

Full-length article

Making energy democracy work: Governing local conflicts in Germany's *Energiewende*

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ABSTRACT

Why do climate-beneficial wind and grid projects meet fierce local resistance - and when does that resistance soften into workable agreement? Drawing on seven German cases and integrating Strategic Action Fields with coalition dynamics and energy-justice diagnostics, this article explains opposition as the interaction of strong place meanings with three recurrent deficits: recognition (local identities and valued landscapes acknowledged but not encoded in design), procedure (participation opened late with unclear feedback duties), and distribution (asymmetric burdens and opaque benefit flows).

Findings are developed for two contrasting cases. In a wind energy case, a sequenced, brokered process translated community concerns into binding guardrails (caps, mapped exclusions, seasonal windows, monitoring) yielding a procedurally credible mandate. In a grid expansion case, information-rich but authority-light engagement left settlement proximity, farm-continuity, and landscape claims without segment-specific rules (e.g., criteria for selective undergrounding), producing “voice without leverage,” venue shifting, and persistent polarization.

Across cases, escalation follows when early siting choices close options and trade-offs remain opaque; it abates when credible brokers open early, consequential gateways, keep “what-changed” records, and pair design concessions (route/layout variants, selective undergrounding, buffers) with co-governed value sharing (municipal equity, inter-municipal revenue sharing, community funds).

This analysis advances a transferable governance perspective in which recognition is operationalized through concrete design choices, procedure functions as field reform with feedback obligations, and distribution is addressed through design and co-governance under transparent eligibility rules; jointly, these conditions redirect contention from identity claims toward design space and enhance the prospects for timely, legitimate implementation under transition targets.

1. Introduction

Energy transitions face tightening timelines and rising coordination costs as governments expand renewables, electrify heat and mobility, and upgrade grids that must balance decentralization with system stability (Salim et al., 2026). In Germany, climate neutrality by 2045 hinges on rapid onshore wind deployment and major north–south transmission, including the designation of 2% of land for wind by 2032 and a step-change in grid delivery (Hielscher et al., 2025). As turbines and lines move closer to settlements and into forests, peatlands, and productive farmland, local opposition intensifies around environmental quality, landscape character, and perceived health risks (Kühne, 2024). Parallel mobilizations along transmission corridors, underway since the early 2010s, continue to challenge routes, technologies, and regulatory

sequencing (Kamlage et al., 2024; Kühne and Weber, 2018; Neukirch, 2020). Across these arenas, “NIMBY” explanations are too coarse: proximity matters, but objections are also about recognition, procedural fairness, and spatial inequality (Devine-Wright and Peacock, 2024; Kerker et al., 2024; Langer et al., 2018; Rand and Hoen, 2017; Susskind et al., 2022).

The title of this article deliberately echoes Robert Putnam's classic *Making Democracy Work* (Putnam, 1993) and the broader line of argument developed in his work on social capital: under what institutional and civic conditions do democratic arrangements become effective, legitimate, and practically workable? Putnam's central insight was that institutional performance depends not only on formal rules, but on social capital - the trust-based civic capacities that enable institutions to work in practice. Read against Germany's *Energiewende*, this suggests

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that energy democracy cannot be reduced to the formal availability of participation. It works only when local publics can exercise consequential voice, when conflict is translated into intelligible design and governance choices, and when institutions generate credible feedback, fairness, and shared ownership of outcomes. In this sense, the question is not simply how to manage opposition to energy infrastructures, but how to make energy democracy work under conditions of accelerated transition and contested place meanings.

While this paper foregrounds conflict dynamics and participation design, the trajectories we observe are inseparable from the allocation of public authority across government levels. In Germany, onshore wind projects are steered in a multi-level framework in which local and regional planning instruments still shape land availability and project design, whereas extra-high-voltage transmission lines follow a federally centralized regime with need determination, corridor selection, and plan approval concentrated at the national level. This institutional asymmetry goes a long way toward explaining why participatory instruments that are consequential in local wind siting, up to and including county-wide referenda, do not carry equivalent legal force in transmission cases.

More specifically, onshore wind siting in Germany combines federal substantive law (notably immission control and species protection) with state administration and strong local steering through land-use and regional planning. Counties and municipalities can commit, through democratically sanctioned local policy choices, to pursue particular siting strategies within their competence (for example land-use guidance, project sponsorship, or benefit-sharing provisions), but these choices do not replace statutory permits. By contrast, the siting of extra-high-voltage transmission lines is governed by federal procedures that centralize the determination of need, corridor selection, and plan approval; local governments have consultative roles but no veto over routing or technology. As the cases below illustrate, this division of powers shapes both the feasible participation repertoire and the ultimate leverage of local publics.

This article explains why some locally contested wind and grid projects escalate while others stabilize. We analyze seven German cases (five wind siting disputes and two grid expansion upgrades) through a field-analytic lens that treats each case as a Strategic Action Field (SAF) episode in which incumbents and challengers vie for rules, resources, and legitimacy across partially coupled venues (Fligstein and McAdam, 2012). Our framework integrates energy justice (distributive, procedural, recognition, and, where relevant, restorative dimensions) (Jenkins et al., 2016) with place attachments (identity, dependence, affect) (Manzo and Devine-Wright, 2020), and nests Advocacy Coalition Framework (ACF) elements (coalitions and belief structures) inside SAFs, using framing as the communicative mechanism through which coalitions mobilize and contest (Jenkins-Smith et al., 2018; Sabatier and Weible, 2019; Scheetz et al., 2024; Wesche et al., 2025). We do not introduce a separate “discourse coalition” layer; instead, framing is treated as part of coalition work within fields.

Empirically, we examine who sets or enforces rules, which coalitions gain access to decisive venues and when, whether participation is consequential or symbolic, and whether credible brokers (mayors, planners, dialogue platforms) emerge early enough to translate claims into siting and design variants, mitigation packages, and co-governed value flows (Aspeteg and Bergek, 2020; Carlsson et al., 2017; Jami and Walsh, 2017; Neal et al., 2023). Rather than formal process tracing, we employ a structured, sequenced episode analysis that tracks timing, venue openness, and broker mandate across cases.

To align concepts, methods, and results, we ask three research questions.

- (1) Opposition and place/justice: What role do local place attachments and perceived (in)justice play in mobilizing opposition to wind and grid projects, across identity, dependence, and affect as well as recognition, procedural, and distributive dimensions?

- (2) Escalation mechanisms: Through which mechanisms do justice concerns escalate conflicts within SAFs (for example symbolic participation that informs without empowering, opaque trade-offs, uneven burden–benefit profiles), and how do these mechanisms interact with coalition framing?
- (3) Settlement levers: How do field configurations (incumbent–challenger balance, venue structure), coalition strategies, and broker presence, mandate, and orientation shape trajectories toward stalemate or negotiated settlement—and which participation and benefit-sharing designs credibly translate justice claims into binding siting, design, and governance changes under similar statutory frameworks?

The findings point to patterned, not idiosyncratic, dynamics. Conflicts intensify when participation is late or scripted (“voice without leverage”), when recognition of local identities and knowledge does not translate into route or layout adjustments, when trade-offs remain opaque, and when benefits and burdens are spatially uneven (Radtke, 2025). By contrast, escalation abates where credible brokers open early, consequential venues; make feedback duties explicit; stage co-scoping and option testing; maintain auditable “what-changed” logs; and broker material translations such as route variants, selective under-grounding, landscape integration, and co-governed value flows (Karakislak and Schneider, 2023; Weblar and Tuler, 2021, 2025).

Conceptually, the contribution is to specify how SAFs and ACF travel together in implementation politics: SAFs locate actor positions, venue structures, and shock episodes; ACF clarifies how coalitions and beliefs organize action; and energy-justice and place-attachment lenses identify what must be translated into rules for legitimacy to recover. Substantively, this paper identifies three portable levers (recognition-as-translation, procedure-as-field-reform, and distribution-in-design) that explain divergent local outcomes under similar law and point to pragmatic reforms that can speed delivery while protecting fairness. The remainder proceeds as follows. Section 2 distills the theoretical building blocks (SAFs, coalitions and framing, brokers, energy justice, place attachments) with core citations. Section 3 outlines the qualitative design and data; technical details and all supplementary materials are provided in Appendix, which includes methods and coding documentation (A1–A6, including instruments and reflexive notes) and the supplementary tables A1–A3.¹ Section 4 presents a compact cross-case matrix and the two focal cases, organized by the three research questions. Section 5 situates results in the international literatures and draws implications. Section 6 concludes with concise theoretical and policy takeaways.

2. Theoretical framework

We conceptualize energy controversies as strategically structured arenas in which organized actors mobilize competing interpretations, values, and claims over space and infrastructures. Following field theory, these arenas are Strategic Action Fields (SAFs), meso-level social orders where incumbents, challengers, and state actors contest rules, resources, and legitimacy amid shared understandings, episodic shocks, and inter-field coupling (Fligstein and McAdam, 2012). SAFs clarify why similar statutory frameworks yield divergent local outcomes: differences in power, field grammars, and opportunity structures condition whether conflicts harden or remain governable. Implementation is itself a fielded process in which planners and public managers exercise bounded discretion over sequencing, gatekeeping, and the interpretation of abstract rules (Moulton and Sandfort, 2017). Collective action within these arenas is carried by coalitions. To give operational traction to coalition

¹ Overview: Sections A1 and A2 (coding protocol and templates/codebook excerpt), A3 and A4 (code–document matrix and query examples with a worked retrieval), A5 (case-level salience sheet), and A6 (reflexive notes).

formation and learning we draw on the Advocacy Coalition Framework (ACF), which specifies belief structures (deep core, policy core, secondary aspects), resource strategies, and cross-venue learning over time (Jenkins-Smith et al., 2018). We nest ACF coalitions inside SAFs: ACF elucidates how coalitions cohere and learn; SAFs specify the positional and institutional context (incumbent–challenger alignments, venue structures, and shock episodes) that shape coalition opportunities and constraints. Framing is the communicative mechanism through which coalitions mobilize within fields; we therefore do not add a separate “discourse coalition” layer, but treat frames as the way belief systems become publicly legible and strategically consequential.

This nested view implies, first, that coalition opportunity structures (venue openness, veto alignments, access to influential actors) vary across politics and sectors and thus shape escalation paths as well as the portability of participatory instruments. Second, frontline organizations (regulators, permitting authorities, municipal planners) operate as internal governance units of the field: by opening or closing windows for learning and negotiated design change, they can reconfigure escalation thresholds even without formal law reform (Sandström et al., 2021). In this sense, the “same” legal framework travels differently because fields differ in how venues are configured, which procedural grammars actors share, and which brokers are authorized to translate between constituencies. Energy justice provides the normative and analytical grammar for diagnosing fairness in energy transitions across distributive, procedural, recognition, and, where relevant, restorative dimensions (Heffron and McCauley, 2017). Read through a SAF lens, justice is not merely an ethical end state but a strategic resource that coalitions mobilize to contest rules, rebalance benefits and burdens, and renegotiate the legitimacy of planning practices.²

First, distributive justice concerns who bears costs and who captures benefits over space and time. In siting and routing conflicts, design choices (route variants, selective undergrounding, micro-siting, mitigation) and value-sharing instruments (co-ownership, municipal equity, revenue sharing, community funds) operate as redistributive levers (Lehmann et al., 2024; Pfeiffer and Sonnberger, 2025; Trimmel et al., 2024). They stabilize when tied to transparent eligibility rules and monitoring that render distributional effects visible and contestable to all parties. Second, procedural justice addresses inclusiveness, transparency, responsiveness, and, crucially, consequentiality (Bell et al., 2024; Gao et al., 2024; Ndi, 2024; Ryder et al., 2023a). Participation becomes consequential when it opens decision gateways early, specifies feedback obligations (what input can change which element), equips actors for joint fact-finding and co-design, and is credibly facilitated (Radtke and Renn, 2024; Renn et al., 2020); when engagement is late, scripted, or opaque, challengers rationally escalate to legal or extra-institutional venues and conflicts drift toward identity-laden antagonism (Cuppen, 2018). Third, recognition justice requires that place-based identities, local knowledge, and ways of life are acknowledged as legitimate stakes (van Uffelen, 2022, 2024). Here we fold place attachment (identity, dependence, affect) under recognition: threatened meanings of place and use-values (livelihoods, recreation, heritage) heighten the salience and credibility of recognition claims and often specify concrete design requirements such as avoiding iconic vistas, buffering, layout changes, or biodiversity-sensitive siting (Devine-Wright and Peacock, 2024; Raymond et al., 2010). Recognition without material translation rarely stabilizes fields, while design change without recognition appears technocratic; treating recognition as a design requirement links place meanings to auditable commitments and clarifies what counts as a fair compromise (Bal et al., 2023; Laes et al., 2023; Ramasar et al., 2022; Santos Ayllón and Jenkins, 2023; Wood, 2023). Where prior harms or accumulated mistrust are salient, restorative justice complements these dimensions through co-governed

benefit funds, grievance and ombuds mechanisms, and iterative monitoring with adaptation triggers (Buck et al., 2026; Heffron and Hazrati, 2024; van Uffelen, 2024). Such remedies are most credible when governance is shared across coalitions and learning is documented so that commitments survive personnel and political turnover (Jeon et al., 2025; Mayne et al., 2025).

Brokers are central to how justice claims become consequential within fields. We define brokers as actors who create or repurpose ties between otherwise disconnected constituencies, translate frames across groups, and, when legitimate, lower the transaction costs of agreement; when gatekeeping, they can amplify conflict by staging one-way information and filtering options (Collavo, 2018; Zietsma and Winn, 2008). In accelerating transitions, governance often features ecologies of intermediation that include public planners, dialogue platforms, consultants, and boundary organizations (Gliedt et al., 2018; Kivimaa et al., 2019, 2020). Whether this ecology opens participation or entrenches incumbency hinges on broker mandate, timing, and accountability (Stirling, 2008). Brokerage is stage-specific: early problem structuring benefits from discursive translation and exploratory assessment to surface tacit local knowledge and contested meanings before options harden; mid-stage option testing relies on tool-mediated exchanges (scenario/SEA workshops) that keep the design space open; late-stage appraisal and implementation require actor-oriented troubleshooting and “what-changed” logs that make responsiveness verifiable (Pielke, 2007; Stovel and Shaw, 2012). Brokers make justice legible by converting frames into siting and design variants, benefit-sharing packages, and procedural guarantees. These material translations give coalitions something concrete to bargain over, shift shared expectations about fair compromise, and raise reputational costs for renegeing; they also articulate who is entitled to decide what, when, and on which evidentiary basis, questions at the heart of field legitimacy.

From this synthesis we derive a set of expectations that structure the empirical analysis. Opposition intensifies when strong place attachments intersect with recognition, procedural, or distributive deficits inside SAFs, especially when participation is late or symbolic, trade-offs are opaque, and benefits and burdens are uneven. In the absence of early, legitimate brokerage and transparent option testing, fields polarize and controversies spill over across venues, sites, and technologies; grievances then travel and reappear in adjacent arenas under similar frames. Conversely, conflicts de-escalate where brokers with a mandate open early consequential venues and translate justice claims into auditable design and governance commitments, such as selective undergrounding with clear criteria, co-governed funds targeted to publicly deliberated priorities, landscape-sensitive layouts, and explicit feedback obligations coupled with monitoring. These expectations entail observable indicators (timing and consequentiality of participation, the presence, orientation, and mandate of brokers, and the traceability of translation from claims to design/governance change) that we carry into the casework; indicator details appear in Appendix Table A1, and the full comparative case matrix is reported in Appendix Table A3.

The framework also clarifies why nominally identical instruments travel unevenly under similar statutes. Selective undergrounding stabilizes where guidance recognizes the social-stability value of place-sensitive deviations from least-cost logics and where budgetary and regulatory pathways allow brokers to treat such deviations as legitimate design moves rather than exceptions to be litigated. Absent such alignment, local brokers lack leverage and coalitions revert to adversarial repertoires. Likewise, community-benefit funds legitimize when co-governed and tied to publicly deliberated priorities (for example habitat restoration, local mobility, health) rather than framed as de-contextualized payoffs disconnected from place-specific harms. In both cases, what matters is not the instrument's label but its embedding in field rules, eligibility criteria, and monitoring routines that render delivery auditable across phases. Applied to the German *Energiewende*, this integrated lens systematizes a heterogeneous conflict landscape in which distributive, procedural, site/landscape, identity, and energy-

² Operational definitions of the core constructs and indicators are provided in Appendix A1.

carrier conflicts overlap. In some rural regions, overhead grid expansion is experienced as a disruption of traditional landscapes and local identities; where venues are closed, decision rights concentrated, and brokerage weak or gatekeeping, controversies spill over across technologies and sites. Where venues are open, feedback obligations explicit, and brokers authorized to convert input into plan text and budget lines, settlement windows emerge under similar legal frameworks. These patterned dynamics motivate the empirical strategy: we retain all seven cases to document scope and variation and to support the cross-case matrix, while developing two contrastive focal narratives in depth to demonstrate the mechanisms specified above; one pathway in which early, consequential participation and brokered translation opened a settlement window, and one in which late, symbolic engagement and opaque trade-offs entrenched polarization. By centering SAF structure, coalition dynamics, brokered translation, and justice diagnostics (while integrating place attachments within recognition) the framework specifies how decentralized energy transitions become governable or grid-locked and provides the analytic scaffold for the comparison and focal analyses that follow.

3. Methods

We employ a qualitative, comparative design to explain how local field configurations and participation architectures condition escalation or settlement in decentralized energy conflicts. Guided by the integrated theoretical framework, each case is treated as an episode within a Strategic Action Field in which incumbents, challengers, and state actors interact across partially coupled venues. We retain seven German cases (five wind projects and two grid expansion upgrades) to document scope and patterned variation, while the results develop two contrastive focal narratives in depth (a forest wind project that opened a settlement window and a grid expansion segment that stalled).³

Data collection triangulates semi-structured interviews and systematic document and media analysis. We conducted 39 interviews with directly involved actors (local politicians, citizens' initiative leaders, conservation NGOs, developers or TSOs, planners or mediators). Recruitment combined municipal channels and local associations with snowballing; screening calls excluded mobilized participants. Informed consent was obtained; transcripts were anonymized; quotations are de-identified. A corpus of regional and national press, planning files, council minutes, and selected social-media threads complemented interviews; all items were time-stamped to align discursive shifts with venue openings or closures and with the introduction or rejection of design variants and benefit-sharing instruments. Coverage by source and

case is summarized in [Table 1](#) (see also [Appendix Table A2](#); the full source list and sampling frames are documented in [Appendix](#)).⁴

We use coding in the qualitative-analytic sense of assigning interpretive labels to segments of text in order to make theoretically relevant distinctions visible and comparable across cases. The coding scheme combined a deductive backbone derived from the research questions (opposition as place or justice, escalation mechanisms, settlement levers) with inductive refinement from close reading. All semi-structured interview transcripts, meeting transcripts, and the documentary corpus (planning filings, written objections, petitions, press releases, selected social-media threads, and minutes) were coded. Coding was performed at the sentence-to-short-paragraph level, and codes can co-occur on the same segment where claims intertwine, for example when species protection is raised as a place-identity claim. We capture both presence or absence (whether a claim appears in a segment) and salience (how central the claim is within a case) by aggregating coded segments to case-level matrices that track counts and coverage and by adding memo-based assessments; we do not use this index for statistical inference but to structure comparison and to check the internal consistency of case summaries.

We use the codes for three analytic purposes rather than for statistical counting. First, they sort and retrieve material in a way that maps directly onto the three research questions: for each case we assemble question-specific evidence packs by querying the relevant code families and their co-occurrences (place and justice for RQ1, escalation mechanisms for RQ2, settlement levers for RQ3). This procedure keeps the case narratives grounded rather than impressionistic. Second, we use codes to check and refine generalizations through targeted retrievals, including searches for disconfirming evidence. When an emerging claim appears, for example that authority-light participation sustains escalation, we pull all segments coded to voice without leverage and eligibility transparency and then retrieve segments coded to responsive design mitigation in the same time window; the memo-based comparison either corroborates, nuances, or falsifies the claim. Third, within each case we trace mechanisms by inspecting co-occurrence patterns along the chronology (temporal bracketing). In *Ebersberg* we examined segments co-coded to place attachment: identity and design mitigation: spacing or layout before and after the introduction of 3D visualization; in the *Ultranet* corridor we examined co-coded voice without leverage and eligibility transparency before and after reason-giving about under-grounding rules. We do not quantify codes for inferential statistics. We maintain descriptive coverage notes (which claims appear where and how often within a case) and case-level salience judgments (low, medium, high) to structure comparison and to guard against cherry-picking; these serve as audit trails rather than as variables for hypothesis testing.⁵

Case selection followed purposive sampling for mechanism discovery under a most-similar systems logic within escalated (hot) conflicts. A pre-study screening of 43 German disputes revealed a recurrent sequence in which issue triggers in landscape or health were followed by rapid coalitioning, weak or gatekeeping brokerage, and late or scripted participation, culminating in polarization and spillover. We then sampled cases to span regions (north or south; rural or peri-urban),

Table 1

Overview of the number of data sources collected across regions.

Interviews	Media
Bavaria (wind energy): 5	<i>Local Newspaper</i>
Bavaria (grid expansion): 10	Bavaria (wind energy): 7
Baden-Wuerttemberg (wind energy): 2	Bavaria (grid expansion): 10
Brandenburg (wind energy): 1	Baden-Wuerttemberg (wind energy): 6
Hesse (wind energy): 7	Brandenburg (wind energy): 5
Mecklenburg-Western Pomerania	Hesse (wind energy): 6
(wind energy): 8	Mecklenburg-Western Pomerania
Rhineland-Palatinate (grid expansion):	(wind energy): 4
6	Rhineland-Palatinate (grid expansion):
	7
	<i>National Newspaper: 10</i>

³ Specifically, the coding protocol and templates are provided in A1 and A2; the code-document matrix and the full comparative case matrix in A3. Construct definitions and indicators appear in A1, and case selection and data coverage in A2.

⁴ All supplementary materials are provided in [Appendix Table A1](#) reports construct definitions and indicators; [Table A2](#) reports case selection and data coverage; [Table A3](#) reports the full comparative case matrix. A1 and A2 contain the coding templates and a codebook excerpt; A3 provides the code-document matrix; A4 lists example query strings and a worked retrieval; A5 provides the case-level salience sheet; A6 provides reflexive notes on positionality and brokerage. Illustrative query strings, a worked retrieval example, and a case-level salience sheet are provided in A4 and A5).

⁵ Coding and retrieval were conducted in a CAQDAS environment; the code-document matrix ([Appendix A3](#)) and a codebook excerpt (A1 and A2) are provided in the supplement.

infrastructures (wind or grid), and siting ecologies (forest, peatland, agrarian corridors), while holding constant the outcome of high contention. We therefore claim typicality within escalated cases rather than statistical representativeness and address external validity by combining focal depth with a compact cross-case matrix and by specifying boundary conditions for portability.

To operationalize the field lens, we specified compact, observable indicators: field configuration (incumbent or challenger balance and state alignment), venue structure and timing (early gateways, openness, feedback specificity), coalition opportunity (access to influential actors and alignment with decision authority), and broker orientation or mandate (bridging versus gatekeeping, center–periphery positionality, and sequencing of knowledge brokerage from problem structuring through option testing to appraisal). Documents and media were open-coded with an explicit event-sequencing pass to flag translation moments, that is, points where input became visible design or governance change or visibly failed to do so (the compact indicator matrix appears in Table 2; the full comparative matrix and codebook are provided in the appendix).⁶

We implemented three triangulations: source triangulation (interviews and documents for the same episode), actor triangulation (incumbent or developer accounts contrasted with challenger accounts), and temporal triangulation (narratives verified before and after venue or design shifts). Timeline claims were verified against official records; when accounts diverged, we privileged time-stamped documents and flagged uncertainty in memos that inform cautious phrasing in the results.⁷

The analysis aligns explicitly with three research questions rather than a five-part template. For RQ1 (opposition and place or justice), we extract dominant frames and their place-based anchors and test whether recognition deficits coincide with the onset of organized opposition in episode sequence. For RQ2 (escalation mechanisms), we examine whether late or symbolic participation, opaque trade-offs, and uneven burden–benefit profiles co-occur with venue switching to courts or media and with frame carryover to adjacent sites or technologies. For RQ3 (settlement levers), we identify early, mandate-bearing brokerage and auditable translations, for example selective undergrounding with explicit criteria, route or micrositing variants, landscape buffers, co-governed community funds, and “what-changed” logs, and assess whether these moves reconfigured expectations about legitimate compromise.

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Two additional procedures bolster credibility. First, negative-case probing documented episodes where strong attachments did not escalate, for example because venues opened early or design responsiveness was visible, and stalled settlements where instruments were present but

lacked mandate or eligibility clarity. Second, we document researcher positionality and our reporting stance on brokerage in Appendix A6. Limitations follow from scope and design choices. Focusing on escalated cases optimizes mechanism visibility but does not capture consensual siting; future work should contrast hot with low-conflict sites to probe boundary conditions. Evidence is primarily perception-based; systematic, objective redistribution or health metrics were beyond scope and are candidates for mixed-methods extensions. Portability beyond Germany depends on planning traditions and field opportunity structures; we therefore present a mechanism-based playbook rather than a one-size-fits-all prescription.

4. Empirical results

4.1. Overview of conflict characteristics and participation patterns

This section synthesizes the seven conflicts as comparable strategic-action–field (SAF) episodes. In each site, an incumbent coalition (developers/TSOs, planning and regulatory bodies, segments of executive politics) and a challenger coalition (citizens’ initiatives, conservation and heritage groups, farmers/landowners, opposition councillors) mobilize distinct frames across partially coupled venues (planning procedures, council deliberations, courts, media), while brokers (mayors, planners, municipal utilities, dialogue platforms) attempt (often with limited mandate) to translate claims into siting/design variants, mitigation, and value sharing. Reading the cases through this lens clarifies three questions: who acted (coalitional line-up), where and when they gained venue access (gateways and timing), and whether participation formats carried clear feedback obligations capable of moving concrete design or governance levers. The vignettes below retain case-specific content while making explicit the coalitional and brokerage mechanics that structure participation and escalation. Statuses reported for each vignette refer to the end of our study window (2022); for example, in Baden-Württemberg the developer withdrew, halting the project in the configuration under analysis.⁸ To enhance transparency of inference, the two focus cases are narrated in a way that speaks directly to the three research questions: the first paragraph in each case addresses RQ1 (opposition as place attachment and justice), the second addresses RQ2 (escalation mechanisms), and the third addresses RQ3 (settlement levers), followed by a brief case-level wrap-up.⁹

The Bavarian wind-in-forest case concerns turbines proposed in protected woodland with high recreational salience. Incumbents (county leadership, climate office, segments of environmental NGOs under tight ecological conditions) stressed climate goals and “careful siting,” while challengers (citizens’ initiatives, forest user groups, right-of-center actors) framed the forest as cultural landscape and everyday leisure space (see Fig. 1). Participation combined a brokered citizens’ assembly and county forum with a county-wide referendum. These venues temporarily reconfigured the field by opening visible gateways and documenting “what changed,” yet many opponents judged recognition as acknowledged but not decisive and design levers (micro-siting, buffers, seasonal constraints) as under-specified. The narrow authorization lowered acute polarization without eliminating principled dissent, leaving a procedurally legitimate but fragile implementation path.

The inter-municipal wind case in Baden-Württemberg planned seven turbines on one municipality’s territory directly at the boundary of a neighbor. Incumbents (host council, a citizen-friendly energy cooperative) foregrounded local value creation, while challengers (neighboring

⁶ Indicator definitions are provided in Appendix Table A1; the full comparative matrix appears in Table A3.

⁷ Further details, a codebook excerpt, and a worked example are provided in Appendix A3 and A4. Reflexive notes on researcher positionality, access, and the descriptive treatment of brokerage are provided in Appendix A6.

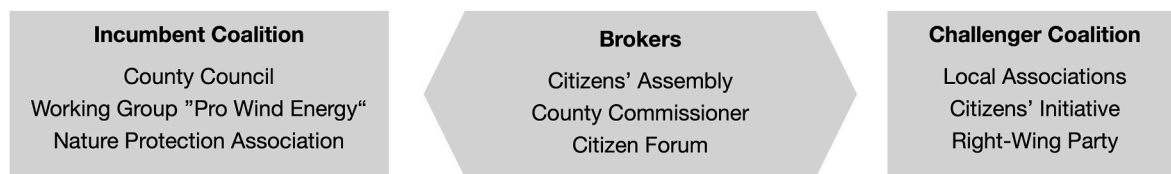
⁸ See Appendix A5 for a consolidated overview of all cases and up-to-date outcomes (with time stamps beyond the 2022 study window).

⁹ References to code families correspond to the labels in Appendix A2, A3 and A4. Each case narrative draws on RQ-specific coded retrievals; references to code families follow the labels in Appendix A2 and A3.

Table 2

Research framework: Categories, methods, and analytical focus.

Analytic Approach	Research Category			
	Conflict Issues (A)	Conflict Trajectories (B)	Participation & Intermediaries (C)	Basic Information
Data Source	Interviews	Document Analysis + Interviews	Interviews	Interviews
Coding Categories	(4) Conflicts/Protests (5) Conflict Issues (7) <i>Energiewende</i> (9) Perception of Politics (12) Self-Perception (13) External Perception (14) Urban-Rural	(2) General Conditions in the Region (7) <i>Energiewende</i> (8) Conceptions of Democracy (9) Perception of Politics (12) Self-Perception (13) External Perception (14) Urban-Rural	(5) <i>Energiewende</i> (6) Conflict Management (8) Conceptions of Democracy (9) Perception of Politics (10) Intermediaries (11) Participation	(1) Biography (3) Media
Coding Scheme	Combined (Deductive/Inductive)	Inductive (Open Coding)	Combined (Deductive/Inductive)	Deductive (Predefined Questions)
Special Focus	Conflict History & Key Events Subject of Conflict Understanding of Conflict	Actors & Conflict Parties Alliances & Networks	Criticism of the Process Conflict Resolution Arenas & Modes	Place Attachment & Identity

**Fig. 1.** Actor constellation in wind energy case study *Bavaria*.

council, two citizens' initiatives, national anti-wind allies) emphasized inter-municipal inequity, karst hydrology, species protection, and landscape identity (see Fig. 2). Venues existed (mayoral meetings; the state-supported Forum Energiedialog) but lacked a mandate to bargain over binding redistributive compacts (revenue-sharing, co-ownership for the neighbor), layout/height variants, or groundwater safeguards; no auditable feedback log tied input to plan edits. Perceived exclusion on the neighbor's side hardened distributive and recognition frames. Repertoires escalated from objections to litigation threats, and the developer withdrew during the study window, effectively halting the project in the investigated configuration. This sequence exemplifies an "asymmetric exposure + informational participation" mechanism in which the absence of authority to negotiate inter-municipal balancing instruments (revenue sharing, co-ownership for the non-host, micro-siting/height variants, groundwater safeguards) preserved distributive grievance and closed the settlement window.

The Brandenburg third wind farm expansion pitted incumbents (developer, regional planning, federal administration) against a challenger coalition anchored in a local citizens' initiative linked to the cross-regional "Save Brandenburg" alliance (see Fig. 3). Recognition claims fused saturation ("already doing our share"), nature-tourism identity, and outflow of value to external investors. After a failed local referendum, no structured co-design followed, and mayors and councils convened ad hoc meetings without decision rights. With no empowered broker to translate cumulative-impact concerns into caps, spacing rules, or layout variants, contention migrated to courts and media. Challenger cohesion grew under an identity-laden fairness frame as incumbents retained late, legalistic venues but lost narrative ground¹⁰.

The *Odenwald* forest disputes in Hesse set supportive local officials and a cooperative developer against citizens' initiatives tied to national networks and backed by conservation NGOs (see Fig. 4). Recognition centered on forests as heritage and species corridors, yet translation into exclusion zones or buffer logics remained contested and largely absent. Round tables and "information evenings" were experienced as scripted, jointly commissioned expertise and clear feedback duties were missing,

¹⁰ Following the failed local referendum, expansion remained in contention before administrative courts, while permitting-related steps continued into 2024.

and cross-municipal benefit design and groundwater safeguards never matured.¹¹

The peatland/wetland conflict in Mecklenburg-Western Pomerania advanced onshore wind in a vast fen landscape through large land-owners and regional planners (see Fig. 5). Challengers (village groups, a statewide alliance, conservation NGOs) anchored recognition in migratory and breeding bird corridors and emergent peatland-protection strategies. A ministry-led round table improved transparency but not leverage because negotiated buffer/exclusion criteria, SEA-style option testing with agreed thresholds, and a public "what-changed" trail were absent. Mobilization scaled through petitions, expert reports, and vigils, and the later removal of the area's wind-suitability designation acknowledged ecological recognition claims via top-down reversal rather than locally negotiated translation, leaving residual distrust about process credibility and benefit governance.¹²

The Bavarian *Juraleitung* grid-upgrade segment (distinct from *Ultratnet*) aligned incumbents (TSO, federal regulator, regional administration) around system efficiency and corridor continuity (see Fig. 6). Challengers (route-adjacent citizens' initiatives, farmers, municipalities, a regional utility) highlighted settlement proximity, iconic vistas, farm continuity, and health concerns. Operators invested in "info markets," a mobile office, and consultation rounds, but pandemic shifts reduced interactivity. Without published, segment-specific triggers for selective undergrounding, settlement-responsive buffers, or farm-continuity agreements, participation decoded as informational disclosure.¹³

The *Ultratnet* HVDC segment in Rhineland-Palatinate staged a triadic field in which incumbents (TSO/regulator) confronted a broad challenger coalition (citizens' initiatives, farmers' association, a regional utility, municipal politicians - including transition supporters troubled by local exposure), with episodic brokers (state politicians, roadshows,

¹¹ As of March 2024, at least one contested project (Etzean) withstood legal challenge, while others remained disputed, yielding a mixed pattern of approvals and continuing contention.

¹² The competent authority rejected the 12-turbine application on 13 January 2023; appellate proceedings at the Higher Administrative Court (OVG Greifswald) are pending.

¹³ By October–November 2025, plan-approval procedures (Planfeststellung) for subsections A-Ost, A-West, including A-Katzwang, were formally opened with public exhibition of documents; decisions are pending.

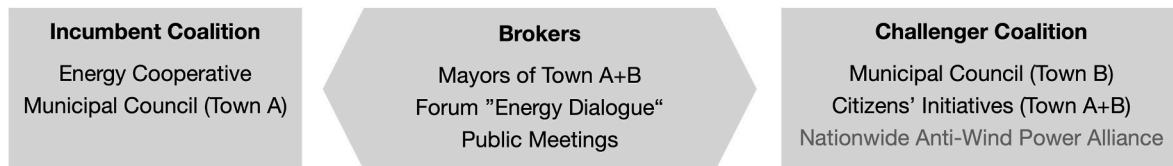


Fig. 2. Actor constellation in the wind energy case study: Baden-Wuerttemberg.

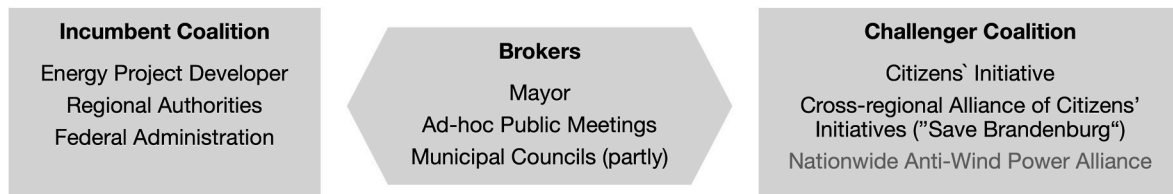


Fig. 3. Actor constellation in wind energy case study Brandenburg.

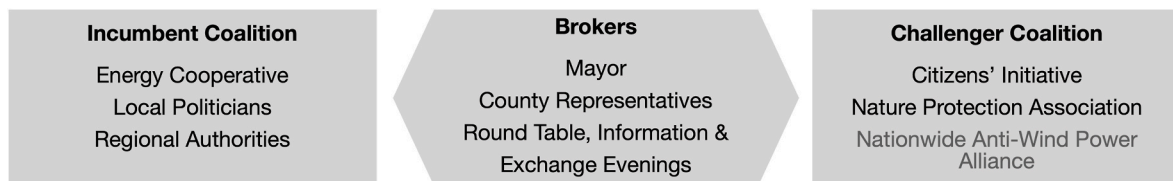


Fig. 4. Actor constellation in wind energy case study Hesse.



Fig. 5. Actor constellation in the wind energy case study: Mecklenburg-Western Pomerania.

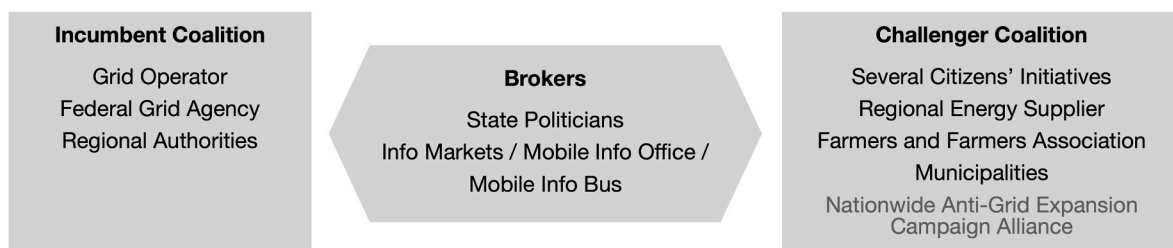


Fig. 6. Actor constellation in grid expansion case study Juraleitung.



Fig. 7. Actor constellation in the Ultratnet grid expansion case study.

local information offices). Recognition claims (*Heimat* landscapes, settlement morphology, agricultural logistics) were repeatedly voiced but rarely inscribed as rules: no clear local criteria for undergrounding, no settlement-sensitive distance standards, no co-governed compensation keyed to verified impacts, and no independent monitoring with adaptive triggers. High engagement frequency could not compensate for authority-light formats; “voice without leverage” hardened coalitions, surveys slowed (e.g., access restrictions), and schedule slippage increased (see Fig. 7).

Across the seven sites, participation quality varies systematically with three levers that recur in different combinations. First, the timing and openness of venues determine whether co-scoping and option testing (e.g., SEA/MCDA) expand feasible compromise spaces by demonstrating that recognition can change design, or whether late, scripted events reveal path dependence and motivate forum shopping. Second, the mandate and orientation of brokers decide whether bridging actors with authority to alter plans, permits, and monitoring can convert input into auditable change, or whether gatekeeping brokers channel dissent without leverage and erode trust. Third, the transparency of eligibility for fairness-enhancing options clarifies whether selective undergrounding, buffers, biodiversity-sensitive routing, and inter-municipal revenue sharing are treated as rule-guided design and governance or as discretionary, ex-post payoffs that invite accusations of arbitrariness.

Retaining all seven cases (and their associated figures) establishes patterned variation in triggers (forest/wetland siting, corridor proximity, overhead-underground asymmetries), coalitional line-ups, venues, and broker capacity, while the two focus cases (one wind siting conflict and one grid-expansion segment) demonstrate in depth how recognition-as-design, procedure-as-field reform, and distribution-as-design-and-governance either come together to stabilize compromise or remain disarticulated and fuel polarization. Building on this comparative baseline, Section 4.2 examines how recognition is (or is not) translated into binding design and governance, Section 4.3 analyzes when procedures function as field reform rather than ritualized consultation, and Section 4.4 integrates distributive concerns and draws out cross-case implications. For a consolidated view of each case (the siting context, triggers, core frames, venue sequence and openness, broker configuration and mandate, visible translations into design/governance, repertoires, and current status/outcome) see Appendix A3, which provides the scaffold for the analyses that follow and documents the operational definitions, coding rules, and full indicator set.

4.2. Focus case wind energy: from recognition to design - how early, mandated brokerage reframed a forest siting dispute

This focus case examines a wind siting conflict in a Bavarian forest where a county-led incumbent coalition sought to reconcile climate targets with a landscape widely understood as a cultural and recreational asset. Framed as a strategic action field, the episode features four moving parts: a coalition geometry that never mapped neatly onto pro-/anti-renewables lines; an unusual sequence of venues that opened early and made feedback traceable; a set of translation devices that converted recognition claims into plan rules; and a residual layer of contestation that persisted precisely because not every claim could be rendered into design.

Coalitional alignments were heterogeneous from the outset. Incumbents comprised the county council, an in-house climate office, and segments of conservation actors willing to back a tightly conditioned project. Challengers included citizens' initiatives, forest user associations, and political entrepreneurs who framed the woodland as a shared cultural landscape and everyday leisure space whose identity value should constrain industrial transformation. Rather than a simple cleavage between “climate” and “landscape,” both camps invoked stewardship: one emphasizing decarbonization and local co-benefits under strict safeguards; the other prioritizing continuity of place meanings and

biodiversity protection. This ambiguity enlarged the zone of potential overlap but also raised the premium on venues that could convert diffuse meanings into legible design choices.

With respect to RQ1, opposition in *Ebersberg* cohered around place attachments and justice claims rather than a simple “yes/no” dispute over turbines. Opponents foregrounded the forest's identity value, recreation, and species concerns; proponents emphasized county-wide climate obligations and a fair spatial contribution by all municipalities. The citizen expert group and the 3D visualization translated these competing place meanings into concrete, testable design choices (for example, minimum setbacks, wind-favorable siting, and a county-wide distribution principle), thereby moving recognition claims into a domain where they could be deliberated alongside efficiency and landscape considerations.

Turning to RQ2, escalation dynamics were strongest when procedural fairness was contested, particularly around who counts as a legitimate knower and how evidence is weighed. Letter-to-the-editor campaigns and social-media mobilization amplified identity-laden frames and fueled expectations of zero-sum outcomes. Brokerage, however, gradually redirected contention from moralized standoffs to argued trade-offs: iterative public presentations, visible corrections to drafts, and the willingness to surface and address minority concerns curtailed spirals of distrust and lowered the temperature of the conflict.

Regarding RQ3, settlement levers combined co-design with a democratically sanctioned mandate. The county-wide vote provided a binding policy instruction within the county's sphere of competence, legitimizing the co-designed strategy while leaving statutory permits to the competent authorities. In parallel, distributive instruments (a fairness-oriented spatial allocation, benefit-sharing provisions) and procedural guarantees (transparent criteria, clear distance rules) stabilized expectations across municipalities and made implementation politically sustainable despite continued opposition.

Venue design proved decisive. The county commissioner convened a citizens' assembly and a county-level forum before committing to a final siting path. These forums did more than disseminate information: they staged joint fact-finding (species surveys, hydrology, recreation mapping), elicited place attachments in structured formats, and, crucially, specified the rules of influence. Participants were told, in plain terms, which inputs could move which levers (numbers, locations, buffers, seasonal constraints, offset logic), and each round produced a public “what-changed” record linking contributions to draft revisions. The subsequent county-wide referendum thus occurred against a background of intelligible options and pre-negotiated guardrails rather than symbolic consultation. Turnout was high and the narrow “yes” carried legitimacy not because it settled disagreement but because residents could see where their input had altered the feasible set.

The county-wide referendum provided a binding mandate for county authorities within the scope of their own powers, essentially authorizing them to pursue the forest option under specified safeguards and to resource co-design and implementation, yet it neither preempted nor supplanted the subsequent permitting steps under federal and state law. In practical terms, the vote legitimized a publicly negotiated strategy while leaving immission control, species protection, and ancillary approvals with the competent authorities. This coupling of a robust, co-creative process with a democratically sanctioned policy mandate was a distinctive feature of the case and helps explain the durability of the outcome in local politics, even as project delivery later faced exogenous shocks.

The presence of a referendum in *Ebersberg*, and its absence in otherwise similarly contentious cases, reflects both the availability of a local instrument and the location of the decision right. Because the county's commitments could materially shape the wind strategy through land-use steering, sponsorship choices, and the design of participation and benefit mechanisms, a vote could have tangible consequences and thus carried legal and political weight locally. By contrast, in transmission cases the decisive choices, namely project need, corridor, and

plan approval, are centralized at the federal level. Local plebiscites would therefore have only signaling value. The participation repertoire in those settings tends to be information-rich but authority-light, which helps account for the persistence of “voice without leverage” diagnostics in grid conflicts.

Recognition translated into design through a compact set of binding conditions. First, a cap on turbine numbers limited the scale of transformation and anchored cumulative-impact expectations. Second, mapped avoidance zones around sensitive habitats, trails, and vantage points materialized cultural and ecological “no-go” areas without freezing the project entirely. Third, seasonal construction and operational windows tied to breeding and bat activity embedded ecological rhythms into the implementation calendar. Fourth, targeted offset and monitoring requirements (with public reporting) created an auditable trail from promises to performance. Taken together, these devices converted identity- and biodiversity-laden claims from rhetorical acknowledgment into plan logic. They did not eliminate dissent, but they altered what counted as a fair compromise inside the field: opposition shifted from categorical veto to conditional bargaining over details that were now rule-bound.

Distributional questions remained salient but secondary. Residents expected locally legible value flows (amenity investments, habitat stewardship funds, and bill credits) weighted toward neighborhoods bearing the most visible exposure. While fiscal instruments could not substitute for recognition-as-design, their co-governance signaled reciprocity and helped sustain the referendum's procedural mandate through subsequent turbulence (including a developer insolvency and changes in state and federal rules governing protected landscapes). Broker communication during this uncertainty (explaining legal shifts, sequencing, and contingency plans) was less theatrics than field maintenance: it prevented the reopening of polarization by keeping expectations coherent.

The case nonetheless exposes limits. Although some opponents acknowledged the species-protection evidence, they considered it non-determinative and maintained that the forest's identity value was incompatible with any turbines, irrespective of how tightly constrained. Not every claim admitted a stable translation into siting geometry or operational rules, and the referendum could not settle normative disagreement over what a protected landscape should permit. Yet the combination of early co-scoping, explicit feedback duties, and a broker mandate to inscribe negotiated conditions into plans and permits altered escalation dynamics. Information roadshows, had they been used instead, would likely have generated “voice without leverage,” inviting forum shopping and hardening coalitions. By contrast, this venue architecture moved contention from identity space into design space, where trade-offs are at least partially commensurable and monitoring can verify delivery.

Two design implications follow for contested wind siting in attachment-rich places. First, recognition matters only when it is materialized: caps, mapped exclusions, seasonal windows, and offset rules should be specified as early, reviewable plan elements with public “what-changed” documentation. Second, brokerage must be empowered, not merely communicative: facilitators need authority to shape the option set, draft enforceable conditions, and steward performance reporting across electoral and personnel turnover. Where those conditions hold, legitimacy need not depend on unanimity; narrow democratic mandates can be durable when the path from input to plan is visible and the benefits and safeguards are co-governed.

In sum, *Ebersberg* shows that the core of RQ1 lies in making place meanings governable through design; the core of RQ2 is to interrupt escalation by converting categorical claims into revisable propositions; and the core of RQ3 is to pair design and brokerage with a mandate that is authoritative within the local domain. The case therefore illustrates how recognition, procedure, and distribution can be integrated into a single settlement architecture. It also clarifies the scope condition: such architectures are most effective where local authorities hold levers over

land use and project design. Subsequent implementation uncertainties did not negate the settlement but tested its resilience.

4.3. Focus case grid expansion *Ultramet* (Rhineland-Palatinate): information-rich, authority-light participation and the persistence of “voice without leverage”

Where Section 4.2 traced how early, mandate-bearing brokerage translated recognition into design in a Bavarian forest siting dispute, the grid focus case shows the converse dynamic under otherwise similar statutory conditions. Specifically, it examines the *Ultramet* HVDC corridor segment in Rhineland-Palatinate, where the transmission system operator and the federal regulator advanced an overhead upgrade through a densely settled, agriculturally productive region. Read as a strategic action field, the episode juxtaposes incumbents (the organizations holding statutory roles in the federal siting regime: the transmission system operator as project proponent and permit applicant, the Federal Network Agency as the lead federal regulator and plan-approval authority for extra-high-voltage lines, the Federal Ministry for Economic Affairs and Climate Action as policy principal, and the relevant state ministries and permitting bodies involved in environmental assessment and coordination) who controlled legally scripted venues and sequencing against a cross-local challenger coalition (citizens' initiatives, the farmers' association, a regional utility, and municipal leaders) whose frames braided identity (Heimat landscapes, settlement morphology), functionality (farm logistics and safety), and fairness (why overhead here when undergrounding appears elsewhere). On 31 October 2025, the Federal Network Agency issued the final plan-approval decision for the last section; construction is underway and commissioning is targeted for 2026. Municipal governments, land-owners, and civil-society groups participate as consultees or challengers, but they are not incumbents in this sense. The case demonstrates how abundant information provision, when decoupled from decision rights and eligibility transparency for fairness-enhancing design, yields the characteristic pattern of “voice without leverage,” hardens coalitions, and invites venue shopping.

With respect to RQ1, opposition in the *Ultramet* corridor drew on landscape, health, and property concerns, but justice claims centered less on local identity than on perceived spatial inequities and on eligibility for mitigation. Because decisive siting choices, including need determination, corridor selection, and plan approval, reside at the federal level, local publics framed fairness around the transparency of eligibility rules, for example, when and where undergrounding is admissible, as well as credible commitments to avoid concentrated burdens on specific communities and landholdings.

Turning to RQ2, escalation was driven by a characteristic authority-light participation dynamic. Information flows were abundant, but opportunities to reshape core choices were tightly time-gated and legally circumscribed. This mismatch fostered persistent frames of voice without leverage, encouraged strategic recourse to litigation, and sustained cross-community coalitions against specific segments. Escalation abated only when process owners could demonstrate responsiveness on second-order design variables such as construction logistics, micro-routing, and agricultural crossings, and when reason-giving about ineligible options was specific and verifiable.

Regarding RQ3, the available settlement levers were constrained but not absent. Where undergrounding was permitted by federal criteria, targeted commitments helped to anchor compromise. Where it was not, the salient instruments were compensation regimes, construction management plans, and independent monitoring. None of these fully substitutes for local choice, but each can reduce exposure and uncertainty. The resulting settlements are therefore thinner than in the wind case. They stabilize implementation trajectories without resolving the underlying contest over authority.

Distributive justice grievances deepened as soon as actors compared segments. Where undergrounding was visible elsewhere on the route or

in other corridors, the absence of clear, portable eligibility rules, combining settlement proximity, cumulative infrastructure load, and EMF or noise exposure, read as arbitrariness. Generic mitigation and compensation offers were discounted as detached from the specific harms at stake. Absent co-governed value flows, such as district funds with transparent allocation rules or exposure-weighted household instruments like bill credits or property-value stabilization near the corridor, benefits were interpreted as discretionary gifts rather than as predictable entitlements linked to verified impacts. The fairness narrative thus migrated from dislike of pylons to a claim that the system distributes burdens opaquely, which broadened the coalition and raised reputational stakes for incumbents.

Two inflection points reveal how authority and transparency recalibrate the field. First, when national legislation opened a narrow window for selective undergrounding on defined segments, the opportunity did not convert into de-escalation because there was no empowered platform to co-screen alternatives, test cost-impact trade-offs, and imprint negotiated criteria into plan text. The window thus performed as a symbolic concession that confirmed, rather than mitigated, perceptions of discretion. Second, where mayors trialed ad hoc working groups to translate farm-logistics claims into mast relocations and access protocols, local temperatures briefly dropped. Yet without a standing, mandate-bearing mechanism and a public rulebook, these gains were non-generalizable and fragile under staff turnover.

The de-escalation blueprint that follows from the case is not a call for more meetings but for different institutions. First, publish explicit, portable eligibility rules for fairness-enhancing design options, such as selective undergrounding, settlement-responsive buffers, and biodiversity-sensitive routing, constructed from measurable indicators including settlement density and morphology, cumulative infrastructure load, EMF or noise exposure profiles, and habitat valuation. Eligibility must be auditable and comparable across segments to neutralize arbitrariness claims. Second, mandate an independent, resourced brokerage platform with delegated authority to co-screen route or layout variants against the published criteria, to negotiate farm-continuity pacts with the farmers' association covering access control, seasonal windows, machinery clearance, and restoration standards, to draft segment-specific mitigation bundles including mast relocation, shielding, and curtailment windows, and to maintain a public what-changed ledger that ties inputs to plan modifications or reasoned non-adoption. Third, institutionalize co-governed compensation and monitoring through a district-level community fund with transparent, participatory budgeting, household-level instruments where exposure concentrates, and independent EMF or noise monitoring with real-time dashboards and adaptive triggers that can revise operating conditions. Fourth, provide a segment-specific necessity statement that shows where the line sits in the national topology, which alternatives were ruled out on which grounds, and how the chosen design satisfies the published eligibility rules. Together, these moves shift the argument from identity-protective vetoes to structured bargaining over criteria and trade-offs, shrinking the incentives for venue shopping.

Even under this blueprint, not every claim will translate neatly. Some vistas will remain contested, some households will experience persistent disamenities, and some undergrounding requests will fail cost-impact tests. The case shows, however, that durable settlement does not require unanimity. It requires early gateways that create options before path dependence hardens, brokers with authority to inscribe agreements in plans, permits, and monitoring, and eligibility transparency that renders fairness portable across segments. Where these conditions are absent, information volume substitutes for leverage, coalitions harden, and schedules slip. Where they are present, conflict migrates from existential stakes toward design questions that institutions can credibly answer and enforce over time. Taken together with the Bavarian grid segment, which is distinct from this focus corridor, these dynamics clarify why information-heavy but authority-light participation entrenches polarization, a contrast developed in the cross-case synthesis that follows. For

comparison, in the Baden-Württemberg inter-municipal wind dispute the proponent withdrew in September 2021, terminating the project without a permit; a later municipal exploration in 2023 proceeded under a different proponent and thus falls outside the studied episode.

Taken together, the grid case answers RQ1 by showing that distributive and procedural justice claims hinge on eligibility transparency rather than on shared place meanings. It answers RQ2 by tracing how authority-light participation sustains escalation unless second-order design responsiveness is credible. It answers RQ3 by identifying a constrained but workable set of levers that can stabilize delivery without transferring siting authority. The comparison with *Ebersberg* clarifies why similar participatory surface features can yield different depths of settlement. In centrally governed infrastructures, the payoff to participation lies primarily in reason-giving, mitigation, and credible commitments rather than in locally mandated choice.

4.4. Cross-case synthesis: translating justice into design and governance

Read through the lens of the three research questions, the cases jointly demonstrate that the social roots of opposition (RQ1), the mechanisms of escalation (RQ2), and the levers of settlement (RQ3) are structurally coupled to where authority resides and which design variables are actually movable. Taken together, the seven episodes show that escalation is produced less by technology type than by the configuration of the local field—who controls venues and timing, whether brokers can translate claims into rules, and how transparently costly but fairness-enhancing options are allocated. The two focus cases crystallize this dynamic from opposite ends. In the wind siting dispute, early co-scoping and a mandate-bearing brokerage architecture converted recognition into design (caps on turbine numbers, mapped exclusion zones, seasonal windows, and offset/monitoring obligations) such that disagreement migrated from identity claims (“what the forest is”) to negotiable questions of layout and implementation. In the grid expansion dispute, by contrast, an information-rich but authority-light set-up left participants unclear about which inputs could move which levers; without portable criteria for selective undergrounding, settlement-responsive buffers, or farm-continuity agreements, recognition remained rhetorical, distribution read as arbitrary, and coalitions hardened.¹⁴

These dynamics can be read against the typical actor constellation that recurs across cases (see Fig. 8). An incumbent coalition of project sponsors (developers/TSOs), regulatory and planning bodies, and aligned political actors confronts a challenger coalition composed of citizens' initiatives, conservation groups, farmers/landowners, and opposition local councillors. Between them sit brokers (mayors and municipal leaders, planning offices, dialogue platforms, ombuds) whose leverage depends on mandate and timing. Where brokerage is reduced to communication logistics, participation becomes “voice without leverage”; where brokers carry authority to shape the option set and inscribe outcomes in plan text, permits, and monitoring, participation functions as field reform rather than ritual.

The remaining five cases reprise these mechanisms in different guises and thereby corroborate the comparative claim (for concise outcomes and status updates for these satellite cases, see Appendix Table A5). Where participation opened late or remained non-committal (as in the *Odenwald* forest conflict or the Brandenburg third wind farm expansion) coalitions stabilized around saturation and heritage frames, and venue shifts to courts and media substituted for co-design. Where ministries or districts ultimately reversed siting designations in ecologically sensitive peatlands, recognition was vindicated at the decision's end point but had not been brokered into commonly owned rules on the way there, leaving

¹⁴ Case-specific outcomes and current statuses are summarized in Appendix A5; where cases remain in progress, the table reports the current status with time stamps.

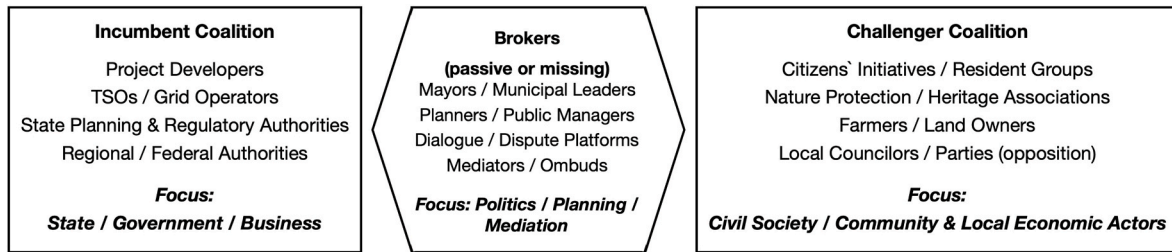


Fig. 8. Typical actor constellation in energy conflicts.

residual distrust and little portable guidance for adjacent sites. In the Bavarian grid segment distinct from the focus corridor, frequent roadshows could not compensate for the absence of published eligibility for undergrounding or settlement-sensitive routing; challengers expanded through inter-local alliances while incumbents retained late, legalistic control. Read cumulatively with the wind and grid focus cases, these satellites demonstrate that “participation without translation” consistently displaces rather than resolves contention.

Across these settings, three translation pathways separate bounded contention from persistent stalemate. First, recognition stabilizes only when materialized as design. Place meanings and ecological stakes require early inscription in plans: caps that bound cumulative change; cartographic exclusions around sensitive habitats, trails, and vistas; seasonal construction/operation windows aligned with species rhythms; and offset/monitoring regimes with public reporting. Specified before siting path dependence hardens, such devices reframe identity-protective resistance as conditional bargaining; specified late or not at all, recognition serves as coalition glue rather than a design driver.

Second, procedure operates as field reform rather than consultation. Consequential participation combines early gateways, joint fact-finding that generates credible options (e.g., SEA/MCDA; map-based layout testing), explicit feedback obligations stating in plain language what input can change which element by when, and an auditable “what-changed” ledger that travels from draft to permit and into monitoring. Brokerage is the hinge: facilitators must have authority to shape the option set and codify outcomes, not merely schedule meetings. Where

such mandate was present (as in the wind focus case) the path from input to plan was visible and legitimate even to many opponents; where it was absent (as in the grid focus case and several satellites) “voice without leverage” invited venue shopping and eroded trust. The repertoire of problem-solving approaches that operationalizes this shift (co-scoping, option generation and testing, eligibility criteria, feedback tracing, and co-governed monitoring) is summarized in Fig. 9.

Third, distribution is best handled as design and governance, not as ex-post compensation. Transparent, portable eligibility criteria for fairness-enhancing options (selective undergrounding near dense settlements or iconic vistas, settlement-responsive distance rules, biodiversity-sensitive routing, and farm-continuity compacts standardizing access, timing windows, and machinery clearance) redefine equity as a rule-guided design problem rather than a discretionary favor. Co-governed value flows then complement, not substitute for, design: inter-municipal revenue sharing and equity stakes where borders concentrate exposure; district funds with participatory budgeting linked to verified impacts; household-level instruments (bill credits, property-value safeguards) where burdens concentrate; and independent EMF/noise and biodiversity monitoring with adaptive triggers. In cases where such packages were specified early and tied to decision rights, adversarial coalitions lost traction; where rules were opaque or discretionary, financial offers were discounted as unrelated to the harms at stake.

Timing interacts with all three pathways. In the wind case, co-scoping and rule-making preceded the referendum, so the vote ratified a bounded option set that already encoded recognition and set

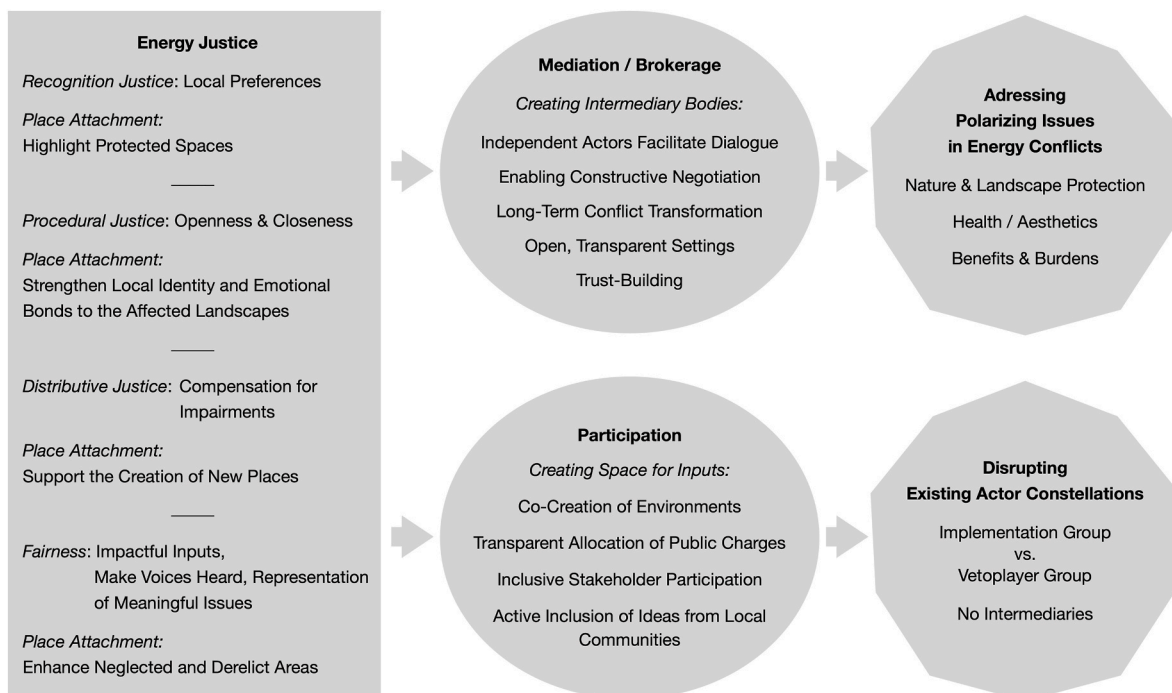


Fig. 9. Overview of problem-solving approaches in energy conflicts.

expectations about distribution and monitoring. In the grid case, corridor concretion preceded the articulation of criteria, making later “options” appear cosmetic; legislative openings for undergrounding performed as symbolic gestures because no empowered platform existed to co-screen alternatives and inscribe negotiated thresholds. Timing thus determines whether publics encounter choice among rules or rules after choices.

Finally, retaining all seven cases clarifies scope conditions for the focus-case lessons and locates them within a generalizable architecture of conflict emergence and management (see Fig. 10). Forest and peatland siting elevates recognition and biodiversity translation; inter-municipal wind siting foregrounds cross-border distributional compacts; high-voltage upgrades spotlight the need for segment-comparable criteria and farm-continuity agreements. Yet across these contexts the same levers (recognition-as-design, procedure-as-field reform, and distribution-in-design-and-governance) consistently organize trajectories. Read through the strategic action field architecture (see Fig. 10), escalation follows predictable pathways when venues open late, brokers gatekeep, and eligibility remains opaque; settlements become feasible when early, empowered brokerage translates justice claims into auditable design and governance commitments that persist across project phases.

5. Discussion

This discussion distills what the two focal cases (a forest-proximate wind siting episode and a grid-expansion corridor) reveal about how justice claims travel through implementation arenas and under which institutional conditions they stabilize rather than escalate. Throughout, place attachment is analytically folded into recognition justice: attachments become politically consequential when translated into siting and governance rules rather than treated as background attitudes or

messaging targets (Ryder and Devine-Wright, 2022).

Across both focal cases, the decisive difference is not between “supporters” and “opponents,” but between claims that are merely acknowledged and claims that are encoded as enforceable commitments. In the wind case, locally salient meanings of a protected forest (everyday leisure space, habitat, and symbolic landscape) were rendered actionable *ex ante* through a sequenced process that paired issue-mapping and option testing with a jurisdiction-wide authorization of a bounded, conditional package. Guardrails followed (caps on turbine numbers, mapped exclusion/avoidance zones, seasonal construction and operation windows keyed to breeding and bat activity, targeted offsets, and monitoring duties) creating an auditable “what-changed” trail from input to rule and stabilizing recognition as design rather than courtesy (Glaas et al., 2020; McLaren Loring, 2007; Schlenker and Bosch, 2025; Solman et al., 2023).

In the grid case, first, recognition claims condensed around settlement proximity and perceived EMF/health risks, symbolic valleys and forests, and farm-continuity constraints, yet venues remained information-led rather than co-design-led and no actor held a mandate to convert these meanings into segment-specific criteria for selective undergrounding, settlement-responsive distance rules, agricultural operating agreements, or co-governed compensation and monitoring, producing the familiar “voice without leverage” dynamic and rational venue shifting to legal and media arenas. The general mechanism is therefore clear: recognition stabilizes when encoded as design guidance with transparent triggers and audibility; when encoding is missing, identity-protective frames expand and harden as disputes move from design space into legitimacy contests (Lelieveldt and Schram, 2023).

Second, procedural architecture mediates this translation. In the wind case, high-stakes choice followed public articulation of constraints; legibility of influence was preserved via minutes, option maps, FAQs, and monitoring commitments; and brokerage spanned the full chain

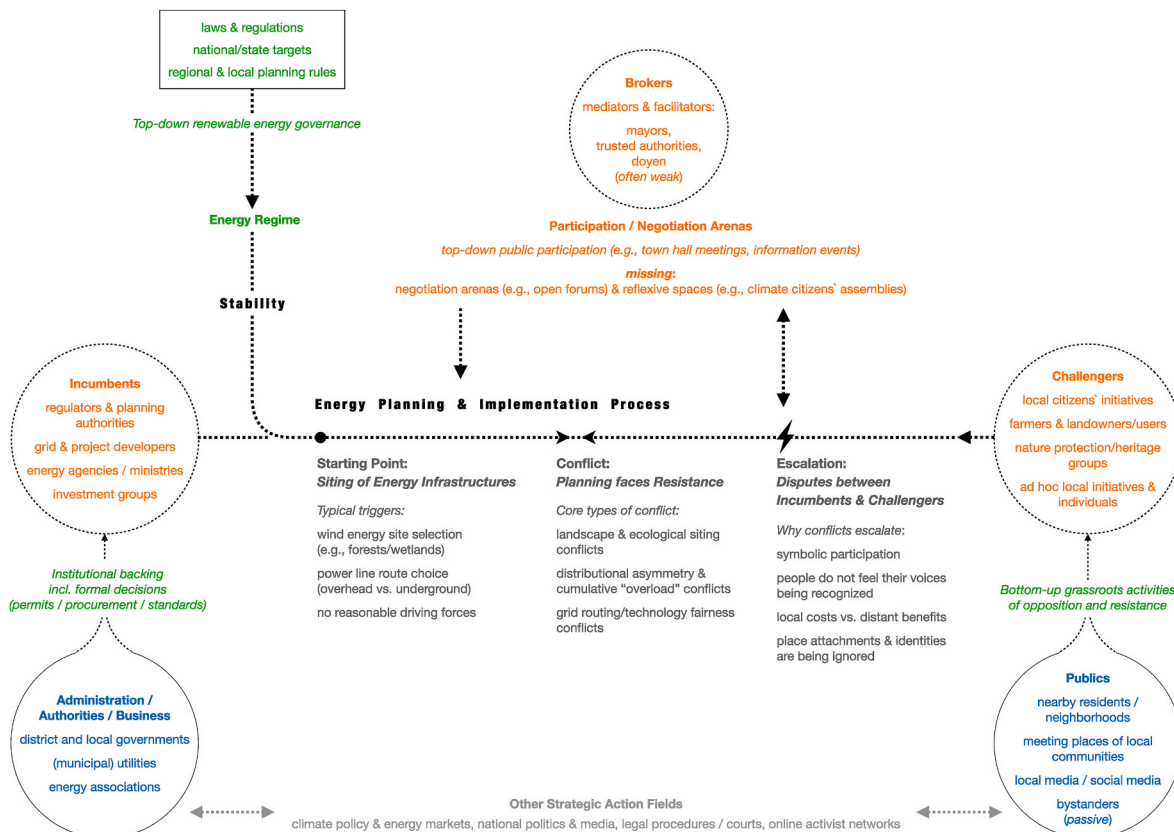


Fig. 10. Putting energy infrastructures into place: From stability to conflict. Strategic action field architecture of local energy infrastructure conflicts (adapted from Laamanen and Skålen, 2015).

(from convening and synthesizing jointly scrutinized evidence to inscribing guardrails in plan logic and communicating adjustments when exogenous shocks occurred) so participants could see which inputs moved which levers (Partidario and Sheate, 2013). In the grid case, numerous events did not specify “what input can change which element,” no arena held decision rights over route variants or published eligibility for undergrounding, and pandemic-era online formats reduced interactivity at crucial junctures, reproducing four failure modes that erode procedural legitimacy: timing failure, instrument failure, mandate failure, and feedback failure (Fink and Ruffing, 2020). The policy implication is straightforward: open consequential gateways early; publish feedback duties; empower brokers with remit over plan text, permits, and monitoring; and pair deliberation with tool-based option testing (SEA/MCDA) so publics can observe how inputs reshape alignments, buffers, routing, and mitigation bundles (Elmallah and Rand, 2022; Leibenath et al., 2016; Pfeiffer and Sonnberger, 2025).

Third, distributive justice gained credibility where it was addressed first as distribution-in-design and then as distribution-in-governance. In the wind case, visible rebalancing of exposure via caps, buffers, seasonal windows, and biodiversity-sensitive layouts preceded monetary instruments, preserving the local moral economy while enabling value capture through municipal equity or community funds as complements rather than substitutes (Bell et al., 2013; Frantál et al., 2018; Lehmann et al., 2023; Lindvall, 2023; O'Shaughnessy et al., 2023; Reitz et al., 2022; Tuler et al., 2014; Webler and Tuler, 2025; Windemer, 2023). In the grid case, grievances accumulated (overhead locally while undergrounding appeared elsewhere; proximity and perceived exposure; long-term constraints on farm logistics) without a segment-specific rulebook to allocate fairness-enhancing options predictably, so even sizable offers were discounted as discretionary or misaligned with the harms at stake (Bertsch et al., 2016; Flachsbarth et al., 2021; Mueller, 2017). Credible packages require published criteria for undergrounding based on settlement density, cumulative infrastructure load, and exposure; an empowered, neutral platform to compare variants and specify mitigation with adaptive triggers; and co-governed value flows linking benefits to verified local impacts (Kamlage et al., 2020; Komendantova and Battaglini, 2016; Mueller, 2020).

Embedding these focal insights within the wider set of episodes strengthens both diagnosis and prescription. In Brandenburg's planned “third-park” expansion, the field configuration (developer and regional planning bodies facing a local citizens' initiative tied into the cross-regional “Save Brandenburg” alliance) mirrored the grid case's information-heavy but mandate-light design. A failed referendum was not followed by a brokered arena capable of converting “saturation” and “over-burdening” frames into cumulative-impact caps or spacing rules; venue shifting to courts and media ensued, and oppositional cohesion increased under an identity-laden fairness narrative. In the *Odenwald* (Hesse) forest disputes, round tables and “information evenings” lacked jointly commissioned expertise and explicit feedback duties; neither biodiversity buffers nor cross-municipal benefit compacts matured, and escalation culminated in a district-level halt to further build-out - an outcome driven less by technology than by field design and broker mandate. In Mecklenburg-Western Pomerania's peatland, a ministry-led round table improved transparency but not leverage; recognition of avifaunal corridors and peatland restoration was ultimately vindicated by top-down removal of wind-suitability designation, but because translation occurred late and outside a co-owned platform, residual distrust persisted and portable guidance for adjacent sites remained thin. In the Bavarian grid segment distinct from the focal corridor, operators invested in roadshows and mobile offices, yet the absence of published, segment-specific triggers for selective undergrounding or settlement-sensitive routing replicated “voice without leverage,” encouraging inter-local alliance building and reputational contestation similar to the *Ultranet* dynamics. Finally, the inter-municipal wind dispute in Baden-Württemberg showed how asymmetric exposure across borders hardens into distributive grievance when brokerage lacks

authority to negotiate revenue-sharing, co-ownership for the non-host municipality, micro-siting/height variants, or groundwater safeguards; informational formats alone preserved inequity perceptions and culminated in developer withdrawal during the study period, halting the project in its investigated configuration, despite a community-oriented ownership model).

Seen together, these satellite constellations corroborate the same translation logic as the focal narratives. Where recognition was materialized early (as caps, mapped exclusions, seasonal windows, or biodiversity-sensitive layouts) identity-protective opposition receded into conditional bargaining; where participation opened late or remained non-committal, coalitions stabilized and escalated through venue shopping. Where distribution was framed as design and governance (via transparent eligibility for selective undergrounding, settlement-responsive buffers, farm-continuity agreements, and inter-municipal sharing rules) financial instruments gained credibility; where eligibility was opaque, compensation offers were discounted as discretionary. And where brokers possessed mandate and tools to shape the option set and inscribe outcomes in plan text, permits, and monitoring, participation functioned as field reform rather than ritual; where brokers gatekept or were under-mandated, informational abundance could not substitute for decision leverage.

Theoretically, the findings support a pragmatic nesting that keeps the conceptual footprint lean. Treating each controversy as a strategic action field explains why similar statutes travel unevenly: field configuration (incumbent-challenger balance, venue structure) and sequence (timing of gateways, option creation, feedback specificity) condition whether translation is possible (Fligstein, 2013; Fligstein and McAdam, 2011; Heiskanen et al., 2018; Mityushina and Hehenberger, 2026). Within those fields, advocacy coalitions carry belief systems and frames across venues (Jenkins-Smith et al., 2014; Kukkonen et al., 2017; Weible et al., 2025), while brokers perform the boundary work that either bridges camps and inscribes learning in rules or gatekeeps and entrenches incumbency depending on mandate and accountability (Crawford and Weible, 2024; Nam et al., 2022; Weible et al., 2023). Folding place attachment into recognition justice streamlines the account: attachments supply narrative resources and moral vocabularies that become thinkable options only when translated into tangible design moves such as setbacks, no-go areas, seasonal windows, or biodiversity-sensitive routing (Cundill et al., 2017; Hajto et al., 2017; Jayakody et al., 2024).

As guidance for practice, a compact, feasible playbook follows from the full portfolio. Move from consultation to early, co-designed scoping with map-based option testing; publish eligibility rules for fairness-enhancing variants (e.g., when selective undergrounding or landscape buffers apply) to pre-empt arbitrariness claims; mandate brokers to keep an auditable “what-changed” record and to carry negotiated changes into plan text, permit conditions, and monitoring; and pair design adjustments with co-governed value-sharing via municipal equity, inter-municipal revenue sharing, community funds, and household instruments where exposure concentrates. These steps will not eliminate conflict, but across the focal and satellite cases alike they reliably shift contention from identity space to design space and thereby increase the probability of timely, durable settlements under ambitious wind and grid build-out.

To anchor interpretation and future use, we close with two scope notes. The analysis concentrates depth on two contrastive cases so that the mechanism can be traced end-to-end; readers seeking procedural detail and additional case material will find it in the appendix. Because our evidence comes from escalated settings, the propositions should be treated as conditional and examined in lower-conflict contexts by pairing perception data with spatial and fiscal indicators of distribution and by comparing brokerage architectures across otherwise similar venues.

In sum, justice becomes institutional fact only when translated into rules, and translation depends on early gateways, broker authority, and eligibility transparency; the wind case shows the pathway is feasible

under strong attachments and tight timelines, the grid case shows what follows when it is not pursued, and the remaining episodes demonstrate that these mechanisms generalize across forests, peatlands, agrarian corridors, and inter-municipal borders.

6. Conclusion

Centering the analysis on two contrasting focal cases (a forest-proximate wind siting episode in Bavaria and a grid-expansion corridor in Rhineland-Palatinate, *Ultranet*) shows that contention in Germany's *Energiewende* turns less on generic opposition to renewables than on whether locally salient meanings are translated into enforceable design and governance rules through early, consequential venues led by credible brokers, rather than merely acknowledged in consultation records (Ruffing and Brendler, 2024; Schönauer and Glanz, 2023). The portability of “strong” participation instruments such as local votes is conditional on the location of the choice: where local authorities hold meaningful levers over land use and project design, such instruments can credibly legitimize contested strategies (Pfeiffer and Sonnberger, 2025). Where decisive choices are centralized, by contrast, the pay-off to participation resides in the quality of process, including eligibility transparency, reason-giving, and co-designed mitigation, rather than in local publics directly exercising siting authority (Verhoeven et al., 2022). In Bavaria, recognition of the forest as everyday leisure space and valued habitat was codified ex ante as siting caps, mapped exclusion and avoidance zones, seasonal windows, offset and monitoring duties, and a visible “what-changed” trail that connected inputs to rules; in the *Ultranet* segment, abundant information without decision rights left settlement proximity, symbolic landscapes, and farm-continuity concerns without segment-specific criteria such as selective-undergrounding triggers, settlement-responsive distance standards, or agricultural operating agreements, producing voice without leverage, venue switching, and persistent polarization.

Folding place attachment into recognition justice clarifies that attachments supply the moral vocabularies through which communities assess transformation, but they stabilize only when materialized as setbacks, buffers, seasonal windows, biodiversity-sensitive routing, and co-governed roles rather than remaining rhetorical in hearings or brochures (Devine-Wright and Peacock, 2024). Procedurally, gateways must open before path dependence; feedback duties must state what input moves which lever; and brokers must have authority to carry negotiated changes into plan text, permits, and monitoring - conditions under which meetings read as co-design rather than channeling. Distributively, credibility is highest when fairness is addressed first as distribution-in-design (route and micro-siting variants, selective undergrounding, noise/EMF mitigation, habitat offsets) and then as distribution-in-governance (co-ownership, municipal equity, inter-municipal revenue sharing, community funds, and household instruments where exposure concentrates), with transparent eligibility rules that pre-empt arbitrariness claims.

A field-analytic lens explains why identical statutes travel unevenly: outcomes hinge on field configuration (incumbent–challenger balance, venue structure) and sequence (opening decisive gateways before option closure, making feedback obligations explicit), not on immutable attitudes of place. Within these fields, advocacy coalitions carry frames across venues, and brokers determine whether translation occurs; mandates and accountability decide whether brokerage bridges camps and inscribes learning in rules or gatekeeps and entrenches incumbency, a distinction that proved consequential in both focal cases. Biodiversity-centered settings (forests, wetlands) further illustrate how recognition and environmental justice intersect, scaling local concerns into broader coalitions unless jointly commissioned evidence and empowered co-design platforms convert claims into siting and monitoring criteria that are legible and enforceable over time (Frantál et al., 2018).

Policy implications follow directly from the case study insights. Consequential participation entails opening co-scoping early, testing

options with map-based tools (SEA/MCDA), maintaining explicit feedback logs that specify what input moves which lever, and resourcing independent facilitation with a mandate to carry negotiated changes into plan text, permits, and monitoring. Eligibility transparency involves segment-specific criteria that trigger fairness-enhancing design (such as selective undergrounding near dense settlements or iconic landscapes, settlement-responsive distance standards, and safeguards for species and farming continuity) thereby reducing forum shopping and perceptions of arbitrariness. Co-governed value sharing is most credible when design concessions are coupled with municipal equity, inter-municipal revenue sharing, community funds, and household instruments in areas of concentrated exposure, with governance arrangements that ensure benefits track verified local impacts. In identity-sensitive landscapes, projects paired with everyday benefits and transparent performance dashboards are more likely to sustain reciprocity and stewardship (Bailey and Darkal, 2018; Leonhardt et al., 2022; van Wijk et al., 2021). These steps will not eliminate disagreement, but across focal and satellite cases alike they reliably shift contention from identity space to design space, raising the probability of timely, durable settlements under accelerated build-out and mirroring comparative evidence on acceptance dynamics across Europe and the United States (Hielscher et al., 2025; Hoicka et al., 2025; Hübner et al., 2023; Obuseh et al., 2025; Rand and Hoen, 2017; Ruddat, 2022). At the same time, purely financial participation without co-decision, high-quality but late consultation, or community tariffs disconnected from design change tend to be read as symbolic or buy-offs, especially in attachment-rich landscapes, and should be avoided as standalone fixes (Gotz, 2024; Johansen and Emborg, 2018; Knauf, 2022; Maitre, 2024; Mundaca et al., 2018; Ruffing and Brendler, 2024; Ryder et al., 2023b).

Finally, the political stakes are high: structurally weaker regions bearing visible burdens have seen rising support for transition-skeptical parties, signaling that recognition and distributional deficits are electorally consequential if left unaddressed (Greve et al., 2023). The practicable route to legitimacy runs through justice-attentive field design: open consequential venues early, mandate and resource brokers with authority to create and test options, maintain auditable “what-changed” records, and legitimize costlier but fairer design where it buys social stability. Done well, these measures transform recurrent stalemates into governable disputes, aligning system goals with regional well-being under the *Energiewende*'s ambitious rollout.

The findings of this study return us to Robert Putnam's original concern: democratic institutions become effective not simply when participation is formally available, but when they are embedded in forms of social capital that sustain cooperation, reciprocity, and collective agency. Rather than treating social capital as a unitary resource, the analyzed cases suggest that the distinction between bonding and bridging social capital is analytically consequential. Bonding social capital refers to the dense, trust-based ties through which local actors develop cohesion, mutual obligation, and the capacity to assume the risks and responsibilities of collective stewardship; bridging social capital, by contrast, consists of the more cross-cutting ties that connect communities to public authorities, experts, intermediary organizations, and other external actors, thereby widening informational horizons and enabling institutional translation across otherwise separate arenas. In this sense, energy democracy proved most workable where local conflict was not merely opened to participation, but mediated through institutional arrangements capable of combining both forms: bonding ties that underpinned local legitimacy and collective commitment, and bridging ties that connected place-based claims to credible procedures, auditable rules, and co-governed settlements. Conversely, where bonding remained inward-looking and bridging capacities were weak, participation was more likely to remain consultative rather than consequential, producing “voice without leverage” and reinforcing polarization. The broader implication is that *Making Energy Democracy Work* requires more than broadening access to participation; it requires institutional designs that cultivate the social infrastructures through which local

knowledge, distributive concerns, and claims for recognition can be translated into legitimate and durable forms of collective problem-solving in energy transitions of forward-thinking, modern democracies.

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Declaration of competing interest

The authors declare that they have no known competing financial

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Appendix

Table A1

Overview of interviewed persons in the case studies.

No.	Location	Type of Conflict	Thematic Focus/Societal Sector	Year
1	Bavaria (<i>Ebersberg</i>)	Wind Power	Politics and administration	2021
2	Bavaria (<i>Ebersberg</i>)	Wind Power	Opponents	2021
3	Bavaria (<i>Ebersberg</i>)	Wind Power	Opponents	2021
4	Bavaria (<i>Ebersberg</i>)	Wind Power	Nature and environmental protection	2021
5	Bavaria (<i>Ebersberg</i>)	Wind Power	Politics and administration	2021
6	<i>Juraleitung</i> (Bavaria)	Power Line	Opponents	2021
7	<i>Juraleitung</i> (Bavaria)	Power Line	Opponents	2021
8	<i>Juraleitung</i> (Bavaria)	Power Line	Nature and environmental protection	2022
9	<i>Juraleitung</i> (Bavaria)	Power Line	Opponents	2022
10	<i>Juraleitung</i> (Bavaria)	Power Line	Opponents	2022
11	<i>Juraleitung</i> (Bavaria)	Power Line	Opponents	2022
12	<i>Juraleitung</i> (Bavaria)	Power Line	Regional economy	2022
13	<i>Juraleitung</i> (Bavaria)	Power Line	Politics and administration	2022
14	<i>Juraleitung</i> (Bavaria)	Power Line	Mediation and project organisers	2022
15	<i>Juraleitung</i> (Bavaria)	Power Line	Mediation and project organisers	2022
16	<i>Ultranet</i> (Rhineland-Palatinate)	Power Line	Politics and administration	2021
17	<i>Ultranet</i> (Rhineland-Palatinate)	Power Line	Opponents	2021
18	<i>Ultranet</i> (Rhineland-Palatinate)	Power Line	Opponents	2021
19	<i>Ultranet</i> (Rhineland-Palatinate)	Power Line	Opponents	2021
20	<i>Ultranet</i> (Rhineland-Palatinate)	Power Line	Mediation and project organisers	2021
21	<i>Ultranet</i> (Rhineland-Palatinate)	Power Line	Opponents	2021
22	Baden-Wuerttemberg	Wind Power	Nature and environmental protection	2021
23	Baden-Wuerttemberg	Wind Power	Mediation and project organisers	2022
24	Brandenburg (<i>Crussow</i>)	Wind Power	Opponents	2021
25	Hesse (<i>Odenwald</i>)	Wind Power	Regional economy	2022
26	Hesse (<i>Odenwald</i>)	Wind Power	Opponents	2021
27	Hesse (<i>Odenwald</i>)	Wind Power	Nature and environmental protection	2021
28	Hesse (<i>Odenwald</i>)	Wind Power	Nature and environmental protection	2022
29	Hesse (<i>Odenwald</i>)	Wind Power	Opponents	2022
30	Hesse (<i>Odenwald</i>)	Wind Power	Politics and administration	2022
31	Hesse (<i>Odenwald</i>)	Wind Power	Politics and administration	2022
32	Mecklenburg-Western Pomerania (<i>Friedländer Wiese</i>)	Wind Power	Nature and environmental protection	2021
33	Mecklenburg-Western Pomerania (<i>Friedländer Wiese</i>)	Wind Power	Opponents	2021
34	Mecklenburg-Western Pomerania (<i>Friedländer Wiese</i>)	Wind Power	Opponents	2021
35	Mecklenburg-Western Pomerania (<i>Friedländer Wiese</i>)	Wind Power	Politics and administration	2021
36	Mecklenburg-Western Pomerania (<i>Friedländer Wiese</i>)	Wind Power	Opponents	2021
37	Mecklenburg-Western Pomerania (<i>Friedländer Wiese</i>)	Wind Power	Opponents	2021
38	Mecklenburg-Western Pomerania (<i>Friedländer Wiese</i>)	Wind Power	Politics and administration	2021
39	Mecklenburg-Western Pomerania (<i>Friedländer Wiese</i>)	Wind Power	Politics and administration	2021

Table A2

Overview of the research and coding categories of the qualitative data analysis. Total number of coded segments: 2000.

No.	Research Categories	Coding Categories	Coding Schemes
1	Biography, Life Situation and Attitude of the Interviewees	Personal Attachment to the Place of Residence	Deductive
		Work/Commitment	Deductive
		Life Course/Current Life Situation	Deductive
		Attitudes/Motivations	Deductive
		Relations/Networks	Deductive

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Table A2 (continued)

No.	Research Categories	Coding Categories	Coding Schemes
2	General Conditions in the Region	Historical Development	Deductive
		Ecological Conditions	Deductive
		Socio-economic Conditions	Deductive
		Demographic Development	Deductive
		Regional Development/Structural Change	Deductive
		Influential Actors in the Region	Deductive
		Co-Conflicts	Deductive
		Historical Development	Deductive
		Ecological Conditions	Deductive
		Socio-economic Conditions	Deductive
		Demographic Development	Deductive
		Regional Development/Structural Change	Deductive
		Influential Actors in the Region	Deductive
		Co-Conflicts	Deductive
3	Media	National Media	Deductive
		Local Media	Deductive
		Social Media	Deductive
4	Conflicts/Protests	Criticism of the Process	Deductive
		Subject of Conflict	Deductive
		Understanding of Conflict	Deductive
		Conflict Resolution Arenas/Modes	Deductive
		Conflict History/Key Events	Deductive
		Actors/Conflict Parties	Deductive
		Alliances/Networks	Deductive
		Generational Gaps and Identity Loss	Inductive
		Nature Conservation vs. Energy Transition	Inductive
		Citizen Participation and Voice	Inductive
5	Conflict Issues	Distrust in Top-down Governance Structures	Inductive
		Conflicts of Interest and Transparency	Inductive
		Technology Change and Infrastructure	Inductive
		Economic vs. Ecological Futures	Inductive
		Conflict Dynamics	Inductive
		Conflict Management Strategies	Inductive
		Influence of Actors	Inductive
		Framing of Conflicts	Inductive
		Framing through Personal Responsibility and Action	Inductive
		Conflict Avoidance through Constructive Engagement	Inductive
6	Conflict Management	Use of Public Platforms to Counter Criticism	Inductive
		"Doers vs. Complainers" Narrative	Inductive
		Influence of Informal Networks	Inductive
		Frustration with Procedural Rigidity	Inductive
		Desire for Flexible and Responsive Governance	Inductive
		Alternative Proposals for the <i>Energiewende</i>	Deductive
		Positive View	Deductive
		Negative View	Deductive
		Political governance	Deductive
		Implementation of the <i>Energiewende</i>	Deductive
7	<i>Energiewende</i>	Citizen Participation and Voice	Inductive
		Transparency and Information Flow	Inductive
		Interest Representation and Lobbying	Inductive
		Interest Representation and Citizens' Initiatives (Alternative Formulation)	Inductive
		Accountability and Responsibility	Inductive
		Local Agency and Self-determination	Inductive
		Distrust in Bureaucratic Systems	Inductive
		Civic Engagement as Democratic Practice	Inductive
		Democracy through Action, not Ideology	Inductive
		Conflict between Formal Authority and Lived Experience	Inductive
8	Conceptions of Democracy	Desire for Dialogue-based Governance	Inductive
		Regional Planning Association	Deductive
		Political Parties	Deductive
		Politics at Local/Regional Level	Deductive
		Politics at Federal Level	Deductive
		Politics at State Level	Deductive
		Coal Commission	Deductive
		EU Politics	Deductive
		Interest Representation and Advocacy Groups	Inductive
		Media and Public Discourse	Inductive
9	Perception of Politics	Authorities and Public Administration	Inductive
		Voluntary Associations as Community Connectors	Inductive
		Local Business Owners as Bridge-builders	Inductive
		Women as Local Leaders	Inductive
		NGOs and Civic Actors as Facilitators	Inductive
		Entrepreneurs as Social Innovators	Inductive
		Frustration with Political Gatekeepers	Inductive
		Citizen Participation and Voice	Inductive
		Information Flow and Transparency	Inductive
10	Intermediaries		
11	Participation		

(continued on next page)

Table A2 (continued)

No.	Research Categories	Coding Categories	Coding Schemes
12	Self-Perception	Civic Engagement and Grassroots Initiative	Inductive
		Initiative-driven Participation	Inductive
		Bottom-up Project Development	Inductive
		Co-creation through Workshops and Networks	Inductive
		Lack of Formal Participation Pathways	Inductive
		Political Fatigue vs. Practical Commitment	Inductive
		Community Organizing as Substitute for Public Support	Inductive
		Spatial Perception/Place Attachment	Deductive
		"Us" – Group Construction	Deductive
		Description of People in the Region	Deductive
		"Those at the Top" (elites)	Deductive
		"The Others"	Deductive
13	External Perception	Infrastructure and Public Services	Inductive
		Natural Environment and Environmental Protection	Inductive
		Structural Change and Outmigration	Inductive
		Pride in Local Identity and Belonging	Inductive
		Perceived Neglect by Central Institutions	Inductive
		Resistance to Urban-centric Decision-making	Inductive
		Rural Innovation and Resourcefulness	Inductive
		Challenges of Youth Retention	Inductive
		"Smartphone Culture" vs. "Hands-on Culture"	Inductive
14	Urban-Rural		

Table A3

Codebook excerpt (core families).

Label	Definition	Typical Indicators	Counter-Examples
Place Attachment (recreation/identity) <i>Coding categories: (12) spatial perception/place attachment; (14) pride in local identity and belonging</i>	Claims that attach meaning to a landscape or specific sites through everyday use, memory, or heritage	"What this place means"; "home/Heimat"; named routines (walks, views, trails); references to local landmarks and stories	Generic "nature is important" without a site tie; abstract biodiversity claims with no place referent
Procedural Justice (eligibility transparency) <i>Coding categories: (8) transparency and information flow; (11) information flow and transparency</i>	Requests or critiques concerning the clarity of rules that decide which options are in or out (e.g., criteria for undergrounding or buffers)	"Show me the rule"; "why here and not there"; citations of formal criteria or thresholds; questions about comparability across segments	Complaints about outcomes with no reference to rules; purely emotive objections that do not ask for criteria
Voice without Leverage <i>Coding categories: (11) lack of formal participation pathways; (6) frustration with procedural rigidity</i>	Assertions that participation exists but cannot affect core choices or timing	"We can speak but nothing changes"; "information only"; references to non-binding roadshows, hotlines, or Q&A without documented "what changed"	Evidence of binding co-scoping, option testing, or published change logs; meetings that lead to rule edits
Design Mitigation (spacing/layout) <i>Coding categories: (11) co-creation through workshops and networks; (6) conflict management strategies</i>	Concrete siting or layout proposals that translate concerns into spatial parameters	Numeric setbacks (e.g., 3H–4H); micro-routing or mast relocation; layout sketches or map annotations; seasonal windows tied to species	Vague calls for "better planning" with no spatial proposal; generic "move it somewhere else" without criteria
Distributional Fairness (spatial contribution) <i>Coding categories: (5) conflicts of interest and transparency; (8) accountability and responsibility</i>	Arguments about fair sharing of burdens and benefits across municipalities or corridor segments	"Everyone should contribute"; "not all on us"; proposals for inter-municipal revenue sharing or exposure-weighted benefits	Individual compensation demands unrelated to wider burden sharing; fairness claims with no spatial allocation logic

Table A4

Case vignettes with anonymized excerpts, code mappings, and source types.

Case	Anonymized excerpt (3–5 sentences with bracketed codes)	Codes (mapping)	Source types
Bavaria I (district of <i>Ebersberg</i> , wind energy siting in forest)	I walk the forest paths every weekend, and putting turbines there would change what this place means to many of us [1]. If the plan shows clear minimum distances and uses wind-favorable clearings, some of the impact might be acceptable [2]. It should also be fair across municipalities so that the contribution is shared rather than concentrated in one corner of the county [3]. I want to see exactly which sites are eligible and why they were chosen [4].	[1] place attachment (recreation/identity); [2] design mitigation (spacing/layout); [3] distributional fairness (spatial contribution); [4] procedural justice (eligibility transparency)	interviews (actors); documents (local press, council files, regional planning materials); web and social media of actors
Baden-Wuerttemberg (municipalities of <i>Bitz & Winterlingen</i> ; district of <i>Zollernalb</i> ; wind energy siting across municipal border)	Our town would host the turbines, while the neighbor sees them from nearly every street without sharing the returns [1]. We were	[1] distributional fairness (spatial contribution); [2] design mitigation (spacing/layout) + procedural justice	interviews (actors); documents (local press, council files,

(continued on next page)

Table A4 (continued)

Case	Anonymized excerpt (3–5 sentences with bracketed codes)	Codes (mapping)	Source types
	invited to meetings, but the agenda never allowed bargaining over revenue sharing or layout options that could rebalance exposure [2]. In the end, it felt like we could speak yet nothing would change [3].	(eligibility transparency); [3] voice without leverage	regional planning materials); web and social media of actors
Brandenburg (municipality of <i>Crussow</i> near <i>Angermünde</i> ; district of Uckermark; wind energy siting expansion)	People here say we already do our share and that adding more turbines would push the area beyond what feels reasonable [1]. Officials presented information sessions, but they did not publish criteria that explained why this site is in and others are out [2]. After that, many supported taking the matter to court because participation seemed to have no real effect [3].	[1] distributional fairness (spatial contribution) + place attachment (recreation/identity); [2] procedural justice (eligibility transparency); [3] voice without leverage	interviews (actors); documents (local press, council files, regional planning materials); web and social media of actors
Hesse (municipality of <i>Wald-Michelbach</i> ; district of Bergstraße; <i>Odenwald</i> region; wind energy siting in forest)	The forest is part of daily life here, from family walks to seasonal festivals, and that identity should matter in siting choices [1]. Round tables provided slides but no clear way to translate concerns into mapped exclusion zones or specific setbacks [2]. Without concrete spacing or routing proposals on the table, the discussion stalled [3].	[1] place attachment (recreation/identity); [2] voice without leverage; [3] design mitigation (spacing/layout)	interviews (actors); documents (local press, council files, regional planning materials); web and social media of actors
Mecklenburg-Western Pomerania (<i>Friedländer Große Wiese</i> (peatland); districts of Vorpommern-Greifswald and Mecklenburgische Seenplatte; wind energy siting in peatland)	Residents pointed to migratory bird corridors and peat conservation goals as reasons to avoid the fen landscape [1]. They asked for transparent thresholds that would show when routing is compatible and when it is not, but no shared rulebook was offered [2]. As a result, hearings felt informative rather than decisive [3].	[1] place attachment (recreation/identity); [2] procedural justice (eligibility transparency); [3] voice without leverage	interviews (actors); documents (local press, council files, regional planning materials); web and social media of actors
Bavaria II (<i>Juraleitung P53</i> (transmission corridor); regions of Franconia, Upper Bavaria/Upper Palatinate, and Lower Bavaria; grid expansion siting upgrade)	In dense settlements and iconic viewpoints, overhead lines are difficult to accept without clear triggers for undergrounding [1]. Farmers also need mast locations and access roads that respect turning radii and harvest windows, not just generic assurances [2]. Without these criteria, people see the burdens as arbitrarily placed along the corridor [3].	[1] procedural justice (eligibility transparency); [2] design mitigation (spacing/layout); [3] distributional fairness (spatial contribution)	interviews (actors); documents (local press, council files, regional planning materials); web and social media of actors
Rhineland-Palatinate (<i>Ultranet</i> segment (transmission corridor); district of <i>Ahrweiler</i> ; HVDC grid expansion siting)	We were given hotlines and roadshows, but none of that clarified when undergrounding is possible or how alternatives are screened [1]. The message was that the corridor is set and our input can tidy construction, not change core choices [2]. That is why neighbours across towns teamed up: we can speak, but nothing seems to move [3].	[1] procedural justice (eligibility transparency); [2] design mitigation (spacing/layout, second-order only); [3] voice without leverage	interviews (actors); documents (local press, council files, regional planning materials); web and social media of actors

Table A5

Comparative Case Matrix: Key Attributes, Participation, and Outcomes.

Case Study	Infrastructure & Project Type	Local Setting/ Siting Context	Project Stage (at time of study)	Primary Trigger(s) of Contestation	Dominant Justice Concerns	Main Actors (Incumbents/ Challengers)	Participation & Dialogue Formats	Collective Protest Action/Legal Steps	Status/ Outcome	Conflict Archetype
Bavaria I	Onshore wind - new siting (forest)	Forested area; valued 'untouched' landscape and nature protection context	Local referendum held in 2021; planning/ implementation decisions following	Landscape/ nature protection; forest siting; place attachment	Recognition Procedural	Incumbents: county/ municipal authorities, developer; Challengers: local citizens' initiative(s), residents	Information & participation campaigns; citizens' forum; local referendum	Public campaigns; referendum mobilization	Local referendum on 16 May 2021 narrowly authorized wind development in principle; subsequent planning and implementation steps continue. Opposition persists but within regular planning venues (as of 08 Jan 2026) ^a	Forest siting & landscape-protection opposition
Baden-Wuerttemberg	Onshore wind - new siting near two	Turbines sited between two	Contentious planning phase; negotiations	Perceived imbalance of costs/benefits	Distributive Procedural	Incumbents: municipal officials,	Limited/ contested local involvement;	Petitions, protests;	Developer withdrawal in Sept 2021 ended	Intermunicipal distributional asymmetry

(continued on next page)

Table A5 (continued)

Case Study	Infrastructure & Project Type	Local Setting/ Siting Context	Project Stage (at time of study)	Primary Trigger(s) of Contestation	Dominant Justice Concerns	Main Actors (Incumbents/ Challengers)	Participation & Dialogue Formats	Collective Protest Action/Legal Steps	Status/ Outcome	Conflict Archetype
	adjacent municipalities	villages; asymmetric exposure to impacts/ benefits	over local balance and compensation	between neighboring municipalities		project developer; Challengers: residents of the more affected community, citizens' initiatives	complaints over lack of voice and compensation	local council deliberations	the studied project without a permit. In 2023 the host municipality explored a new proponent under a separate process; the original project is closed (as of 08 Jan 2026)	
Brandenburg	Onshore wind - expansion (third park)	Rural area with existing wind parks; claims of regional 'overload'	Advanced planning; referendum held; litigation ongoing	Perceived saturation/ overload; cumulative impacts	Recognition Procedural	Incumbents: planning authorities, developer; Challengers: regional citizens' initiative ('Saving Brandenburg'), residents	Absence of structured participatory mechanisms reported	Failed anti-wind referendum; legal actions against wind farm	Local referendum to block expansion failed; contention migrated to courts. Permitting steps and ancillary works continued into 2024 (e.g., notices for works at a WKA site near Crussow). No final court ruling located (as of 08 Jan 2026)	Overload narrative in high-density wind regions
Hesse	Onshore wind - forest siting	Odenwald forest region; strong preservation concerns	Escalated contention over multiple siting efforts	Forest siting; nature/ landscape protection; health concerns	Recognition Procedural	Incumbents: municipal councils, developers; Challengers: multiple citizens' initiatives and regional networks	Communication attempts hampered by mutual intransigence; missed negotiation opportunities	Protests; organized regional opposition; local political motions	Mixed. Several proposals proceeded despite opposition; for example, the Administrative Court in Kassel dismissed a complaint against the Etzean wind farm in March 2024. Other proposals remain contested (as of 08 Jan 2026)	Forest siting & identity-based preservation conflict
Mecklenburg-Western Pomerania	Onshore wind - planning in ecologically sensitive peatland/ wetland area	Wetland region with high ecological value (breeding/ resting habitat)	Contentious planning; public campaigns by veto players; political ambivalence	Nature conservation; landscape impacts in protected/ ecologically sensitive area	Recognition Procedural	Incumbents: energy ministry, local authorities; Challengers: 'Freie Friedländer Wiese' (citizens' initiative) and allied citizens' initiatives; some local politicians critical	Several public information campaigns (by opponents); no formal participatory procedures by authorities reported	Weekly vigils; petitions; alliance building	Application for 12 turbines was rejected by the competent authority on 13 Jan 2023; the developer appealed and proceedings before the Higher Administrative Court (OVG Greifswald) are pending (as of 08 Jan 2026)	Ecologically sensitive area opposition
Bavaria II	Transmission grid - replacement/ upgrade (220 kV → 380 kV) along existing corridor	Line crosses peri-urban and rural zones; proximity to residential areas	Planning/ permitting for replacement construction	Health and environmental concerns; route proximity; undergrounding demands near settlements	Procedural Distributive	Incumbents: Federal Grid Agency, TSO/ operator; Challengers: local action groups, farmers, municipalities, local energy supplier	Official information campaigns (agency/ operator) and counter-campaigns (action groups)	Formation of multiple alliances of citizens' initiatives; organized opposition	In progress. Plan-approval (Planfeststellung) is underway across multiple subsections (A-Ost, A-West incl. A-Katzwang). Documents were publicly exhibited in Oct–Nov 2025; decisions pending (as of 08 Jan 2026)	Grid-upgrade fairness (overhead vs underground; proximity to residences)
Rhineland-Palatinate	Transmission grid - upgrade (HVDC) on	Rural/ agricultural districts intersected	Upgrade planning/ communication phase;	Health concerns; perceived unfairness where other sections	Distributive Procedural	Incumbents: federal/state authorities, TSOs;	Formal information efforts (agencies/state)	Public criticism by local politicians;	Fully permitted. The Federal Network Agency issued the final	Asymmetric undergrounding & burden-

(continued on next page)

Table A5 (continued)

Case Study	Infrastructure & Project Type	Local Setting/ Siting Context	Project Stage (at time of study)	Primary Trigger(s) of Contestation	Dominant Justice Concerns	Main Actors (Incumbents/ Challengers)	Participation & Dialogue Formats	Collective Protest Action/Legal Steps	Status/ Outcome	Conflict Archetype
	existing corridor	by high-voltage line	community opposition mobilized	are undergrounded; doubts about project necessity		Challengers: local action groups, municipal politicians	paralleled by opposition campaigns	organized action groups	plan-approval decision on 31 Oct 2025; construction is underway on several sections; commissioning targeted for 2026 (as of 08 Jan 2026)	sharing controversy

a The 2021 county-wide referendum bound county policy within its sphere of competence (authorising pursuit and co-design of the forest option) but did not replace statutory permitting under federal and state law.

Table A6

Case-level salience sheet (five code families by case). **Reading guide:** Cells show L, M, or H flags (low/medium/high salience) with one-line memos keyed to the case narratives.

Case \ Code family	Place attachment (recognition)	Procedural justice & participation design	Distributive fairness	Design mitigation & option testing	Brokerage & venue structure
Bavaria I – Ebersberg (wind)	H – identity and recreation frames dominate early; taper after 3D visualization.	H – early, rule-bearing venues specify what input moves which lever.	M – county-wide distribution principle reduces concentration concerns.	H – spacing, mapped exclusions, seasonal windows, offsets codified early.	H – mandate-bearing brokerage links input to plan text and monitoring.
Baden-Wuerttemberg – Bitz/Winterlingen (wind)	M – cross-border identity matters near settlement edges.	M – venues existed but lacked bargaining mandate and feedback tracing.	H – asymmetric exposure across municipal border fuels contention.	M – layout/height variants discussed but never codified.	M – dialogue platform present without authority to settle redistributive compacts.
Brandenburg – Crussow (wind expansion)	H – saturation and nature-tourism identity frame ‘already doing our share’.	L – information-heavy; criteria for eligibility not published.	M – outflow of value and concentration concerns present.	L – no SEA-style option testing after failed referendum.	L – no empowered broker; contention moved to courts and media.
Hesse – Odenwald (wind in forest)	H – forest as heritage and everyday space anchors resistance.	M – round tables perceived as scripted; feedback obligations unclear.	M – distribution debated but secondary to recognition.	L – mapped exclusions and spacing rules remained contested/unspecified.	M – supportive officials lacked mandate to inscribe negotiated rules.
Mecklenburg-Western Pomerania – Friedländer Große Wiese (wind in peatland)	H – migratory/breeding bird corridors and peat protection foregrounded.	M – ministry-led round table improved transparency without leverage.	M – fairness claims tied to ecological risk and landowner roles.	L – no agreed thresholds for routing; option testing absent.	M – reversal of designation came top-down, not brokered locally.
Bavaria II – Juraleitung P53 (grid upgrade)	M – iconic vistas and dense settlements raise sensitivity.	M – numerous roadshows without segment-specific eligibility rules.	H – perceived arbitrariness where undergrounding varies by segment.	M – farm logistics and undergrounding triggers lacked codified criteria.	M – incumbents controlled late legal venues; brokers episodic.
Rhineland-Palatinate – Ultrat segment (HVDC)	M – place arguments present but secondary to rule clarity.	H – ‘voice without leverage’ frames persist without eligibility transparency.	H – burden concentration across segments fuels inter-local alliances.	M – selective undergrounding only where federally eligible; second-order fixes salient.	M – facilitation active but authority-light; responsiveness on second-order design.

Data availability

The data that has been used is confidential.

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