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# Justice in energy transformations as a spatial phenomenon: A framework for analyzing multi-dimensional justice claims

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## ABSTRACT

Energy transformations not only evoke multi-dimensional claims for just distribution, recognition, and procedures, but also reveal how these claims depend on and shape the spatial context that they address. The aim of this contribution is to provide a framework that connects spatial and multi-dimensional aspects of justice in energy transition research. It builds on literature in the fields of just transition studies and energy justice. While the relevance of considering space and scale in socio-technical transitions is widely acknowledged, a conceptual framework can help to connect justice and spatiality in transitions and support scrutiny of their interconnections. The present work seeks to address this gap by incorporating contributions from the fields of political geography and political theory. Accordingly, it discusses central intersections in the moral-spatial tension field. Spatial justice claims are conceptualized as referring at the same time to moral (substance-related) and spatial dimensions of (in)justice and relating both to each other. The paper conceptualizes how justice claims refer to multiple scales, center-periphery relations, interterritorial and infrastructure-related concerns as well as to place-based attachments. It discusses the positioning of actors in this moral-spatial field as well as the reference to directional patterns of responsibility and effect. Attention to spatial justice claims further discloses processes of boundary construction, perpetuation, and contestation as well as the regional entrenchment of widely shared justice claims. Transformation-related political institutions and processes in affected regions reveal how various spatial justice claims are publicly related to each other.

## 1. Introduction

Effective climate change mitigation requires rapid low-carbon transformations. The effects of these transformations evolve in ways that are spatially highly heterogeneous. While a considerable acceleration of collective global efforts is needed for a climate-just world, the resulting regional transformation processes are challenging and can give rise to resistance and anxiety among affected communities. To prevent socio-environmental transformations from becoming deadlocked, their ambitious implementation depends on procedures and outputs that address multi-scalar concerns of justice, while persuasively involving those who will be affected.

Organizing just transition processes [1–4] serves as an abstract goal to which most parties can subscribe, yet in practical terms there is disagreement on what this involves and how it is best achieved [5]. Scratching the surface reveals diverse notions of justice, some of which

are contradictory or conflictive. Societal transformations are occasions to formulate and exchange such normative standpoints.

Disagreement exists regarding not only the subjects, objects, and principles of justice, but also about the spatial settings<sup>1</sup> in which injustices should be corrected. Global perspectives require an ambitious and climate-just decarbonization, taking historical debts and contemporary inequalities into account. At the national level, energy policy must ensure that the burdens and benefits of decarbonization are fairly distributed, including through reasonable energy pricing, providing transformation support, and managing landscape changes. Justice also plays a role at the regional level, where the relationships between different regions, between center and periphery, or between certain vulnerable groups or beneficiaries are negotiated. These examples illustrate the complexity of justice claims referring to different spatialities and scales [6]. This contribution aims to provide a framework for making sense of these multiple spatial considerations involved in claims

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<sup>1</sup> For a discussion of definitions of concepts such as spatiality, space, place, and scale, see [Section 3.2](#).

to justice.

The necessity for a framework to address spatial justice [7]<sup>2</sup> claims arises from several factors: First, the field of justice claims has become too complex to be easily grasped, and so requires analytical clarification. Second, this analytical clarification is a first step towards politically dealing with incompatible (and at times diametrically opposed) justice claims, for instance between different regions that profit or suffer from energy infrastructures, or between proponents of fast or slow energy transitions [8]. Perceptions of ongoing injustice already lead to numerous points of friction and deadlock, which can hinder or delay necessary steps to decarbonization and thus perpetuate human suffering and ecological decline [9]. Dealing with conflicts in a productive way requires a profound systematization of interacting justice concerns. Third, incomplete knowledge of justice concerns and inadequate resolutions to conflict involve the risk of overriding legitimate justice interests, which may perpetuate unfair treatment. Fourth, various spatial and scalar justice claims cannot be reconciled by individual actors at one level (such as national governments), since such actors may be incapable of overseeing all such claims, or else may lack the mandate, credibility, or means to respond to all of them. The suggested framework can help to identify which concerns should be taken up at which political levels of responsibility, and where cooperation across political levels is needed to jointly work on multi-faceted justice claims. Lastly, a framework for making sense of multifaceted claims to spatial justice is necessary as a precondition for designing adequate procedural responses. The questions that are raised in this contribution can help practitioners to identify which kinds of spatial justice concerns they have to take into account. Finding compromises or prioritizing between justice claims will be necessary, which in turn depends on fair and acceptable procedures. Adequate political responses are necessary to live up to citizens' expectations while at the same time contributing to addressing the great challenges of this time, including climate change.

Against this background, this contribution asks how spatial and moral dimensions of justice can be related to each other in energy transition settings. To make sense of the multitude of justice claims, it is paramount to get to the roots of these demands. In doing so, the approach of this contribution is to address two key considerations: 'what' is seemingly just or unjust [10–12], and 'where' justice should be ensured, i.e., which spatial setting for ensuring justice is accepted [7,13,14]. This contribution thus focuses on a moral dimension (what do claimants consider to be the substance of justice) and a spatial dimension (in which space or at which scale should it be ensured).<sup>3</sup> While different tenets of justice are widely debated in current academic debates, the spatiality of claims to justice requires further attention.

Regarding the concrete approach, the framework is developed through bringing different applied and theoretical literature contributions into exchange. Negotiating just transitions critically depends on energy justice [15], environmental justice [16], and climate justice [17] concerns, and therefore all these debates are taken into account. They are reviewed and examined for their moral and spatial references, drawing on systematizations from political theory. This serves as a basis for the development of an own scheme in which scalar and spatial justice

<sup>2</sup> The term "spatial justice" was most prominently conceptualized by Edward Soja in his book "Seeking Spatial Justice" [7] where he develops a theory of spatiality as an integrative and formative component of justice.

<sup>3</sup> The context within which just transformations are pursued is defined by both spatial and temporal considerations. Both scalar aspects are closely related. While the present contribution focuses on spatial–moral interactions, taking temporality into account would reveal additional patterns yet also add another layer of complexity. For the sake of clarity, this contribution is analytically restricted to spatial–moral interactions (while not neglecting the relevance of temporal considerations). Focusing on the spatial aspects of justice means taking a particular point of view without diminishing the importance of other forms of justice.

claims are related to each other, and subsequently discussed with regard to their political embedding.

In addition to the emerging debate on spatial justice in transitions [13,14], this contribution puts the political negotiation of spatial justice at the center of attention. Justice claims do not exist in a vacuum; they become politically influential under specific conditions and in specific constellations [3,18]. Which ideas concerning a just transition and its spatial scope become influential depends among other things on their formulation, the power dynamics and interests connected to them, the ways in which they are admitted or excluded from debate, and the situations and contexts in which they are raised. A public debate requires stakeholders and citizens to bring forward and justify their concerns. Therefore, this contribution suggests that transformation-related political arenas are particularly interesting starting points for making sense of complex justice discourses.

Understanding and responding to spatial justice concerns in transitional processes is increasingly a priority for politicians, academics, environmental activists, and trade unions. Decades of activism in fields such as environmental justice and grassroots labor activities for just transitions form the backdrop against which increasingly complex justice claims are emphasized. In recent years, debates about climate and energy justice have gained traction. This is reflected in increased academic interest in multi-dimensional questions of justice which has been depicted as "a 'justice turn' in political discourses on global environmental change and earth system transformation" [19]. In addition, recent policy proposals aim to support just transitions on the path towards climate neutrality – as exemplified by the European Union's Just Transition Mechanism [20] or several plurilateral Just Energy Transition Partnerships. This article thus contributes to a lively academic and societal debate. The goal is to enrich the discourse on just transitions by proposing a framework that systematically accounts for the spatial–moral complexity of justice issues in transitions.

The article begins by laying out a relational understanding of different moral dimensions of justice (Section 2). Subsequently, a brief review of spatiality in justice-related discourses is provided, followed by a discussion of different aspects of spatial (in)justices (Section 3). Section 4 lays out a framework for studying spatial and moral claims conjointly. Section 5 introduces aspects that shape how spatial justice claims interact in transformation-related processes and institutions. Section 6 presents a series of conclusions.

## 2. The substance of justice in transitions

Implementing energy transformations implies shifting from one energy system – a largely fossil fuel-based one involving multiple forms of injustice – towards a primarily renewable energy system that, while it abolishes old injustices, also bears the risk of bringing about new ones. Both the status quo and newly emerging situations involve complex justice claims. Some of these are clearly formulated, whereas others have justice concerns at their core even if the terminology sometimes differs. What shapes, drives, or hinders transformations are claims to justice which are collectively and spatially shaped. While it would be worthwhile to determine what justice implies from an impartial philosophical perspective, this contribution is driven by an empirical rather than a normative interest.

Justice has many facets, including regarding the substance of justice and the spatial contexts that are addressed in justice claims. This subsection aims to disentangle different aspects of the substance of justice, before spatial aspects and the interaction of both are addressed in the following sections. While it helps to analytically differentiate between different tenets of justice, these dimensions overlap in practice and are often causally linked.

This contribution departs from a critical perspective developed by scholars such as Nancy Fraser, who view distribution, recognition, and procedures as essential and interrelated types of justice. Fraser characterizes these dimensions as 'rival conceptions of the substance of justice'

[12]. These conceptions describe ‘what’ is required to be just. While many contributions in the field of energy-related justice debates (including on just transitions and energy justice) work with the three-tenet framework mentioned above (cf. [11,21]), the relationships between these dimensions need closer study.

## 2.1. Moral dimensions of justice

### 2.1.1. Distributive justice

Distributive justice refers to the fair allocation of outcomes. Liberal justice theories describe basic rights and liberties, opportunities, income, and wealth as so-called primary goods [22,23]. From a spatially sensitive perspective, one serious limitation is that these concepts mostly claim validity for a Westphalian system of national states [12]. In practice, claims for justice regularly transcend or ignore national borders, for instance in relation to global climate and energy justice (see also the debates on embodied energy injustice [24] as well as whole systems energy injustice [25] and how to account for it). Distributive justice is the dimension of justice that is most prominently addressed and most thoroughly studied. While there is a growing call to leave behind the “moral vacuum” [26] in which economic and engineering approaches sometimes view energy issues, the discussion of moral implications of distributive justice and the elaboration of ethical principles remains a research gap.

Discrepancies in attitudes to distributive justice are rooted in normative stances towards key questions such as the following [27,28]: What is it that is supposed to be distributed? According to which principles is it distributed [26]? And between what entities? The first question points us to multi-faceted costs and benefits at different spatial levels if we perceive of a climate-policy-driven energy transition as a sequenced process. It also refers to the distribution of burdens and benefits as a matter of environmental justice [29–31]. The second question relates to differing principles for distribution, which might be based on equality, equity [32] and need, merit, attribution, or rights. The acceptance of such principles can be rooted in different ideological stances. Thus, claimants may disagree not only about what is to be distributed, but also how this should happen. Thirdly, claimants may disagree about the entities between which a just distribution is supposed to occur. This may concern the question of spatial extent (explored below), but also the question of scope regarding groups or individuals, or aspects of intergenerational equity [33]. One could, furthermore, ask through what political or societal mechanisms a just distribution is to be achieved. This is linked to procedural questions. In general, just outcomes may depend on just procedures, which points to a close connection between both types of justice.

### 2.1.2. Recognition-based justice

Recognition-based justice addresses the question of whether all parts of society enjoy equal social status. Walker [31] relates recognition to being respected and societally valued, thus endorsing a relational perspective on justice. Fraser – who has explored this concept extensively, along with others [34–36] – suggests that “it is unjust that some individuals and groups are denied the status of full partners in social interaction simply as a consequence of institutionalized patterns of cultural value in whose construction they have not equally participated” (Fraser in [37]). Thus, a lack of recognition reveals patterns of cultural discrimination through social norms and practices. The goal of a “politics of recognition” would be a difference-friendly world, e.g., with regard to ethnic, gender, “racial” and sexual minorities. Fraser and Honneth [37] reject the economic view that recognition would simply be an aspect of distribution.

Epistemic injustice marks a specific form of recognition-based injustice. It may take the form of either testimonial injustice (prejudices against a speaker mean they are not considered credible) or hermeneutical injustice (a speaker lacks the concepts to make sense of his/her social experiences) [38]. In energy transitions, specific forms and

outputs of knowledge such as scientific studies are more likely to be given greater weight than other forms such as local knowledge.

Patterns of misrecognition have been studied in energy- and environment-related fields. Processes of disrespect, stigmatization, and othering [39] can be observed related to the existing (mostly fossil-based) energy system as well as to low-carbon transitions [40]. A lack of recognition of certain groups has a long legacy and interacts with unjust distribution – in particular racialized [41], class-based and gendered [42] patterns of constituting spaces deserve greater attention and active counterstrategies. As an example, coal sector transitions have strong gender-specific impacts with profound justice implications [43,44]. Gibson-Wood and Wakefield’s [45] study of white privilege and participation opportunities can serve as an example of how patterns of exclusion are based on misrecognition. Energy geographers have further demanded a critical reflection of the geographies of knowledge production which require a de-colonialization [46]. Lastly, it is relevant to distinguish between different groups seeking recognition, and to consider whether their demands are formulated from a privileged or marginalized position.

### 2.1.3. Procedural justice

Procedural justice considers “the ways in which decisions are made, who is involved and has influence” [31]. It includes issues such as meaningful involvement and access to decision-making processes, access to information, and access to the formal judicial system. Procedures of both fair representation and participation are considered. While Schlosberg [29] defines procedural justice as the “fair and equitable institutional processes of a state”, the proliferation of non-state governance and transboundary problems also necessitate evaluating the justness of procedures in configurations beyond the state.

According to critical justice approaches (cf. [12]), formal institutional mechanisms (representation) need to work hand in hand with deliberative civil society (participation). Relying solely on representation would restrict participation parity, while overemphasizing participation at the expense of neglecting representative processes entails the risk of populist capture. Organizing just procedures with the ambition of ensuring that “everyone who follows [a norm] must in principle have an effective voice in its consideration and be able to agree to it without coercion” [35] can in practice be complicated by potential trade-offs between the degree of participation and efficiency.

Ensuring procedural justice can take many forms, including through participation and forms of civil society activism. Participation is not restricted to formal possibilities of citizen participation and stakeholder involvement. Rather, multiple practices of participation relate to each other in “ecologies of participation” [47]. Participation is not only what happens at singular, discrete events, but rather can be described as an interacting system involving closed, invited, and claimed/created spaces of participation [48].

Central aspects of procedural injustice have been analyzed in energy justice literature, for instance regarding due process and free prior informed consent for the siting of energy projects [33], or the consultation of the “affected population” [49]. Research on specific phenomena such as fuel poverty demonstrates how a lack of participation opportunities, information, and access to the legal system interact with the other dimensions of justice [21].

## 2.2. A relational approach to multi-dimensional justice claims

The complexity of analyzing justice concerns in transformation settings results from, among other things, the fact that different dimensions are interrelated and thus difficult to separate [50]. Although empirical studies distinguish analytically between different dimensions of justice, this should not obscure the fact that, in reality, they interact with each other. Fraser [51] goes as far as to say that “virtually every struggle against injustice, when properly understood, implies demands for both redistribution and recognition” (and, one could add: fair procedures).

In the field of low-carbon transitions, there are numerous examples where different dimensions intermingle. When marginalized communities (including those that experience gender-based or racist discrimination) are disrespected, dominated, or go unrecognized in policy- and decision-making, the failure to listen to their voices results in them bearing a disproportionate share of environmental burdens. A community of coal workers can exemplify the beneficiaries of an unjust, fossil fuel-based energy system, but may subsequently experience social relegation, devaluation, and economic hardships due to a low-carbon transformation. A broad, inclusive participatory process can lead to fairer outcomes for everyone, yet raises the question of which stakeholders are meant by “everyone” – both in a vertical and horizontal dimension.

Thus, while distributional, recognition-based, and procedural justice may in principle stand alone, in practice they mostly overlap with one or both other dimensions. Consequently, I suggest conceiving of three intersecting circles, as shown in Fig. 1; Here, the overlapping areas are relatively large, symbolizing that multi-dimensional justice concerns are not exceptional, but rather common. To keep it universally applicable, the overlapping circles were drawn about the same size. In practice, the relevance of the respective justice dimensions may vary, depending on the context and the group under consideration (accordingly, the circles could have different sizes then).

Fraser and others argue that the three irreducible and incommensurable dimensions of justice causally interact.<sup>4</sup> Both severe economic inequality and severe status differences can impede participation parity [52]. Improving procedural justice can serve to achieve greater distributional justice and fair recognition for all. Thus, both upward spirals as well as vicious circles of (in-)justice are possible due to causal interactions [51]. Strategies that only focus on one aspect of justice often do not go to the root causes of it. Merely considering maldistribution, for instance, may obscure its rootedness in unjust institutions and processes, or patterns of misrecognition.

Acknowledging that different, interrelated dimensions of justice exist will not suffice to disentangle the complex claims formulated in conflictual settings such as in regional energy transformations. Another aspect of a relational view of justice – that making claims for justice means demanding something from another individual or group – is that

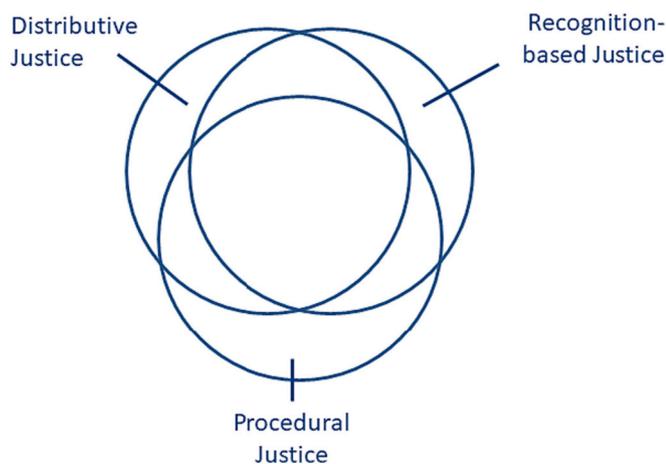


Fig. 1. Intersecting dimensions of the substance of justice. Source: Author.

<sup>4</sup> This structure can be extended to include other justice dimensions such as equal capabilities (based on the work of Amartya Sen and Martha Nussbaum) or restorative justice (repairing the harm that has been done to an individual, community, or to “nature”).

it has a spatial dimension. Depending on who is urged to ensure justice, and at what geographical or political scale, different spatial implications must be considered. This is conceptualized in the next section.

### 3. Justice as a spatial phenomenon

Perceptions of justice formulated in the face of transformation processes relate to various spatial aspects. Claimants implicitly or explicitly place their ideas of what is just in different spatial settings. They may refer to different scales involved in decision-making and decision-taking, to spatial dynamics and regional effects, or to place-based attachments. In the following, this framework will first be placed at the intersection of academic discourses that are organized around justice, transition, and spatiality. Second, helpful terms, particularly from the field of energy geography, will be introduced. Third, key questions for the study of spatial justice claims will be identified.

#### 3.1. Review: spatiality in the justice-related transition literature

Studying spatial justice claims in transitions taps into three academic discourses. These are: first, the study of justice claims; second, the study of socio-technical transitions (in this case, with a special interest in energy transitions); and third, the study of space and scale. All three are connected through differentiated boundary debates (as can be seen in Fig. 2). The phenomena this contribution seeks to explore are placed at the center of the field.

The literature on justice, transitions, and spatiality has seen the emergence of debates that target several of these terms jointly. In the literature on socio-technical transitions, an increased interest in issues of space and scale is evident in the last decade. This discussion is advanced, for instance, in transition literature applying the multi-level perspective [53–55] as well as in the field of energy geography and energy justice [6,56–58]. The term “spatial justice”, on the other hand, originates from the field of urban geography and links spatial and justice considerations [7]. It has a less pronounced focus on (energy) transitions. Political-theoretical contributions concerning the appropriate scales for achieving justice [12] also discuss the intersection of justice and spatiality or scale.

The present contribution seeks principally to extend the literature on just transitions. It reflects the aim of “promoting fairness and equity throughout the transition away from fossil fuels” [59] and thus focuses explicitly on those justice issues that emerge in and through sustainability transitions. Yet how does the academic debate on just transition approach spatiality? Reviewing the literature on just transitions reveals that spatiality is not an explicit conceptual focus of most contributions, although they often explore case studies that relate to specific regions. Most key contributions on just transitions do not address scalar aspects in detail either, although some case studies consider multi-scalar effects (see e.g., [60,61]). Conceptual contributions tend to implicitly strive for a just transition on the global scale, whereas case studies mostly have a national or regional focus [2,4]. Among the latter, most investigate cases in the United States and Europe and, to a lesser extent, Australia, China, and Japan [62]. There are less case studies on just transitions in the Global South, although research has increased in recent years.

Despite the limited focus on spatiality in just transition studies, the necessity to analyze justice claims from a multi-scalar, comprehensive perspective is increasingly acknowledged. Sovacool et al. [63] call for a “multi-scalar, spatial and cross-system focus” in the energy justice field that looks beyond the dichotomy of energy suppliers and consumers. Several contributions [3,24] point to the need to complement global approaches to decarbonization with intensified research on justice in energy transitions across entire energy lifecycles and scales. They suggest that policy instruments should reflect this multi-scale nature. A more pronounced consideration of space (and time) is also demanded by Heffron and McCauley [64], calling for a holistic approach that takes place-based concerns into account. Just transition scholars should

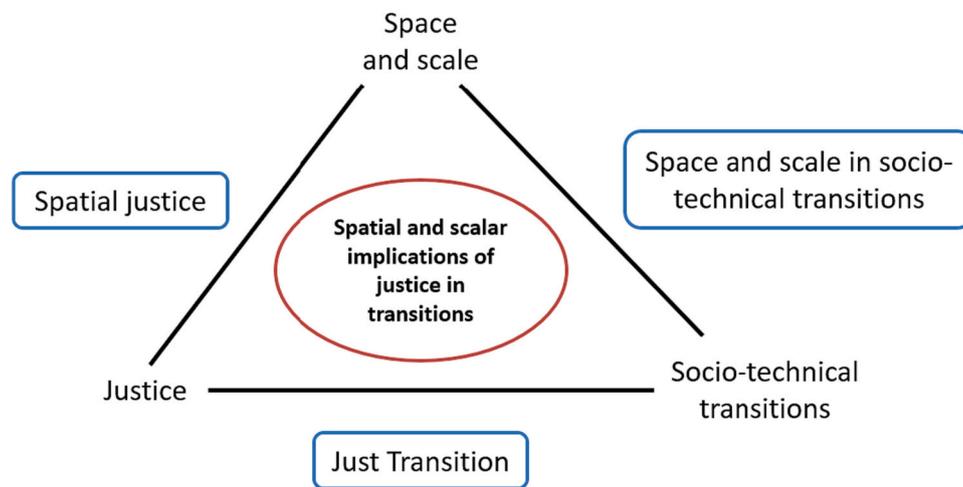


Fig. 2. The scalar implications of justice in transitions straddle three overlapping debates.  
Source: Author.

consider where events leading to inequality and injustice occur and to what locations these inequalities and injustices may reach. They further suggest that specific transition-related debates have a temporal and spatial profile: the events considered in energy justice debates tend to be more short-term and local, while events relevant for climate justice are instead long-term and international. What is compelling is the idea that problems and their policy solutions are consecutively linked (e.g., climate change triggers energy policies that require approaches to deal with transitions in strongly affected regions), and that the evolving justice issues have specific spatial and temporal effects. This links back to David Harvey's work on spatial (and temporal) fixes when powerful actors or states in the core of the global economy engage in strategies of geographical displacement to cope with crises [65] – a dynamic that is also prevalent in the context of energy transitions [66]. Overall, energy, environmental, or climate justice can each be spelled out at several spatial and temporal scales and in different spatial settings. For the sake of a comprehensive understanding of conflicts around energy transitions, different aspects around climate, energy, and environmental justice as well as just transition must be related to each other.

Stavis and Felli employ scale and scope to capture the breadth or inclusiveness of the concept of just transition [14]. Scale “refers to the spatial and temporal reach of a particular proposal or policy,” ranging “from local to planetary.” At the same time, they caution against determining “the spatial scale of a policy [...] according to some fixed version of jurisdictional boundaries” [14]. The scope of a policy or proposal describes its horizontal inclusivity, such as the groups of people on the same scale that are addressed by it. The attention to scope reminds us that processes occurring on the same scalar level – that put justice for certain groups of society (e.g., male industrial workers) center stage, but neglect it for others (e.g., other parts of the communities they live in) – are less inclusive. While it is analytically fruitful to acknowledge the contested and thus deeply political nature of spatiality, the question remains, of how we can analyze the spatial spread of justice concerns in a more concrete way by revealing specific spatial patterns.

The field of interest of this contribution is located centermost in the triangle depicting the three discourses mentioned above (see Fig. 2). While few contributions explore how spatiality is addressed in the just transition field, there are noteworthy exceptions, particularly in energy geography. Garvey et al. [13] investigate how spatiality is represented in the literature on low-carbon transitions, thereby echoing calls to scrutinize spatial disparities regarding issues of energy justice such as energy poverty [57]. They criticize the focus on national-scale assessments and suggest investigating the social construction of scale.

### 3.2. References to scale, space, and place in justice claims

The review above points to the necessity to scrutinize spatial references referred to in justice statements. Yet how do perceptions of (in) justice depend on and relate to different aspects of spatiality? In the following, spatial categories frequently raised in relation to justice statements on transitions will be introduced, building on geography, energy geography, and governance literature. Unraveling these spatial references provides the groundwork to discuss the interrelatedness between the substance of justice (Section 2) and spatial concerns in these claims.

In this contribution, space, place, and scale are conceptualized as follows without suggesting ontological generalizability. First, space is understood as being constructed through social relations and practices, while at the same time co-constituting those relationships and practices [57,67,68]. Conceiving space in such a way also reflects how demands for justice and the practices and struggles that emerge from them co-constitute space. Territoriality is understood as the exertion of political and social power over space [69]. Second, places are understood as specific sites and contexts in space that can be characterized by the ‘relational proximity’ of one place to another [6,68,70]. Rather than conceiving of places as absolute and fixed, such a relational understanding reflects the fact that the proximity of places depends among other things on the links between them, including on infrastructures such as electric power lines. Interpersonal, community and cultural relationships shape the attachment to place [71].

Third, scale is used to refer to the spatial dimensions for measuring and studying phenomena<sup>5</sup> [72], thereby often describing “the varying geographical reach of different political structures – such as local, regional and national” [6]. In many cases, the phenomena along a scale are thus nested within each other. Levels would then refer to areas along a scale [72]. The concept of scale matters as governance arrangements – and environmental and transition governance is no exception – are regularly criticized for not taking decisions at the appropriate spatial or political level [73]. Furthermore, making spatial inequalities and injustices visible depends critically on the analytical or political choice of scale – an injustice at one scale does not necessarily translate to an injustice at another one [74]. The use of ‘scaling’ as a verb, moreover, describes the constructedness of scales, which has been investigated in

<sup>5</sup> As pointed out in footnote 2, scales can refer to other dimensions besides spatial ones, such as temporal, quantitative, or analytical ones. This contribution restricts its perspective to spatial-moral interactions while not neglecting the relevance of other considerations [72].

the ‘politics of scale’ debate (see [75,76]). To give an example, studies in coal regions reveal how top-down scale-framing in the absence of broad societal acceptance can contribute to perceptions of deepening injustice [77], while a strategic bottom-up re-scaling can also connect local concerns with global challenges [78].

However, spatial disparities are not necessarily based on scalar divergencies. Also, other forms of spatial inequality can lead to perceptions of injustice – for instance, between competing regions, between center and periphery, or between areas that profit or suffer from a certain kind of energy infrastructure. Simcock for instance shows how stakeholders refer to the principle of “those affected” to assess and challenge the fairness of the spatial boundaries of who can participate in community wind energy siting projects [49]. The production of geographical differences can function top-down (exogenously), bottom-up (endogenously), or through interterritorial patterns at the same scale [7]. Inequalities and injustices may also emerge between regions in different parts of the world embedded in global energy value chains, or between territories within a supranational body such as the EU. Energy transformations are a game-changer for global dependencies, for instance when hard coal supply chains become less important while new hydrogen trade routes are established between different regions [79]. Energy networks thus strongly influence social and political life [80]. Energy transformations furthermore reveal passionate disputes about belonging – or not – to certain spatial territories, and thus about boundaries. This can, for instance, fuel debates about defining or constructing a region, based on strategic, functional, and cultural dimensions [81]. Natural conditions, infrastructures (both existing and under development through low-carbon transformations), innovativeness, the dependence on (often single branches of) industry, the distribution of monetary support across space – these are all factors for spatial inequality that are raised in justice claims.

The emergence or convergence of inequalities also relates to locations (places) and landscapes (including infrastructures) that may suffer from unjust spatial relations. Low-carbon transformations bring about changes in landscape, for instance through the dismantling of fossil fuels and the expansion of renewable energy technologies. Proximity to exploitable fossil fuels, for instance, becomes less of a competitive advantage, while decentralized renewable electricity generation benefits locations that have favorable conditions (often with broader spatial distribution than locations with fossil resources). The production and consumption of energy through established and new technologies as well as changing infrastructures, including for transmission, regularly become the basis of justice conflicts [82,83]. In some cases, previously fossil-dependent regions are desperate to remain ‘energy regions,’ while in other cases a sense of opposition towards changing infrastructures – understood as a deviation from “manufactured landscapes of fossil fuel capitalism [that] have become ‘normalised’ over time” [6] – prevails. Justice claims related to infrastructures may involve perceptions of entitlement to funding, substitute jobs, and economic activities as compensation for previous contributions (e.g., economic and energy security) and current disadvantages (resulting from the transition to renewables). Further infrastructure-related justice claims may be based on the idea of creating equal living conditions. Changing economic patterns and landscapes also shift the modes of recognition and valuation, which can be perceived as unjust. The appreciation or depreciation of landscapes – including energy landscapes – involves “interconnected social, material and cultural elements nested in notions of place, community and identity” [84]. Emotional attachments to landscapes and places can be both positive and negative, and encompass not only areas of natural beauty but also landscapes seriously impacted by human interference such as mining, as well as to material infrastructures [85].

Overall, this section has discussed scalar and spatial considerations raised in justice claims. These are mostly relational: injustices are, for instance, perceived as emerging between different regions or areas, or between different political levels. Fig. 3 exemplifies selected references to scale and space.

#### 4. Towards a framework for analyzing spatial justice claims

The previous sections argued that justice claims can be analyzed according to their moral (substantial) dimensions of justice as well as the spatial, scalar, or place-based settings they emphasize. Implicitly or explicitly, every justice claim relates to both these aspects.

When claimants refer to spatial justice, they combine spatial and moral concerns in manifold ways. But their viewpoints also reflect specific ideas about the relationships between justice and spatiality. This can cut both ways: claimants emphasize specific moral aspects based on space and spatial boundaries, or they refer to spatialities based on moral reasoning about the substance of justice. Looking at how moral reasoning influences invoked spatialities, we see that distributive, recognition-based, and procedural justice plays out at different scales, in different spaces and places, and shapes both spatial and scalar settings. Departing from a spatial perspective, the emphasis of different moral dimensions reveals normative standpoints concerning the scale at which justice should be ensured and about the spaces in which groups and actors are either affected by or responsible for transitions. Therefore, this contribution suggests defining spatial justice claims as statements about (perceived) injustices that refer at the same time to moral (substance-related) and spatial dimensions and relate both to each other.

Example cases can illustrate what the analytical perspective of approaching justice claims as spatial phenomena reveals about the convergence of spatial and moral arguments. Emphasizing a global perspective can lead to the acceptance of far-reaching justice obligations, for example to vulnerable groups and nations in the Majority World. Applying a national frame foregrounds the shaping power of national states, such as energy price stability, tax spending and distribution across regions, or the safeguarding of equal rights and living conditions across diverse communities. Emphasizing regional concerns prioritizes yet other demands, such as the recognition of region-specific lifestyles related to local culture or work patterns, or ensuring a fair perspective for affected communities and workers.

The different moral dimensions of justice, in turn, reveal spatial effects, as the following examples demonstrate. If the task concerns distributing energy transformation funds, those in charge will turn to the respective administrative levels: the EU to its member states (e.g., for the Just Transition Mechanism), or national states to subnational units such as regional or provincial administrations. If, however, the focus is on recognition or participation, it is more common to target regional communities or specific parts of them, such as workers or marginalized groups. At the same time, calling for greater participation has spatially uneven effects, since democratic culture and capacities are less developed in some regions than in others [13]. Defending the opinion that no one should be disadvantaged by their unchosen place of birth suggests a more cosmopolitan perspective averse to the current importance placed on national borders. In general, the different emphases expressed in spatial justice claims can be either complementary or conflicting.

Together, the moral substance of justice—and the spaces and scales at which to seek it—span a moral-spatial field that reveals the deeply political nature of transformations. Fig. 4 combines concepts on the ‘substance’ of justice and its spatial implications.

What are the consequences of conceptualizing spatial justice in such a way? First, actors who speak publicly about transformation processes and discuss emerging justice questions position themselves in the spatial-moral field introduced above. The framework supports a structured analysis of the patterns of argumentation these actors apply. They can emphasize specific spatial and moral aspects that they consider most important while neglecting others. Their reasoning does not have to be coherent, as they may take different standpoints in different settings, depending on moment, place, and audience. This may involve communicatively testing and adjusting their own moral reasoning in iterative ways.

It is particularly revealing to study how intermediary actors between different scales and spaces navigate partially contradictory justice

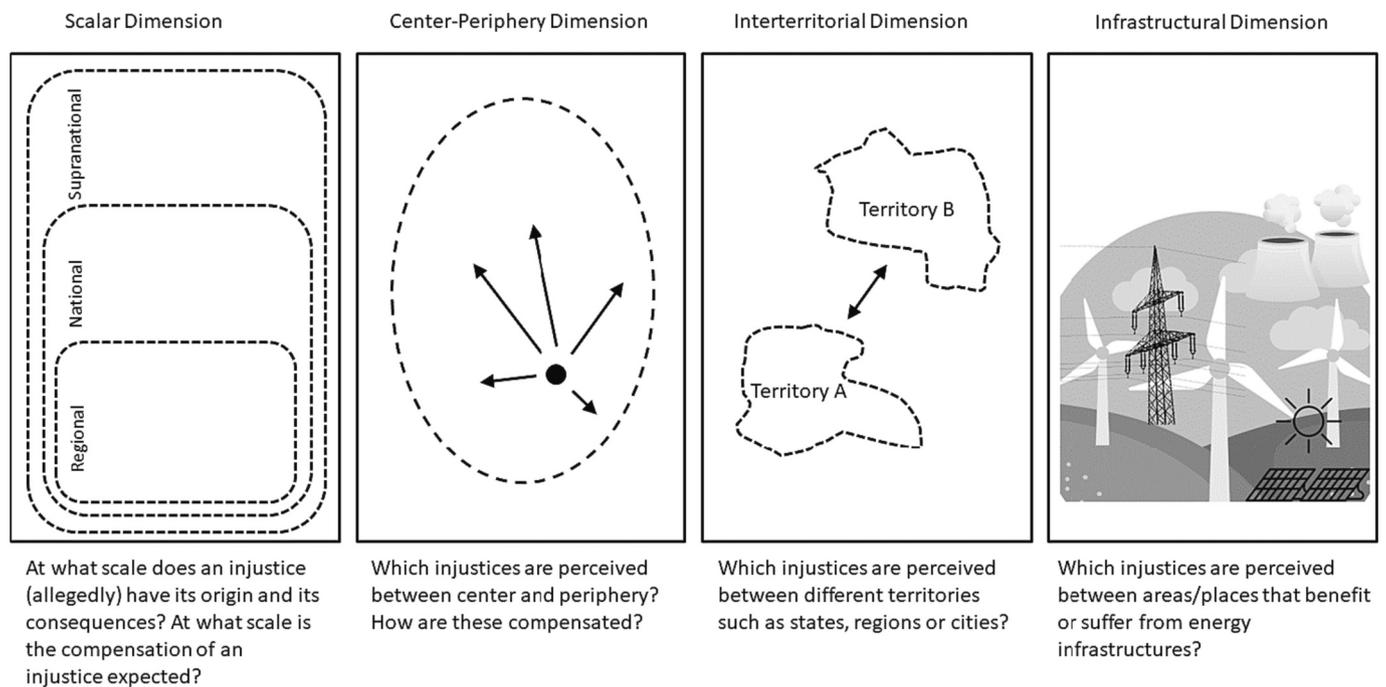


Fig. 3. Scalar and spatial aspects raised in justice claims.  
Source: Author.

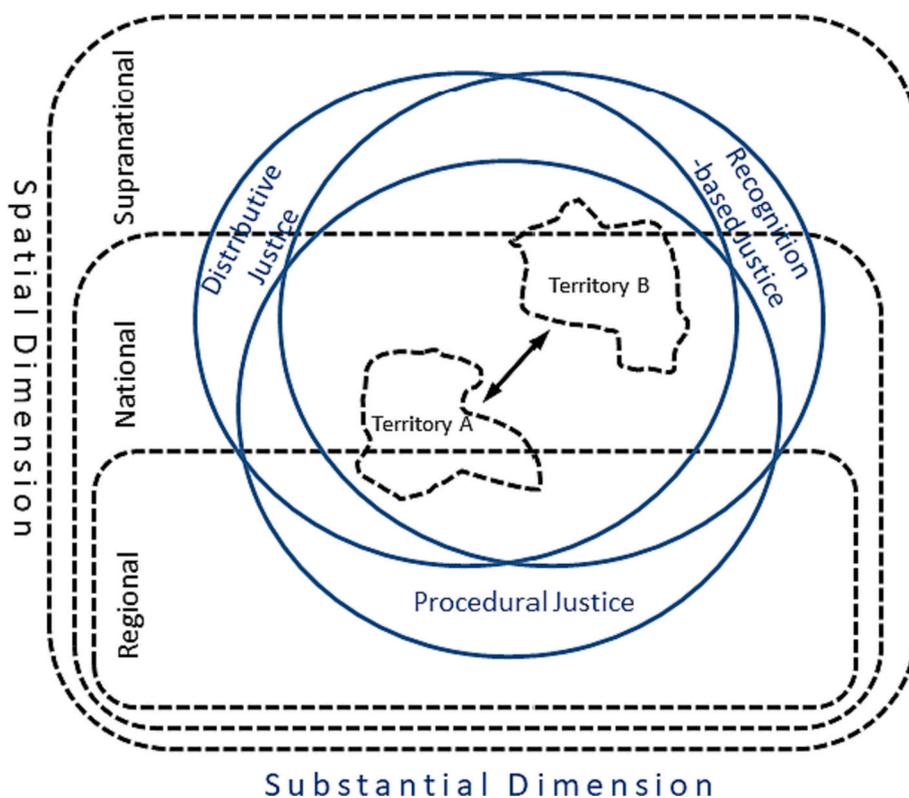


Fig. 4. Spatial and moral aspects of justice interrelate. The symbolized inter-territorial and scalar relations are representative of other spatial references such as justice claims referring to center-periphery and infrastructure-related dynamics.  
Source: Author.

claims at the margins between different spatial justice perceptions [86]. By responding to various justice claims, intermediary actors engage with attempts of constructing and deconstructing boundaries, but they may also become part of these attempts themselves. Intermediary actors who

take on public roles – such as certain politicians, community, or stakeholder representatives – further apply pragmatic practices of moral coordination. These are complex, fragile, not always coherent, and may reflect “habits without reflection” [87]. They thereby enhance or

devalue certain moral and spatial justice claims while blending them with their own normative standpoints. When actors are required to assuage critical tensions invoked by contradictory justice claims, they may turn to strategies such as compromising, relativizing, risking the escalation of conflicts [88], or allowing productive dissonance [89].

Second, spatial justice claims can reveal patterns of cause and effect by formulating assumptions about who is responsible for and who is affected by injustices.<sup>6</sup> By positioning themselves in spatial-moral fields, claimants engage in developing and responding to stories about the relationships between causes and effects, between responsibility and vulnerability. These can have a spatial profile in the sense that they straddle several scales, spaces, or places: an injustice can be mourned that has its roots in one level or geographic area, but which imposes effects on people at a different level or geographic area. Issues of justice thus involve directionality, with both the responsibility for an injustice and its envisioned redress following the same direction. If, for example, an injustice is perceived as having its roots in decisions by a national government, then it can be expected that those who took the decision must either reverse it or engage in strategies to compensate affected spaces. On the other hand, the engagement of actors in certain places or regions in polluting activities and environmental degradation can be identified as a form of injustice that particularly affects vulnerable groups in other areas. Consequently, the expectation is that the polluting regions must make additional effort to transition to low-carbon activities.

Third, statements about spatial justice not only reveal directional patterns but may also disclose processes of boundary construction, perpetuation, and contestation between geographical areas and related political levels. At the margins between regional, national, and supra-national levels, efforts to distinguish between inside and outside reveal the social constructedness of space while also dealing with material limitations. The “spatial grammar” of society, as Clive Barnett [90] calls it, can be preserved or challenged in the sense that conventions and practices of using, controlling, and experiencing space are accepted or called into question. In the context of energy transitions, justice claimants may, for instance, hold different ideas on why and where the transition should occur, and thus who should be included or excluded from resulting response measures. Based on such assumptions, regional identities are invoked, maps are drawn, and symbols are constructed. Soja describes an external-political drawing of boundaries as ‘gerrymandering,’ which may result in unfair political organization of space [7]. However, this can occur not only through the exogenous organization of space resulting from hierarchical power, but also through endogenous efforts [7].

A particular form of spatial injustice emerges when the division of political space results in affected individuals or communities being excluded from measures to ensure justice. Fraser warns that “meta-political injustices” arise when questions of distribution, recognition, and representation are misframed, for instance through “casting what are actually transnational injustices as national matters” [12]. The monopolization of the process of frame-setting through powerful actors, and with it the restriction of access to democratic arenas, can lead to meta-political misrepresentation [12]. In particular, groups that are most vulnerable to climate change, including communities in the Majority World as well as young and future generations, are regularly sidelined in procedural and other justice concerns. Compared with the prevailing Westphalian frame which takes the autonomy of the nation state for granted, attempts to apply the ‘all-affected principle’ are complicated by a lack of transnational publics and by strong power asymmetries [91].

Fourth, dynamics can emerge that lead to widely shared spatial

justice claims in particular places or regions. These may build on repertoires of virulent justice concerns related to regional circumstances. If such shared notions of spatial injustice differ strongly from those in other places, then conflicts may arise. Thus, stories about justice or injustice become spatially embedded and can reveal patterns of difference between regions or political levels. In that case, we can speak of ‘moral rifts’ between them [86]. These rifts or fractions can emerge, for instance, along the above-mentioned differences between center and periphery, between different regions within a country, or globally. Certainly, these shared perceptions of spatial justice will not be homogeneous throughout an entire region, but they can become so dominant that interspatial differences are thereby deepened. The opposite is also possible, namely that differing perspectives on justice lead to divisions within regions rather than between them.

## 5. Spatial justice discourses around transformation-related political arenas

While it is possible to trace spatial justice claims at many different occasions, I suggest paying particular attention to newly emerging transformation-related institutions and processes.<sup>7</sup> These political arenas such as climate and energy stakeholder commissions, bottom-up networks, plurilateral energy partnerships, or citizen participation schemes offer an excellent opportunity to observe how spatial justice is publicly negotiated. A considerable number of countries for instance has convened stakeholder commissions to deal with the various claims raised in national and regional coal exit processes, among them Canada, Germany, Chile, or the Czech Republic [92,93]. Deliberative processes such as citizen councils are more and more used to debate multidimensional climate and energy policy concerns. This section presents a directory of aspects that require particular attention when analyzing the justice debates in and around these transformation-related institutions and processes.

Spatial justice claims become politically influential in particular conditions and constellations. Thus, the political negotiation of spatial justice claims reveals the extent to which collective perceptions of justice are capable of shaping transformations. The previous sections have conceptualized spatial justice claims as statements referring to moral and spatial dimensions of (in)justice in a relational way. This section now considers the *political* processes through which spatial justice claims enter into interaction.

The following reasons make it particularly promising to focus on newly emerging transformation-related institutions and processes. First, socio-technical transformations involve deviating from established ways of doing things, and therefore the emerging political response measures reveal and stir up the established understandings of justice. Second, the public or semi-public character of these temporary arenas pressurizes negotiating partners to visibly take a stand and defend normative positions. Those involved in such arenas address specific spatial and societal audiences and attempt to achieve legitimate outputs corresponding to what they and their audiences consider as just. Third, the issues that are discussed in these arenas are mostly transformation-specific, while the pressure to fundamentally transform regional economic and societal models requires arrangements that incorporate new interactional approaches and unconventional actor constellations.

What we can observe in regional transformations is that new kinds of stakeholder commissions [92], bottom-up networks [86], energy partnerships, or citizen participation schemes emerge, triggered by the need to change and adapt. Applying a spatial perspective to analyzing transformation-related institutions and processes raises questions about

<sup>6</sup> The assignment of responsibility can also happen in a rather diffuse way, or certain spatial and scalar dimensions may deliberately or unconsciously not be addressed. Identifying the blind spots of a spatial/scalar attribution of responsibility can enrich respective analyses.

<sup>7</sup> Transformations are understood here as fundamental and intentional changes in complex systems, often promoted or initiated by influential actors. Transformation-related institutions and processes therefore are those that are set up to shape these transformations.

their nature, the actors involved, the internal dynamics, and the conditions under which they operate. In the following, several of these aspects are discussed.

Taking an actor-centric perspective, the question arises of who – and at which political scale – exerts control through initiating the debate, selecting and excluding participants, shaping the agenda, and designing the process. Next to the initiator, it is key to understand which actors – representing which spatial justice claims – are part of the process. The actor constellation and balance will co-determine the power relations within the resulting processes. Depending on the approach adopted, actors may be selected, they may apply, or else may claim their involvement.

Establishing transformation-related public arenas predetermines which spatial justice claims are prioritized over others. A key consideration is at which scalar level or intersection the respective institutions are located, and which issues are therefore included or brushed aside. A bottom-up regional network, for instance, engages with different spatial justice concerns than would a commission of national-level stakeholders. The bypassing of certain spatial levels is equally possible, for instance when supranational actors such as the EU Commission engage directly with regions affected by energy transformations. A spatially sensitive analysis of just transition processes and institutions should not only pay attention to those spatial concerns that are debated within these processes, but also to those that are absent or excluded.

Transformation-related institutions and processes go through various phases, from initiation through the working period to their conclusion and then the political implementation of the agreed measures. During the working phase, spatial concerns become grounded through the selection of meeting venues or potential site visits to affected areas. In some cases, representatives of political institutions at other levels, or from other transformation regions may be invited. In addition, the physical set-up of the interaction process in which justice claims can be brought forward also matters.

In addition to the different phases, studying discourses in public arenas requires attention to the modes through which interactions take place between various justice concerns. When differing views are brought into interaction, these modes form a spectrum from synergetic or consensual, via negotiating, to conflictual modes of interaction. Negotiations may take distributive or integrative forms, but also involve a variety of strategies employed by individuals in response to specific circumstances and contexts [94,95]. Groups or individuals involved in negotiations often share a common history, while also caring about the legacies they leave behind.

Power dynamics within transformation-related institutions and processes strongly influence which spatial justice claims are taken up and which not [90]. Political institutions and processes often favor incumbent actors, since “groups with the most power are also those that have gained [...] the most from existing ways of doing things” ([96]; see also [34]). While the language of justice has entered mainstream policy discourses, the willingness to address power and privilege – often highly concentrated in spatial terms – remains limited. This, however, would be needed for transformative approaches that tackle the root causes of multi-layered injustices [97]. Close attention must therefore be paid to whether novel transformation-related bodies simply follow established pathways and involve the same actor constellations, or whether they break new ground. Depending on power dynamics, legitimate spatial justice claims can either be excluded from transformation-related political arenas, for example through strategic scale framing [77], or previously marginalized spatial justice concerns can be incorporated if those who raise them successfully demand their consideration. Despite calls to address the “key political economy questions of ‘who wins, who loses, how and why’” in a global political economy characterized by “uneven power relations, conflict and often violence” [18], the specifics of power dynamics and their spatial effects tend to remain under-conceptualized within large parts of the literature on just transitions.

Finally, power is intrinsically linked with knowledge, thereby again

providing the foundation for processes of exclusion and inclusion. In a Foucauldian perspective, “power and knowledge directly imply one another” [98], as power involves the ability to police the boundaries around the categories that knowledge defines [99]. Therefore, power not only means power over others, power to exclude actors or issues from the debate, or power to prevent conflicts from arising. Rather, it also means that even those that are in a seemingly less powerful position – for instance, because they are not invited to participate in a public arena for justice renegotiation – can challenge the boundaries that define the field of debate. Protests or other attempts to influence the public opinion form part of the strategies deployed. In the context of climate-policy-driven regional energy transformations, the use of power outside formal institutions can range from radical climate activism or environmental justice action, all the way to populist resentment towards environmental transformations. In the case of knowledge production, some kinds of knowledge (e.g., expert knowledge) may be considered more valid than other kinds (e.g., local lay knowledge), thus leading to epistemic injustice [38]. In climate commissions or in advisory boards for energy partnerships, the process of selecting experts, and the kinds of studies and reports that are commissioned, are also subject to unequal power relations. Overall, paying attention to the issues raised in this section will help uncover the political dynamics of struggles over spatial justice, which has both analytical and transformative potential.

## 6. Discussion and conclusion

This paper proposes a framework for studying integrated spatial–moral justice claims and their political effects in regional transformation processes. After introducing distributive, recognition-based, and procedural aspects of justice as interacting concerns, different spatial references in justice claims have been conceptualized. Working towards an integrative framework, it has been demonstrated how perceptions of justice can be based on ideas about space and spatial boundaries, while spatiality can be understood, shaped, and challenged based on moral reasoning about the substance of justice. Various moral–spatial dynamics emerge from such a conceptualization, among them cause-and-effect patterns of spatial injustice, the construction and contestation of boundaries, the emergence of moral rifts, and the pressure for actors to position themselves publicly in the evolving moral–spatial field. Focusing on transformation-related public arenas of spatial justice negotiations, the previous section has identified several aspects that are crucial to understanding the political processing of spatial justice claims.

This contribution is situated in just transition and energy justice debates while highlighting the political negotiation of spatial justice claims. Several contributions have previously examined the spatial aspects of energy justice [6,24,57], recently also with respect to just transitions [13]. This paper builds on those works, yet emphasizes the political processes in which spatial justice perceptions shape transformations and vice versa. It thereby agrees that energy transformations must be perceived as messy, often conflictual, highly politicized processes [3,9,18,100].

Focusing empirically on their spatial dimension allows justice claims to be scrutinized from a perspective that elucidates the dynamics of energy transformations. Disclosing spatial–moral patterns enables a more complete picture to be obtained of complex and interacting justice claims. This contributes to a deeper understanding of the impacts of energy transformations in which recognition and redistribution are spatially readjusted and procedurally shaped. The spatial perspective furthermore allows to map externalities and the spatial distribution of costs and damages. In addition, the interaction, interweaving, but also the playing off against each other of local transformations with their global contextualizations, reasons, and consequences can be observed. These aspects have been studied in other contributions, but the framework provides a more systematic view of the dynamics involved.

While the framework offers many advantages, it also comes with limitations. As it has been pointed out in Section 3.2, this contribution

subscribes to a relational understanding of spatiality – departing from other conceptualizations of space could lead to alternative perspectives that can be at the same time enabling and limiting. Furthermore, focusing on spatiality comes at the cost of abstracting analytically from other justice-relevant concerns. The temporal dimension of justice, for instance, has not been addressed here for the sake of clarity and brevity, but it is often tightly coupled with spatiality. The specific thematic concerns of justice were also not in the focus in this contribution, although it must be acknowledged that diverse concerns such as environment, gender, climate, work, aesthetics, identity etc. bring about different discourses on justice. Furthermore, the interest in empirical justice claims limits the discussion of normative differences between them. It is evident, though, that not all justice claims are equal in a normative sense. This includes the question of whether justice claims are formulated from an incumbent or marginalized perspective. Lastly, the political dynamics around debating spatial-moral justice claims that have been raised in Section 5 require a deeper consideration of all their implications, for instance regarding the role of power in dealing with various justice claims.

Future research could apply the proposed framework to a variety of cases at different scales and in various regions of the world. This would help improve the framework by adding aspects to it that are not yet covered. It could also help identify socio-spatial patterns and dynamics beyond those presented here. The framework can be applied using various methodologies, such as expert interviews, content analysis of session documents, participatory observation, or ethnography. Furthermore, the framework invites other just transition case studies to state more clearly the scales at which they operate and the spaces and places considered in their analyses. Many case studies, for instance, implicitly focus on local justice concerns, sometimes even with a limited sectoral scope (e.g., addressing mainly labor concerns).

Examining the bigger picture, the question arises of whether real-world institutions and processes are fit for the purpose of transforming energy systems in the radical ways necessary for responding to rapid climate change and other multiple crises in the Anthropocene. This goes along with the question of which concerns are left unaddressed with respect to the ecological dimension of justice. The inability of natural systems and non-human species to speak for themselves excludes certain justice concerns, leaving their position even more precarious than that of marginalized human communities. Finally, a remaining challenge is how to move from understanding claims for spatial justice to using this knowledge to resolve justice conflicts and enable necessary transformations.

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#### Data availability

No data was used for the research described in the article.

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