [78] is recommended. Moreover, in order to avoid an increase of the conflict, the federal government should stop all attempts to accelerate the implementation of HVPL projects by decreasing public participation and reducing the possibilities for taking legal action.

[26] The federal government decided to reduce greenhouse gases by 55% by 2030 (compared to 1990). In 2018, only 30.8% was achieved [76].

Declaration of competing Interest

none

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