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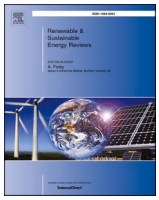

Revisiting the energy justice framework: Doing justice to normative uncertainties

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ABSTRACT

Energy justice is often approached through the four tenets of procedural, distributive, restorative and recognition justice. Though these tenets are important placeholders for addressing what type of justice issues are involved, they require further normative substantiations. These are achieved by using principles of justice to specify why – normatively speaking – something is just or unjust within each category or tenet of justice. In addressing the principles of justice, it is important to acknowledge normative uncertainties, or the fact that different (incompatible) conceptions of justice might be morally defensible, leading to different normative conclusions or policy recommendations. This paper reviews the definitions of tenets in energy justice scholarship, the occurrence of normative claims, and how these claims are justified. The review shows that the scholarship ignores to a large extent normative uncertainties. In response, we propose a revisited energy justice framework, focusing on four aspects that help us to articulate the normative uncertainties in both the principles and the tenets of energy justice. These aspects are (i) the scale of justice (i.e. whether justice is considered at a local, national, regional, multinational or global scale), (ii) the subject of justice, (iii) the body of knowledge that is assumed and (iv) the time frame in which justice issues are being considered. We hope to provide a conceptual framework that make explicit the different types of normative assumptions underlying claims of justice, which will ultimately improve the quality and legitimacy of normative conclusions such as policy recommendations that follow.

1. Introduction

There is still a long way to go to achieve the climate goals set for 2050 and 2060. Part of achieving these goals is a fundamental transition in energy systems, one that requires adopting large-scale, low-carbon energy systems, along with energy storage, negative emission technologies and so on. Such drastic changes engender important ethical issues that are frequently subsumed under the heading of *energy justice*. While the ethical aspects of energy systems were being be addressed in the environmental justice literature in the 1980s and 1990s and reappeared in more recent climate justice literature, the first explicit articulation of energy justice in the academic literature dates back only to 2013 [1]. Energy justice scholarship strives to understand what is just or unjust in energy systems, in light of fostering just energy transitions. In order to facilitate this, scholars introduced a tenet-based energy justice framework [2]. Inspired by environmental justice scholarship [3], this framework poses and defines different tenets, that is, areas, kinds, types, typologies or categories of justice. The most common tenets are distributive, procedural, recognition, cosmopolitan and restorative justice [4].

It is argued that this energy justice framework can function as a conceptual, analytical and decision-making tool [5]. That is, it conceptualises and analyses (in)justices, thereby assisting citizens and policymakers in decision-making. This framework therefore has two purposes. First, it can be used to gain more insight into the reasons behind protests, resistance and controversies or to describe the factors that contribute to the success or failure of an energy project or policy. This approach is primarily descriptive: here, the tenet-based framework is mostly used to analyse (geographical) case studies in terms of justice [6]. The second and most frequently used purpose is to see the framework as a tool to help researchers or policymakers gain insight into what can be considered just or unjust. In this sense, the framework is used to evaluate legislation, regulations or policy processes in terms of justice. This approach is therefore normative in nature, and its ultimate aim is to make energy systems and policies more just.

The normative function of the tenet-based energy justice framework seems to be its least developed aspect. For legitimate reasons, different groups of people can disagree on whether a decision-making procedure is just or on what a just distribution of benefits and burdens looks like.

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Such plurality amounts to normative uncertainties, or "situations where there are different partially morally defensible – but incompatible – options or courses of action, or ones in which there is no fully morally defensible option" [7]. For example, there is normative uncertainty about whether to strive for nuclear energy or not, or where onshore wind ought to be installed, due to different and sometimes competing values, value priorities, and conceptions of justice. When claims of justice diverge or even conflict, it is often unclear which claim should take precedence. As such, it is unclear how the tenet framework could function as a decision-making tool.

In the energy justice scholarship, normative issues are often considered in a rather one-dimensional way, implying that there is only one possible way to look at (each tenet of) justice. However, this overlooks the plurality of justice conceptions that exist among people and within philosophy. Several scholars have argued that normative energy justice claims are often insufficiently substantiated by normative theories [6,8,9]. According to Galvin, this leads to a dominance of Western (Rawlsian) conceptions of justice [10]. However, it has not yet been studied systematically whether energy justice scholars make normative claims and, if so, how these are justified.

Studying how normative claims are substantiated in energy justice is important, because normative conclusions that follow from a one-dimensional understanding of energy justice have limited legitimacy. In other words, acknowledging normative diversity contributes to the legitimacy of policy recommendations. This paper adds to the normative rigour of energy justice scholarship by addressing the following question: How can the plurality of normative opinions in energy justice decisions be acknowledged and addressed? To answer this question, we conduct a critical conceptual review of how normative conclusions are drawn and legitimated in energy justice scholarship.

1.1. Existing literature reviews

Existing reviews on energy justice have focused on a variety of issues (for a full overview of energy justice reviews, see Appendix 1). Many reviews apply the tenet framework to issues pertaining to a specific technology or a distinct region [11–22]; stress the importance of energy justice in other discourses or disciplines [23–25]; or cover co-authorship in energy justice as a scholarship [26]. Eleven energy justice review articles are conceptual reviews, most of which focus on specific concepts, namely gender [27,28], power [29], restorative justice [30], energy democracy [31], energy poverty [32], and the just transition [33]. Four other conceptual reviews explicitly contribute different conceptual insights about the tenet framework and its normative functioning, which are of specific interest to this study.

The first and oldest conceptual review on energy justice by Jenkins et al. summarises three tenets, but it does not include the possibility of normative uncertainty about their interpretations [34]. Another review compares energy justice, value-sensitive design, and responsible research and innovation on a conceptual level [6]. This article criticises energy justice for having limited philosophical exposure by pointing at a lack of diverse (non-Western) "normative principles of just distribution" [6]. Similarly, Lacey-Barnacle et al. [35] review the methods, energy types, locations, and theoretical frameworks used in energy justice, and found that most principles of justice mentioned in the scholarship are Western. As such, they recommend "expanding the field to further include non-western philosophical traditions" [35]. Lastly, a critical review by Pellegrini-Masini et al. argues that the most accepted definitions of the tenets share two conceptions of equality [36]. This contribution confirms that there is inherent normativity in the way energy justice scholars define and interpret the tenets of justice.

In short, energy justice scholarship contains a strong normative commitment to making energy systems more just. However, whether, how and how frequently normative claims are being made in the scholarship has not been tracked. In other words, a review of the occurrence of normative claims, the normativity within the definitions of the tenets, the formulated principles of justice, and the relation of justification between these three elements is lacking.

1.2. Methodology

We conducted a conceptual review to map how the current scholarship deals with normativity. We included peer-reviewed articles in the English language, published from 2013 through May 2022, that contain "energy justice" in the title, abstract or keywords. As an additional criterion, we included only those articles that applied the tenet-based framework in a case study: potential contributions had to contain "tenet", "tenets" or "framework", and then we manually selected only those that applied at least two tenets to a case study. We used Atlas. ti to analyse the resulting 179 articles (see Appendix 2 for the full list) for the following parameters: (1) which tenets were used, (2) how the tenets were defined, (3) whether normative statements were made, for instance as either *X is (un)just* or as policy recommendations, and (4) whether and which justifications (e.g. principles of justice) were formulated for the articulated normative claims. The first two parameters were detected via Ctrl-f searches, the third was found through in-depth readings of the discussion and/or conclusion, and the fourth was determined by examining the title, abstract, introduction, and theoretical framework. Next, the insights on how normative statements are justified in the scholarship were critically evaluated against the backdrop of normative uncertainties. This critical evaluation guided the formulation of a revisited energy justice framework.

1.3. Structure of the paper

The paper is organised as follows. First, a conceptual review sheds light on how normative conclusions, such as policy recommendations or claims of justice, have been justified in the energy justice scholarship (Section Two). Section Three then critically evaluates this practice against the backdrop of normative uncertainties. Next, Section Four introduces a revised version of the tenet-based energy justice framework that helps to identify different types of normative assumptions, namely (1) principles of justice, (2) the scale of justice considered, (3) to which subjects the principles apply, (4) the body of knowledge that is assumed and (5) the time frame. This revised framework can be used as an analytical tool to examine where exactly the normative controversy lies, which is the first step towards debating the legitimacy of claims of (in) justice. Finally, Section Five presents our concluding remarks.

2. How the current energy justice scholarship deals with normativity

This section reviews to what extent normative statements are formulated in case studies that utilise the energy justice tenet framework, and how these are justified.

2.1. Whether normative statements are formulated

For the purposes of this paper, we distinguish between two types of normative statements, namely, policy recommendations and sentences of the type *X is (un)just*, or any other formulation that evaluates a phenomenon in terms of justice. Other types of normative statements often found in research articles, such as recommendations for future research, were beyond the scope of this study. Both types of statements are normative in that they evaluate a phenomenon in terms of just or unjust (or good or bad, desirable or undesirable) or they state what should be done. Examples of normative claims shaped as *X is (un)just* are "This quasi-extractive logic does not serve energy justice because of the very unequal ability of local authorities to exploit renewable energies in France" [37] and "The equity issue most prominently identified in Australia was an increase in electricity prices due to subsidization" [38]. Examples of policy recommendations are "To accelerate the phase out of

fossil fuels, the necessity for political action by civil society is highlighted, so as to reduce injustices in the transition, and to ensure that the transition is democratic" [39] and "It seems reasonable to suggest that actually in Colombia the SLO [social licence to operate] should be the first point in the agenda in the 'Check List' of an Energy Project" [40].

From the 179 articles, only four papers refrained from making normative statements. The aim of these articles was descriptive: they made no claim of *X is (un)just*, nor did they recommend a certain course of action or decision to decision-makers, such as politicians or engineers. The remaining 175 articles made at least one policy recommendation or one claim of justice, wherein a phenomenon – such as a distribution, procedure, policy, practice, system or status quo – was evaluated in terms of justice. Of those articles that used the framework in a normative way, 23 made claims such as *X is (un)just* but refrained from making policy recommendations and seven made normative policy recommendations without making claims of justice. The remaining 145 articles made both types of normative claims.

Our review suggests that the majority of energy justice papers use the tenet-based framework in a normative rather than descriptive way. The main research aim seems to be to promote justice in energy systems and to provide recommendations for *the best course of action* in terms of justice, rather than merely describing or explaining energy-related phenomena.

2.2. How normative statements are justified

To study how normative claims are being justified in the energy justice scholarship, we looked at whether and how normative premises were formulated. In doing so, we tried to determine whether the underlying moral principles were made explicit, and if so, what these were.

2.2.1. Through the definitions of tenets of justice

Most authors in our sample adopted a three-tenet approach in which distributive, procedural and recognition justice were defined and applied (see Table 1). Tenets of justice were generally defined in two ways, which we classified as either substantiated or unsubstantiated.

Unsubstantiated definitions of tenets were generic and contained no other normative commitment than a mere concern for justice pertaining to the object of the tenet itself (procedures, distributions, recognition, restoration). Examples of unsubstantiated definitions are "Restorative justice focuses on mitigating energy injustices that have already occurred" [41] and "distributional aspects, i.e., the social distribution of costs, risks and benefits" [42].

In contrast, *substantiated* definitions of tenets encompassed a normative idea of when something is (un)just. Examples of substantiated definitions are "Justice as recognition is concerned with the equitable appreciation of stakeholder groups involved in energy systems" [43]; "The third dimension is concerned with procedural justice, and revolves around issues of inclusion and participation, especially in policymaking and in terms of stakeholders' agency to influence the trajectory of solar energy infrastructure" [44]; and "equally shared costs and benefits (distributive justice)" [45].

Further analysis of tenet usage (see Table 2) showed that distributive justice was mostly defined in an unsubstantiated way, merely pointing to a need for the just distribution of burdens and benefits. Procedural justice, on the other hand, was usually defined in a more substantiated way, one that assumed a just procedure by definition necessitates the inclusion and participation of stakeholders. The same was found for recognition justice: a majority of the definitions provided a more substantiated account of what it means to adequately recognise a group of people: for example, "Recognition justice establishes individuals must be fairly represented, that they must be free from physical threats, and that they must be offered complete, and equal political rights" [1].

Table 1
Number of times that different constellations of tenets that were used in the contributions.

Tenets that were used	Number of papers
Distributive, procedural	17
Distributive, procedural, recognition, cosmopolitan	11
Distributive, procedural, recognition, cosmopolitan, restorative	6
Distributive, procedural, recognition, restorative	15
Distributive, procedural, restorative	3
Distributive, procedural, recognition	126
Distributive, procedural, recognition, cognitive	1
Total	179

2.2.2. Through the formulation of principles of justice

Normative conclusions can also be justified through the explicit formulation of *principles of justice*. Principles of justice function as rules, indicating the conditions under which something can be considered as (un)just. The principles are roughly formulated as *X is just if*. For each tenet, there are different principles that are subjects of discussion in political philosophy. For example, two principles for procedural justice are the all-affected principle (the procedure is just if all affected parties have a voice) or the coin-tossing principle (the procedure is just if we toss a coin) [46]. Yardsticks for distributive justice vary from utilitarian principles (a distribution is just if it results in the greatest good for the greatest number) to versions of the capability approach (distributions are just if they install human capabilities [47,48]. Arguments for such principles are formulated in theories of justice. We elaborate on principles of justice in Section 4.1.

In 57 of the articles we analysed, principles of justice were given to justify normative statements (see Table 3).[2] These include the capabilities approach described by either Nussbaum or Sen (N = 21), Rawls' principles of justice as fairness (N = 3), and Fraser's principle of participatory parity for procedural justice (N = 2).[3] Two articles adhere to principles of justice as formulated in policy documents. Several other articles (N = 25) mentioned principles such as affordability and availability, which state that energy systems are unjust if energy is not affordable or available. However, an additional normative principle is needed to justify why and in which contexts energy unaffordability or

Table 2
Classification of the tenet definitions used in the contributions.[1]

	Substantiated definitions	Unsubstantiated definitions
Distributive justice	32	112
Procedural justice	90	55
Recognition justice[1]	101	26
Restorative justice	8	9
Cognitive justice	1	0
Cosmopolitan justice	14	0

Because unsubstantiated definitions do not articulate a principle of justice that could help determine when something qualifies as an instance of injustice, they cannot function as a normative premise for justifying normative conclusions. Instead, they are merely statements signposting the need to consider justice. Substantiated definitions, on the other hand, contain explicit normative commitments that indicate the conditions under which something can be considered just or unjust. They are therefore able to function as a normative premise justifying a normative claim, such as a policy recommendation or that *X is (un)just*.

[2] Some articles mention multiple principles of justice.

[3] In this contribution, the author takes Nancy Fraser's principle of participatory parity as a principle for procedural justice. However, Fraser did not mean this as a principle for procedural justice but as a general principle of justice. In her philosophy, distributions of burdens and benefits – or institutionalised patterns of cultural value – are unjust if they do not allow people to participate as peers in social life, and this encompasses much more than participation in decision-making procedures.

Table 3
Whether and which principles of justice were mentioned in the contributions.

No principle of justice mentioned	123
Sovacool's 8–10 principles of justice	25
Capability approach	21
Rawls' principles of justice as fairness	3
Fraser's participatory parity in social life	2
Sovacool's prohibitive and affirmative principles	2
Sen's interpretation of Bhagavad Gita	2
Reference to a policy document	2
Dignity	1
Egalitarianism	1
Good regulation	1
Health	1
Honneth's consciousness of injustice	1
Needs-based	1
The pollutor pays	1
Prima facie political equality	1
Prioritarianism	1
Utilitarianism	1
Well-being	1
Total	**190**

unavailability is an injustice. For example, one could argue that affordable energy is essential for having a specific capability that is a necessary precondition for dignity in human life. Therefore, it is unclear whether principles such as affordability and availability provide sufficient justification for normative statements.

3. A critical evaluation of how normative statements are justified

It is generally problematic when a normative conclusion, such as a policy recommendation or that *X is (un)just*, is derived from empirical data without articulating a normative premise. Such situations occur if a tenet is defined in an unsubstantiated way, as in the following example: first, a claim is made, such as *distributive justice concerns the just distributions of burdens and benefits*; second, no principle of distributive justice is defined; third, empirical data is analysed; and fourth, normative conclusions are drawn, stating that the distributions are in fact unjust and/or that policy changes are needed. This leads to the theoretical and logical problem known as the "naturalistic fallacy", which is often reiterated in moral philosophy. As an illustration of this way of reasoning, let us look at Poruschi and Ambrey's statement that "fuel poverty is emblematic of a lack of recognition and a lack of procedural justice which are wrong in themselves and are interconnected and ultimately perpetuate the production of distributional inequalities" [49]. Their conclusion that fuel poverty is unjust seems intuitive, but it is insufficiently supported by an explicit normative premise.

A second problem emerges when no normative premise is articulated yet normative conclusions are drawn. In this case, the authors are most likely maintaining an *implicit* principle of justice. For example, when authors defined procedural justice merely as "due process", we coded it as an unsubstantiated definition. However, some authors made policy recommendations based on such definitions: for example, the recommendation for a "better inclusion of entire population in EV [electric vehicles] policies" [50]. The authors made several implicit assumptions about justice in this normative conclusion: (a) a just procedure for decision-making in transport policy requires the inclusion of the entire population; (b) the people who should have a voice are the current citizens of the state, thereby excluding future generations, animals and non-citizens and (c) it is better to switch to EVs than to limit the growth of mobility. Not making these implicit normative assumptions explicit imposes one specific view of justice and thus leaves no room for alternative principles of justice. For this same example involving Nordic EV policies, other normative assumptions about justice could be possible: (a) decisions should be made by the wisest members of a society, perhaps through elder consultations [51] (b) certain (vulnerable) groups should have more decision-making power over matters that concern them [52] or (c) we should consider the global impact of decisions rather than procedural justice within Nordic countries [53]. As these alternative assumptions show, sometimes different principles point in different directions, which means they cannot always coincide.

When assumptions are implicit, there is no room for debating them. This is especially problematic if the assumptions are "Western" or more common in the Global North, such as implicit assumptions about green growth versus degrowth, democratic principles of procedural justice versus religious or age-based procedures, or inclusion of human citizens versus the inclusion of voices of nature, animals or future generations in decision-making. Decolonising the energy justice scholarship, we argue, therefore demands making explicit the normative assumptions being held when drawing normative conclusions.

A third problematic argumentation scheme defines a tenet of justice in a substantiated way but also fixates that definition, interpreting it as set in stone in such a way that there seems to be no doubt that after reading the definition, one can look at empirical data and simply measure what is unjust. However, there may be multiple interpretations of justice, especially of what a just procedure entails, what a just distribution of burdens and benefits should look like, what a proper way to recognise people is, and what a proper restoration of past injustices might be. For example, procedural justice is often defined in terms of participation, transparency and inclusion of all stakeholders. This assumes that all procedures are just only if they are participatory, inclusive and transparent. However, these concepts can be understood in different ways. For example, some people may understand the notion of inclusivity in decision-making to mean giving all stakeholders true decision-making power, while others may see it as assigning certain groups consultation rights [54]. Moreover, other conceptions of just procedures might be justifiable, such as religious procedures, indigenous decision-making practices that include consulting the elderly or the wise [51] or the idea that some decisions are perhaps best made by experts without involving the public – such as how to handle the safety hazards of nuclear energy, which some scholars claim demands an autocratic decision-making procedure [55]. Activist groups such as Extinction Rebellion, for example, seem to emphasise the urgency of the climate problem to the extent that they prefer a non-democratic takeover of climate policies to promote social justice [56]. There are many different principles of justice that have been formulated throughout history (of philosophy) and around the globe (in the Global North and South) that are being overlooked when defining procedural justice in a substantiated and therefore fixated way.

4. Revisiting the energy justice framework: taking normative assumptions into account

In Section 3, we argued that there are normative uncertainties about what a just procedure, distribution, restoration measure or relation of recognition could entail. Normative uncertainty in this case refers to the fact that there might be different (incompatible) conceptions of justice that are morally defensible, leading to different normative conclusions or policy recommendations. Overlooking normative uncertainty is problematic, because it reduces the scope of perspectives considered, which in turn leads to a reduced legitimacy for the normative conclusions, such as policy recommendations, that follow. Substantiated definitions preclude alternative conceptions of justice and therefore to possible alternative policy recommendations. To overcome such

[1] We categorised a definition as *substantiated* if the definition contained an idea about when something would be a 'just' relation of recognition. However, due to the complexity of the concept and the large variety of definitions, this was no easy feat. For example, 'recognition justice means recognising vulnerable groups' is now categorised as unsubstantiated, yet it can be argued that it implicitly adheres to an anthropocentric conception of justice and is therefore substantiated.

problems, we have three recommendations for adding to the normative rigour of energy justice scholarship.

First, we recommend that scholars consider the tenets of justice as categories of justice that have no more substantial content than a commitment to justice related to the object of the tenet. In other words, procedural justice is concerned with just decision-making procedures; distributive justice is concerned with just distributions of burdens and benefits; recognition justice is concerned with the adequate recognition of all actors through love, law and status order [57]; and restorative justice is concerned with restoring injustices. Defining tenets in an unsubstantiated manner acknowledges that there is a plurality of possible interpretations of each tenet.

Second, as the tenets of justice in themselves are unsubstantiated, additional normative substantiations based on normative principles of justice are required if the research aims to draw normative conclusions such as policy recommendations or that *X is (un)just*. We recommend that a principle of justice is explicitly articulated to justify normative statements. This can be either a principle from an institution that is used to formulate an immanent critique or a principle that is justified through a theory of justice.

Third, there must be space to critically examine these normative premises, acknowledging that alternative assumptions and conceptions[4] of justice might exist and might lead to different conclusions about what is just and to different policy recommendations. For this purpose, we propose a revised energy justice framework that systematically categorises the normative assumptions within the different tenets of energy justice (see Table 4). In Section 4.3, we argue that cosmopolitanism is a normative principle rather than a tenet of justice, and for this reason, we do not include it as a separate tenet in our revised approach to the energy justice framework.

We distinguish five categories of normative assumptions: (1) principles of justice, (2) the scale of justice considered, (3) the subjects the principles apply to, (4) the body of knowledge that is assumed and (5) the time frame. Because different assumptions can be held in each category, there is normative uncertainty about which assumptions should be held. This proposed framework is an analytical tool that allows scholars and policymakers to pinpoint exactly where the normative controversy lies or can lie, which is the first step towards reflection, deliberation and critical examination of these assumptions. In addition, this framework can be useful as a descriptive tool to describe and explain energy controversies. In the remainder of this section, we elaborate on these five types of normative assumptions.

4.1. Principles of justice

The first normative assumption in justice claims pertains to principles of justice. When actors articulate claims of (in)justice, they implicitly or explicitly adhere to a principle of justice [46]. A principle of justice functions as a rule or a standard for considering something as (un)just: the principles are formulated as *X is just if*. Two general examples are utilitarianism (X is just if it delivers the greatest good for the greatest number) and deontology (X is just if it could be a universal law). For each tenet, numerous possible principles can be applied. Examples of principles of procedural justice are the all-affected principle (X is just if all affected parties have a voice), the representative democracy principle, the lottery principle and the coin-tossing principle [46]. For distributive justice, possible principles vary from the capability approach [47,48], to Rawls' maximin rule [58] to libertarian approaches [59] or to versions of egalitarianism, prioritarianism or sufficiencism [60]. For recognition justice, some well-articulated examples are the principle of participatory parity and the principle of an unharmed-relation-to-self [61].

Besides existing in theories of justice, principles of justice can be articulated in policy documents, in vision and mission texts, and so on. They can also be embedded in institutions and technologies [62]. Such principles can also be used to formulate injustices as a form of immanent critique, which is about "spelling out the deep-seated contradictions of a social order" [63]. For example, the free market adheres to the principle of freedom; yet if empirical data shows that freedom is not the case, then the current institution can be judged as unjust by its own standards [63].

When a different principle of justice is adopted, then a different conclusion might be drawn about whether something is (un)just or what policy is recommended. Thus, there is normative uncertainty about which principles should be adopted in a certain context.

Table 4
A revised energy justice framework that systematically categorises the normative assumptions within the different tenets of energy justice.

	Principles of justice			
Distributive justice Procedural justice Recognition justice Restorative justice	Knowledge	Subject	Time	Scale

4.2. Subject of justice

Another normative assumption that underlies claims of justice concerns "to whom" the principles of justice apply [46]. In other words, are only humans considered as subjects of justice or are non-humans such as animals and ecological systems also considered? This question has a substantial impact on what is considered just. For example, one can see nature as input for production processes and therefore as a means to an end or one can see it as intrinsically valuable. If the position can be defended that ecosystems have more moral standing than human interests, conclusions might follow that humans have moral duties to make certain sacrifices for the sake of nature [64,65].

In the current energy justice framework, animals are rarely taken into account, but if they are, it is mostly in relation to distributive justice [66]. Inspiration for this tendency can be found in the works of Peter Singer, who considers principles of equality for human and animal interests alike [67], or those of Bruno Latour, who theorises about including non-humans such as animals, plants and the earth in decision-making procedures in an actor-network theory, thereby giving non-humans a voice [68,69]. So far, a theory about non-humans and recognition justice remains largely unexplored [3,70].

4.3. Scale of justice

Another category of normative assumptions is the scale of justice [46], which refers to the (politics of) scale, place or geographies [71]. This means considering whether we contemplate justice at a local, national, regional, multinational or global scale. In other words, are we talking about energy justice in a particular place or about multinational [72] or universal energy justice; "what scales (e.g. jurisdictional, spatial and temporal) are [being] used to assess impacts and benefits?" [73].

When a different scale is assumed, different normative conclusions might be drawn. For example, one can assume a global scale, which refers to the position of cosmopolitanism. Currently, cosmopolitan justice is considered as a tenet in the literature. However, in political philosophy, cosmopolitanism is considered a normative principle of justice, which includes an inherent normative recommendation regarding how to perceive of justice. Although there are many different versions of the principle of cosmopolitanism, their common core is the normative stance that "all human beings, regardless of their political affiliation, are (or can and should be) citizens in a single community" [74]. In its

[4] Here, we conceptualise a *conception of justice* as a particular set of normative assumptions (i.e., knowledge, subject, time, scale, and principle of justice).

strongest version, cosmopolitanism indicates that justice principles apply to all humans equally and that no feature should restrict the scale of justice. Thus it leads to the delegitimising of state institutions and to radical global redistributions. In its weaker forms, nation-states are considered as legitimate entities for justice, thereby legitimising some forms of inequality between states [75]. We therefore chose not to include cosmopolitan justice as a tenet of justice in our revisited framework but instead view it as a normative principle that prescribes what scale we ought to consider.

Alternatively, the scale of justice can be restricted to national, regional or local levels, justifying, for example, local rather than global decision-making or redistribution. This implies tolerating inequalities between different groups or peoples. Well-known examples of justifications for such scale restrictions are being in a relationship with each other, such as being citizens of the same state [59]; being engaged together in a cooperative practice [58] as is the case in a democracy or in an energy cooperation; or national responsibility and self-determination [75].

4.4. Knowledge

Actors can hold different beliefs about the world to be true and justified – for example, beliefs about certain risk assessments, beliefs that the government is corrupt or not or beliefs about the consequences of certain actions. Holding different epistemic assumptions can certainly lead to different conclusions about what is just. Thus, knowledge is a morally relevant aspect in the formation of claims of justice. However, it is not always easy to determine which beliefs ought to be considered justified and true. This is due to epistemic normative uncertainty, or the possibility of having incomplete knowledge about fundamental phenomena or different interpretations of the same body of knowledge [7].

Since the early 2000s, literature on epistemic injustice has emerged concerning justice related to the "sphere of epistemic activity" [76]. Epistemic injustice "wrongs someone in their capacity as a subject of knowledge, and this in a capacity essential to human value" [77]. In other words, people are treated unfairly in communicative practices by being misrecognised in their capacity as knowers. Epistemic injustices include "exclusion and silencing; invisibility and inaudibility (or distorted presence or representation); having one's meanings or contributions systematically distorted, misheard, or misrepresented; having diminished status or standing in communicative practices; unfair differentials in authority and/or epistemic agency; being unfairly distrusted; receiving no or minimal uptake; being coopted or instrumentalized; being marginalized as a result of dysfunctional dynamics; etc." [76]. Fricker discerns two kinds of epistemic injustice: testimonial injustice and hermeneutical injustice. The former occurs when the hearer deflates the speaker's credibility level based on prejudices. Hermeneutical injustice presents itself when a "gap in collective interpretive resources puts someone at an unfair disadvantage when it comes to making sense of their social experiences" [77]. This often results in the inability to realise that one is being treated in an unjust manner.

Though epistemic (in)justice has been discussed in the energy justice scholarship, the issue of how to deal with conflicting epistemic claims has been underexplored, except by San Martín and Wood [78]. This is unfortunate, as this strand of philosophy contains conceptual tools for understanding epistemic conflicts and whether and under which conditions these phenomena could be understood as injustices. Therefore, it is important to better acknowledge the normative uncertainties in epistemic assumptions.

4.5. Time

Lastly, when making claims of (in)justice, one always considers a certain time frame. Many energy justice frameworks include temporality as a principle or value [79]. "*When* principles of justice take effect", such as in the past, the nearby future or the distant future, affects the conclusions drawn about justice [46]. For example, intergenerational justice indicates that the time frame is extended to include at least some future generations [80].

When time passes, many things might evolve. New knowledge can come to light, interpretations and prioritisations of principles, concepts and values might change, and moral intuitions about which subjects or scale to consider might be altered [81]. Taebi et al. call these evolutionary normative uncertainties, which are defined as uncertainties regarding which moral norm will apply in the future, because both technology and our understanding of what is right in the society can evolve [7]. This is especially relevant in the energy context, as technology is under constant development and is involved in an ongoing process of mutual interaction with societal values. Perhaps in the distant future, another principle of justice will seem right, another group of subjects will become morally relevant, new knowledge will be found or the scale of justice will need to be altered.

5. Conclusions

Energy justice is often approached through the four tenets of procedural, distributive, restorative and recognition justice. While these tenets are important placeholders for addressing what type of justice issues are involved, they require further normative substantiations. These are captured through principles of justice that specify why –normatively speaking – something is just or unjust within each category or tenet of justice. In addressing the principles of justice, it is important to acknowledge normative uncertainties, or the fact that a principle could be considered in different ways that may be morally defensible but are not always compatible.

We conducted a conceptual review in order to map how the current scholarship deals with normativity. We selected 179 peer-reviewed articles in the English language, published from 2013 through May 2022. These contributions were analysed for the tenets being used and defined, the normative statements presented (or the normative policy recommendations), and whether and which justifications were given for the normative claims articulated. A possible limitation is the difficulty of determining whether a statement is normative or descriptive, as we acknowledge that there is always room for multiple interpretations.

We found that most contributions did not explicitly articulate the underlying reasons for a normative claim (or a normative recommendation). Those contributions that did provide a normative substantiation often considered one specific interpretation of a principle related to a tenet of justice, which left little room for the normative diversity of opinions, that is, the normative uncertainties.

In this paper, we revisited the tenet-based framework of energy justice by specifically focusing on four aspects that help to articulate the normative uncertainties in the principles and thus in the tenets of energy justice. These aspects are (i) the scale of justice (i.e. whether justice is to be considered at a local, national, regional, multinational or global scale), (ii) the subject of justice (i.e. whether justice accrues to humans only or also to non-human animals, nature and other species), (iii) the body of knowledge that is assumed and (iv) the time frame in which justice issues are being considered. In doing so, we hope to provide a conceptual framework to help scholars make explicit the different types of normative assumptions underlying their claims of justice. An open dialogue and reflection process in the scholarship on this level can widen the scope of conceptions of justice that are considered and thereby improve the quality and legitimacy of the normative conclusions such as policy recommendations that follow. The revisited energy justice framework can also aid policymakers in making explicit normative assumptions in energy policies. As such, the framework can prevent misunderstandings and shed light on energy justice controversies.

The energy transition is prone to creating or exacerbating injustices, and it is vital to detect and mitigate these. Therefore, when discussing energy justice tenets, we encourage researchers to explicate the adopted

conceptualization of justice. This can be done by first defining the tenets in an unsubstantial way (so that there would be room for a plurality of normatively legitimate opinions) and then making explicit the adopted normative assumptions. Further research is also recommended to examine which conceptions of justice are appropriate in certain contexts. In other words, we advocate strengthening the link between philosophy and energy social science.

The revised energy justice framework invites critical reflection, as it is a tool to identify the normative assumptions made in research, energy controversies, energy policy, and in the design of energy systems and technologies. Lastly, the revised energy justice framework allows for describing energy controversies in more nuanced ways.

Credit author statement

Conceptualization, Ideas; formulation or evolution of overarching research goals and aims, Nynke. Methodology, Development or design of methodology; creation of models, Nynke. Writing - Original Draft, Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation), Nynke. Writing - Review & Editing, Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre-or postpublication stages, Nynke, Udo & Behnam. Supervision, Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team, Udo & Behnam. Project administration, Management and coordination responsibility for the research activity planning and execution, Nynke. Funding acquisition, Acquisition of the financial support for the project leading to this publication, Behnam.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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Appendix A. Supplementary data

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