Chapter 5

Energy Justice, Hydropower and Grid Systems in the Global South

Ruth Kruger and Darren McCauley

Abstract Grid systems are key focal points for energy debates in the Global South. Off- and on-grid realities, with a plethora of microgrid systems in between, exist simultaneously with differing under-explored consequences for rights, responsibilities, opportunities and constraints. We argue that a conceptualisation around macro- and micro-levels of justice helps to elucidate this complexity. A comparative philosophical approach ensues through a spatial exploration of justice in relation to the Democratic Republic of Congo (DRC) and the grid systems derived from hydropower. Original qualitative data is presented, analysed and reflected upon with concluding insights into conducting energy justice in the Global South.

5.1 Introduction

Energy justice is an evolving, outward-looking framework for understanding the justice implications of decisions across multiple energy systems, from provider to end user (McCauley et al. 2016, 2019; Walker et al. 2016; Bouzarovski and Simcock 2017). It is also built upon existing research agendas in the form of environmental and climate justice (Bickerstaff and Agyeman 2009; Walker 2009; Walker and Bulkeley 2006; Barrett 2012; Bulkeley et al. 2013), as well as more recent innovations in energy poverty (Bouzarovski and Herrero 2016; García Ochoa and Graizbord Ed 2016) and vulnerability (Bouzarovski et al. 2017a, b; Middlemiss and Gillard 2015) research. Energy justice is considered outward looking because it engages in testing geographical thought alongside other competing disciplinary traditions such as legal studies (Guruswamy 2015), business (Hiteva and Sovacool 2017), political science (Jenkins et al. 2016; McCauley et al. 2018) and engineering

R. Kruger

School of Geography and Sustainable Development, University of St. Andrews,
St Andrews, UK

D. McCauley (✉)

St. Andrews Sustainability Institute, University of St. Andrews, St Andrews, UK
e-mail: dam7@st-andrews.ac.uk

(Heffron and McCauley 2014; McCauley et al. 2019). In recognition of its interdisciplinary roots and its initial adoption by legal studies (McCauley et al. 2013), it is defined as the application of rights across and within the various system components of energy provision and consumption (McCauley 2018). This chapter sets out why we need to include energy justice as a key component of research in the Global South through exploring comparatively its spatial dimensions in relation to energy and grid systems with empirical insights from hydropower and the Democratic Republic of Congo (DRC).

Energy justice originates from the more well-established literatures of environmental and climate justice (McCauley 2018). However, neither can sufficiently encapsulate emerging questions around equity and fairness with regard to current and future energy or grid systems. Environmental justice is more successfully a tool for activists (Fan 2006; Houston 2013; Schlosberg 2004). Its origins are closely related to social opposition against the siting of hazardous waste in the USA. Studies emerged in academia as opportunities to reflect upon the ways in which these injustices were resisted (Taylor 2000). Similar research has also emerged outside the USA, often focusing upon resistance movements including in Africa (Ako 2009), Europe (Slater and Pedersen 2009), South America (Urkidi and Walter 2011) and Southeast Asia (Hobson 2006). Early research in this area reveals the distributional injustices with regard to where environmental bads are sited (Taylor 2000). The research brought our attention to how companies and governments through planning processes located harmful infrastructure in areas of social deprivation or in close proximity to ethnic minority communities (Shrader-Frechette 1996). More recent literature has offered insight into decision-making processes that have been referred to as investigations of procedural justice (Hricko et al. 2014). Scholars realised in this way that the process around locating infrastructure were equally important as the final outcome.

The focus in environmental justice research is positioned at the intersection between social concern and ecological impacts. It is equally valid for other forms of research where the emphasis is placed outside land management issues. Climate justice emerged directly from this literature (Bulkeley et al. 2013; Harris et al. 2013; Olawuyi 2016). The focus of social movement-based resistance closely associated with environmental and climate justice is placed directly upon a much larger concern than individual environmental impacts (Russell 2015). Climate change is presented as an overriding meta-concern where social justice is juxtaposed with international climate negotiations (Lyster 2017), their implementation (Mathur et al. 2014) and the local consequences of rapid changes in climate (Bulkeley et al. 2014). Conceptually, this agenda brought a new spatial dimension to academic research in the form of misrecognition (Fisher 2015). It encouraged researchers to consider who is missing from our policies or decisions in response to climate change.

Energy justice, as a conceptual framework, begins with like-minded spatial conceptualisations such as proximity, due process and misrecognition. It is interested in exploring the full range of injustices as found in other justice-based research frameworks as outlined above in relation to environment and climate. It also shares similar

philosophical roots from liberalist thinkers such as John Rawls, Nancy Fraser, Iris Young and Amartya Sen. Energy justice engages explicitly with energy systems. This is a key additional component that makes energy justice a necessary framework for justice thinking when confronted with energy or grid systems. The energy component is inherently reflected upon through explicit connections with multiple components of one or more energy systems.

The chapter investigates the country case study of the Democratic Republic of Congo and the development of hydropower. It investigates the injustices that have emerged from the construction and maintenance of the Inga dam projects. The energy justice framework is applied to this case study. Our results are presented in the form of interviews and analysis. This is followed by a longer conceptual discussion and reflection beyond the DRC case. We conclude by arguing that theoretical accounts of justice threaten to bind energy justice researchers into pre-determined Western logics of justice (Barnett 2010; McCauley et al. 2019) in line with other contributions in this book (Pellegrini-Masini et al. 2019; Sanusi and Spahn 2019). We do not explicitly cover non-Western logics here—for this, we recommend further Sanusi and Spahn (2019) for a detailed exploration of an Ubuntu philosophical perspective on an African context. We rather argue that our current energy justice framework as applied here must grow further by integrating in such perspectives which is outside the scope of this current chapter.

5.2 From Old to New Spaces of Unfair Process in Energy Systems

The inclusion of affected communities in decisions surrounding major infrastructure must be accompanied by the equally important need to ensure an individual's broader capabilities within the context of an increasingly decentralised unregulated and unconventional energy system. This is especially the case in the Global South. Our chapter details such procedural injustices in the DRC through a comparative perspective with competing distributional and recognition forms of justice (for further detailed discussion on the energy justice framework, please see the Pellegrini-Masini et al. 2019).

5.2.1 *Exclusion from Decision-Making*

Affected communities have been found to be routinely excluded from decision-making processes with regard to the siting of energy infrastructure in and around their vicinity (McCauley et al. 2013). Spaces of undue process are already well established in environmental and climate justice research. The unjust distribution of power plants or waste facilities is directly correlated with an ineffective or even

absent process for including community organisations. Higginbotham et al. (2010) revealed that residents in the Upper Hunter, Australia, were routinely blocked from inputting crucial scientific data on air pollution as part of their protest against the state's promotion of coal production in the area, for example. Similar research has emphasised the lack of procedural mechanisms for including opposition and supportive voices for shale gas in the UK (Cotton et al. 2014). This space of injustice is characterised by non-inclusion in crucial decisions.

Currently research in procedural justice has been dominated by multiple case studies of wind energy. This reflects the broader changes in global energy systems (as well as a more Anglo-American dominance of literature as reflected upon below) towards investing in renewable energy sources. This has moved the debate on fair process from simply including itself towards reflections upon who is seeking to include and when this takes place. Warren and McFadyen (2010) demonstrated that local ownership of community wind farms secures a greater chance of social acceptance and incurs fewer instances of injustice. Ottinger et al. (2014) find, in contrast, that greater state involvement can lead to less opposition in the USA. Feelings of injustice on renewable energy are driven by the lack of informal recognition or appreciation of local livelihoods that are destroyed by some energy efficient projects (Yenneti and Day 2015). Spaces of unfair process in emerging energy systems are more complex, contextual, time sensitive and ripe to be explored in Global South contexts.

5.2.2 From Restrained to “Freed” Capabilities

The decentralised nature of renewable energy systems requires a new approach to including affected communities in infrastructural decision-making. In the examples raised above, the community is viewed as detached from their energy system, at least in terms of production and associated processes. Originating from Sen (1999), the capability approach sheds light on not only the basic desire to access energy, but also the wide range of capabilities that energy provides. Unconventional energy systems that do not require major infrastructure offer the potential for a much freer engagement for the traditionally understood consumer. Parag and Sovacool (2016) support this observation by suggesting that electricity markets are currently undergoing a process of redesign in order to deal with unconventional energy systems and smaller scale renewable systems.

This involves recognising the proliferation of small-scale, mini and off-grid energy systems in electricity markets. Reflection on the grid is crucial. While acknowledging that this provides an opportunity for individuals and communities to engage more with their energy systems, such a change can initiate new forms of injustices. The most productive areas of the world to investigate how such systems

generate different outcomes in energy are outside the EU and the USA, where communities routinely live with unconventional systems. Some communities in Nepal (Damgaard et al. 2017; Islar et al. 2017) have benefited from close proximity to energy sources. Without a national grid infrastructure, local communities rely upon small-scale energy renewable sources such as a shared biogas facility. Their proximity to the energy source has, to some extent, increased “their capabilities” (such as clean cooking, mobile charging) and greater senses of community. They are, however, dependent upon their own knowledge for maintaining their energy supply, and open to exploitation by companies (Islar et al. 2017). We move on to explore these new spaces of undue process in relation to our case study in the DRC.

5.3 Methods

This section will outline the research design, as well as the approach taken in data collection and analysis. Then, some background information on the study sites will be provided, so that their choice for this study can be better understood.

5.3.1 *Research Design, Data Collection and Analysis*

The research was conducted in 2017 and 2018 as a case study in the Democratic Republic of Congo (DRC). This case was chosen for the socio-economic problems faced and the challenges in energy production and access, where the DRC is currently planning the further development of a large grid-based hydroelectric energy project. The case study ran with a distinctly constructivist approach (Bryant 1995: 33). The lead researcher collected mainly qualitative data, although some quantitative data was collected in the DRC, and used a snowball sampling strategy (Bryman 2016: 424). Mixed methods were employed to enable understanding of the case in question in a bottom-up manner, while applying the lens of energy justice in line with the top-down approach. In this way, the studies saw an interplay of inductive and deductive reasoning, recognising that the relationship between theory and data is not linear (Glaser and Strauss 1967). More specifically, empirical data was collected at four study sites in the DRC along the Congo River (Kinshasa, Inga, Boma and Muanda). The methods employed were semi-structured interviews, focus groups, participant mapping, transect walks, participant observation and a baseline survey. Data was then analysed using open-ended qualitative coding of transcriptions and fieldwork records (Newing et al. 2011), and simple descriptive statistics relating to the baseline survey (Sirkin 2006).

5.3.2 Study Site Background: Democratic Republic of Congo

The Democratic Republic of Congo is a postcolonial state in Africa whose history of extreme European oppression left the country struggling with multiple political and socio-economic challenges (Hochschild 2006). It is a very poor country with a GDP of 456.1 USD in 2015 (WorldBank 2017b). It is also a country with insufficient systems to realise socio-economic rights (Kasongo 2014). In 2014, only 13.5% of the country's 81.6 million people had energy access (WorldBank 2017a).

Most of the country's energy comes from hydroelectric dams, specifically the two Inga dams on the Congo River in the west of the country (Kutelama 2004). The construction of a third dam is being planned, and the DRC is planning to have eight hydroelectric facilities at this site, producing 44,000 MW but needing 80 billion USD in funding, largely from external sources (Green et al. 2015). The electricity from these dams is fed into the grid and provided to people and industries along sparse transmission lines, which primarily deliver energy to the capital Kinshasa, some other urban centres in the west of the country and the large mining industries in the south (Krüger 2017). Some of the electricity is exported to other African countries, and in particular much of the electricity from the third dam will be bought by South Africa (Green et al. 2015).

Benefits from the Inga dams can be seen along the transmission lines of the grid. However, the dams also have a specific local impact, creating a complex pattern of benefits and ills that are distributed across a highly stratified and segregated society (Krüger 2017). People at Inga receive benefits such as free water and electricity, but still largely live in poverty and stand to be further impacted if they lose access to land through the development of the new dam.

5.4 Hydropower and Undue Process in the DRC

The DRC case study offers new unexplored insights into energy justice (Krüger 2017; McCauley et al. 2017). This section will present the results from the case study as it relates specifically to the energy justice framework and its grid positioning (reflected upon in detail in Sect. 5.5), while situating them within the energy justice framework.

5.4.1 Distributional Justice

Energy resources are unevenly spread throughout the world, and this must be acknowledged in considering distributional justice as some unevenness is geographically determined (Eames and Hunt 2013). In the DRC, energy resources centre on the Congo River, which holds the second most water of any river in the world. The

water level is also relatively constant, as the river is located partly south and partly north of the equator, so that there is always a section that is experiencing a rainy season. According to an energy company at Inga, the river has great potential for hydroelectricity, especially at the rapids between Matadi and Kinshasa where the Inga dams are located. Inga's firm bedrock adds to this to make it a focal point for hydrodams.

The energy potential of the Inga dams is such that they provide much of the electricity in the DRC through the grid in the west of the country, according to an NGO worker who cautioned, "If the dam stopped you would see the consequence". Their importance is thus keenly felt, and this translates to a level of pride that Congolese people feel in the dams. In particular the impact that their energy could have through a region grid is a point of pride, and this perceived position of the dams was expressed by the focus group at Inga,

The current development depends on electric energy. There is Africa. There is the DRC itself, which is waiting for electric energy. There is Africa. There is the world, even Europe. The World that needs electricity today. It's among the reasons that Inga 3, 4, 5, until 8, must be constructed.

Despite the potentially wide reach of the dams' electricity, its distribution is not even but rather dictated by economic necessities. This is particularly obvious in the case of the new dam, where the DRC has signed an agreement with South Africa so that this country will buy more than half of the new electricity. This may appear paradoxical, given the contrast between South Africa as a regional hegemon and the DRC with its energy access of 13.5%. However, according to the director of the DRC's energy company, this agreement is necessary so that the country can repay its loans in building the new dam, knowing that the Congolese populace is largely too poor to buy electricity.

Our empirical data suggests that local people at Inga, and in the DRC more generally, were largely understanding of the fact that South Africa is to receive this electricity, in view of their country's economic reality. However, the fisher focus group expressed the sentiment that they would also like to see benefits, stating, "If you were cooking, and you gave us something to eat but you had nothing yourself. Is that just? It's not just."

Similarly, the focus on energy use for industry within national borders is seen as justified as a connection is assumed between energy and development. This was made explicit by a participant in the youth focus group who stated, "Where there is a lack of energy, it's under-developed." The national benefit of industrial activities was emphasised by a focus group of cultivators, who also highlighted the geographic dependence of both industry and energy production, stating,

It's good though (that the energy is sent to the mines), because the factories are in our country. Those factories are not in Congo Central (the province surrounding Inga). Seeing as they are found in another province, the electricity must go there. It's the interior of our country.

However, study participants were less understanding of the distributional unevenness of household energy access, in terms of both space- and time-based coverage.

A particular grievance was often expressed related to the lack of grid access in village electrification, and this was further connected to practical social and environmental difficulties related to rural-urban migration. According to the energy company director, however, village electrification is limited by local buying power in much the same way as is seen on the national scale. A time-based grievance that many study participants complained about was the scheduled electricity cuts designed to spread the burden of an over-stretched grid. In particular, local people at Inga felt that they should not be subject to these cuts. A focus group of hunters at Inga expressed this as follows, “We are at the source. We can’t see the deslestage. It’s the worst thing that frustrates the bodies of the people who live here.”

Despite electricity cuts, those who live at Inga, or “in the cooking pot” as the fisher focus group had it, do receive some benefits. All residents of Inga town receive electricity and water free of charge, and most receive free housing too. However, survey results indicated that these services differ greatly in quality depending on the section of Inga. Energy company workers live in brick houses, with reliable access to water and electricity, without cuts. In a larger settlement of economic migrants and specifically people who worked on the construction of the dams, people live in clapboard houses and receive electricity only according to a schedule, as well as water of disputed quality.

In summary, the Inga dams have great potential to contribute to the national and regional electricity grid, but this is heavily constrained by the political and economic positioning of the DRC. The physical siting of grid infrastructure has been determined based on national priorities, but perpetuates uneven patterns of energy distribution. On a local level, there are co-benefits from the project, but these also follow an established and uneven pattern of distribution angled towards more powerful economic actors.

5.4.2 *Recognition Justice*

In order to understand the justice dynamics at play in the case of the Inga dams, it is necessary also to consider who is recognised within official processes, as the grid separates those who produce energy from those who use it, and more specifically also from those who may be affected by this production. In the DRC there is a specific legal framework for recognition of traditional land right-holders, which attaches quite clearly to the Inga dam project due to its size, impact and importance, both in physical space and in official discourse. Traditional land right-holders have been consulted about dam developments at times, although they do not feel this is sufficient. When a focus group was held among *ayant-droits* in a village near Inga, a participant stated, “The Chinese just arrived. Did we solicit their services? No! They just arrived, without being asked by the *ayant-droits*! Look at what our state is busy doing. It doesn’t contact the *ayant-droits*!”

Beyond consultation, the *ayant-droits* receive special benefits such as free medical care and education, and some food every year. However, the *ayant-droits*

themselves do not view this as true benefit, as they still largely live in unemployment and poverty while the largest energy project in the DRC is situated on land that is historically theirs. During the focus group of *ayant-droits*, the following statement was made, with specific reference to the house of the chief of the *ayant-droits*, a collapsing clapboard structure:

We are in colonialism because we do not benefit at all. People come to exploit, they enrich themselves. But we, who are the officials, we don't gain anything. We are in total poverty. Look at the house of the representative of the ayant-droits. How? This is the residence of the ayant-droits. Look. This is total negligence.

Thus, while official recognition of local people that may be affected by the dam project exists, it is limited for the *ayant-droits*. Further, it is limited to the *ayant-droits*. While only 10% of the people surveyed were *ayant-droits*, there is no official system to recognise others living at Inga who may be affected by the energy project.

This gap in recognition may be part of the reason that there is currently significant disjuncture between the needs of local people and how the energy company understands these. One example is that the dredging activities necessary for dam function interfere with fishers' livelihoods, but the energy company meets their concerns with disdain. Another example is a misunderstanding about what local people stand to lose when the new dam is constructed. The energy company does not feel much will be lost, "just fields", and is planning to compensate accordingly. However, traditional land-use practices are semi-nomadic so that fields may periodically become settlements. In addition, the poverty of people at Inga means that the vast majority are directly dependent on natural resources. The new dam development may impact significantly on their livelihoods, and this must be recognised by the energy company if local people are not to face injustice.

In this way, the dam project forms a platform for the recognition of traditional land rights, which could enable redress for inequalities initiated through colonial oppression. However, this policy may be insufficient to accommodate the current community at Inga. People that stand to be affected by the dam project are insufficiently recognised at Inga, and this could be the root of various practical social problems connected both to the existing dams and the planned dam.

5.4.3 Procedural Justice

Much as is seen with recognition justice, grid separation means that people affected by energy production may not automatically be included in its processes, and this may affect how benefits and ills are distributed. Special consideration is necessary to ensure procedural justice. This was not seen in the construction of the first two Inga dams, and this may be part of the reason for the distributional injustices detailed above. In this case, procedural justice is closely connected to the realisation of socio-economic rights, and its lack may cause further problems in the construction

of the new dam. Affected people have not been included in the relevant processes yet, and this is causing great distress. A focus group of women at Inga expressed this as follows,

If one chases us from here, will we still make fields where we go? Will we have houses there? How will we live there? Also, we will abandon our fields, abandon our fruit trees, and many things.

Local people are further connecting these concerns to specific suggestions for how they may be addressed. Many study participants spoke about wanting to be included in processes surrounding the dam construction, “around the same table”. According to the vice president of a community group representing those to be affected by the new dam project, this must stretch beyond the inclusion of the *ayant-droits*:

Like the ayant-droits who will be displaced, us too, we will be displaced. We have two groups. When they are speaking to the ayant-droits, at that moment, we the non-ayant droits must be able to discuss also.

In this way, procedural inclusion is both connected to socio-economic rights and constitutes a right in and of itself. This right is recognised by the energy company, which has an official planning document, requiring consideration of social and environmental impact, and is planning to consult affected people. However, we remain uncertain when this consultation will happen and who will be included.

This situation is disempowering to local people at Inga. Their rights to procedural justice are at least partially recognised by the energy company and the state, but they must wait for these actors to give effect to them. Further, and connectedly, they have constitutionally protected socio-economic rights such as energy access (DRC 2005), but must wait for the state to be able to grant these from within a position of postcolonial poverty and dependence (Hochschild 2006). The responsibility is entirely with the state and the state-owned energy company, and local people are aware of this. The fisher focus group stated,

If you want to look for fish, where will you go? To the fishers. But if the fisher say today that they do not have any fish anymore, there are no fish, where will you go? (The energy company) can't tell us that there is no transformer for electricity. It's (the energy company's) responsibility to find a solution.

While the technical competence mentioned here is not all that is necessary to enable energy access, it is an important component and here the energy company is better placed than the people depending on it. In the postcolonial context of the DRC, there are clear limits to resources, but the large project of the Inga dams has enabled the involvement of various international companies. The project enables the centralisation of resources and skills. However, the involvement of such private actors also brings with it further difficulties. Funding is commonly provided through loans that must be paid back with interest, and the international companies working at Inga commonly bring their own workers so that skills transfer is limited. While the Congolese state has the full responsibility of enabling energy access, it is also constrained within its post-coloniality (Young 2001: 57).

In this way, the concepts of rights and responsibility are central to procedural justice. In the case of the Inga dams, procedural rights are partially recognised, but surrounded by uncertainty, and this is disempowering to local people. The state has the power and the responsibility, but is constrained in the translation of procedural rights to socio-economic rights.

5.5 Discussion: Macro and Micro-levels' Justice

There are clearly justice issues here, and the energy justice lens helps to identify these. The findings highlight key issues in the establishment of renewable energy systems, in which justice is as important as effectiveness for sustainability. We argue that justice must be considered both on a macro level, in choosing an energy system, and on a micro level. Below, the findings of this study will be discussed in terms of their relevance to justice on both levels.

5.5.1 *Macro-level Justice*

Both grid-based and off-grid energy systems may face distributional justice concerns. In grid-based systems, energy access depends on grid access, or more particularly access to transmission infrastructure. This infrastructure is expensive to build, so that it presents a particular barrier to energy access in poorer postcolonial contexts, where energy access is still most limited. As seen in the Inga case, such infrastructure is likely to be built according to national priorities such as urban areas and industry, and the lasting nature of infrastructure may perpetuate inequalities.

Off-grid systems, by contrast, do not necessitate transmission infrastructure, but do still rely on technological resources and skills. In rural areas without energy access, poverty means that people must rely on an external actor for these, as was seen with the energy company. Distributional inequities will rest not on transmission infrastructure but rather on the activity and priorities of an external actor.

It follows that energy systems cannot be preferred for a socially just transition based solely on grid positioning, despite the links drawn between off-grid systems and justice in a recent paper (Damgaard et al. 2017). Additional factors must be considered. The Inga case demonstrates that one of these factors is the question of what the energy is to be used for (see Table 5.1). While household energy access has been clearly linked to development (Martínez and Ebenhack 2008), industrial expansion must form part of a just transition in postcolonial countries still struggling to fulfil socio-economic rights and gain true political sovereignty (Kasongo 2014; Power et al. 2016). This is necessary for greater economic equality on an international level, and also for global energy justice.

The Inga case in particular highlights the importance of industry in the DRC, while demonstrating its particular concerns. Energy resources are unevenly spread

Table 5.1 Opportunities and constraints of energy creation for industrial and household use, based on grid positioning

	Industry		Household use	
	Opportunities	Constraints	Opportunities	Constraints
Grid-based	Linkages between geographically separate energy and industry hotspots	Dependent on transmission infrastructure	Linkages between geographically separate energy and population hotspots	Dependent on transmission infrastructure
	Industrial expansion in postcolonial context	Difficult to meet grid's need for greater resources and skills in postcolonial context	Direct link between household energy access and development	Difficult to meet grid's need for greater resources and skills in postcolonial context
Off-grid	Self-sufficiency without need for transmission infrastructure	Limited to generation using local energy resources, which may be insufficient for industrial processes	Household self-sufficiency without need for transmission infrastructure	Limited by access to external actors providing resources and expertise

throughout the world according to the physical geography of a region (Eames and Hunt 2013), and this is further true of industrial resources. In the Inga case, the best site for hydroelectricity is in one part of the country, while resources to be mined are in another. Mining operations need large amounts of energy, and this means that a grid connection is necessary.

Similarly, the grid is used in the Inga case to link urban areas of high electricity use to the best site for hydroelectricity generation. Grid-based energy systems are useful in electrifying areas of national priority, where large electricity needs are not matched by energy resources. However, the flip side to this is that non-priority areas, such as rural villages, are not electrified. This presents clear distributional injustice (see Table 5.1). While these localised systems still depend on their geographical context like all energy systems (Szabó et al. 2011; Walker et al. 2015), the resources needed for the biogas are present wherever there are human settlements.

It follows that grid-based energy systems can be used to overcome geographical unevenness in resources and have a particular role to play in industrial development linked to socio-economic justice outcomes. By contrast, off-grid energy systems may promote household energy access in areas not reached by the grid for political or geographical reasons. In the development of renewable energies on a macro level, there is a need for energy justice to be applied not just to the energy mix, but also to the energy systems mix. The energy systems mix must be complex and context specific, while considering national development priorities for global energy justice.

5.5.2 *Micro-level Justice*

Above, it is suggested that both grid-based and off-grid energy have a role to play in a renewable energy system for a just transition. However, both face justice challenges. It is useful to consider not just what the energy systems mix should look like, but also what mechanisms should be used for its functioning. Both the question of who is involved (related largely to recognition justice) and how they are involved (largely procedural justice) are relevant to justice, and here some useful distinctions can be made based on grid positioning (see Table 5.2).

Grid-based systems, by their very nature, separate energy producers from energy users, and also from those who may be affected by this production. This may have distributional benefits, allowing for equitable energy distribution despite geographical unevenness. However, it also means that systems must be created so that those who are affected by energy production can have some control over decisions made by energy producers. This is essentially the basis for calls for recognition justice, which have traditionally been made in connection with grid-based systems (Islar 2013; Moritz 2012; Szasz 1994). The dynamics has traditionally been couched in rights terminology, with the state and energy companies having the responsibility to fulfil affected peoples' rights to fair and inclusive policies (London 2003; Owoeye 2016). The relationship is a reflection of the power dynamics in a particular situation. More specifically, it may signify a situation of disempowerment, much as was seen at Inga where local people have little control over their energy futures but can call for their recognised rights to be enforced. One specific justice issue here is that the recognised rights are not sufficient, as only *ayant-droits* are officially recognised. Another issue is that the way in which local people are to be included in relevant procedures is not clear, and may not stretch beyond consultation (Arnstein 1969). In such cases of grid-based electricity provision to a powerless people, the search for both justice concerns and their resolution must begin with the powerful actors providing energy. It is at the interface of energy producers and the affected community that systems must be set up to allow for both recognition and procedural justice.

Table 5.2 Rights and responsibilities for energy justice in grid-based and off-grid energy systems

	Rights		Responsibilities	
	Who	What	Who	What
Grid-based	All affected people	Fair and meaningful involvement in project's processes	State/private energy company	Fulfilment of rights and delivery of energy
Off-grid	All household members	Fair distribution of tasks and benefits from energy	Individual/household head (depending on household structure)	Fulfilment of rights and creation of energy
	All households involved in energy project	Resources and skills for energy production	State/private energy company	Provision of resources and skills

This approach cannot simply be applied to the case of an off-grid energy system, however. The separation between producers, users and those affected, which forms the basis for the argument above, is not present here. Households are simultaneously producers, users and those affected, and it may be assumed that there are no justice concerns. However, households are not one unit, but rather are composed of individuals which may have different needs and concerns, and also different levels of power in decision-making about a household energy project (Browning and Chiappori 1998; Lundberg et al. 1997; Majlesi 2016). An application of the energy justice lens to an off-grid energy system must consider intra-household dynamics.

Beyond this, another relevant dynamics is that between households and the energy company providing them with resources and skills. This may be a public or private actor, but its role in enabling the fulfilment of basic rights means that it has important responsibilities. Off-grid contexts demonstrate that householders are constrained in their energy access by the question of whether or not the energy company is present. It is important to consider all actors involved in an off-grid energy project when applying the energy justice lens to determine who has the responsibility for fulfilling rights and enabling energy production. In this case, there may be a need to set up systems for recognition and procedural justice between energy producing households and the energy company.

The grid positioning of a particular energy system has clear implications for which justice concerns might be seen, and where they might be. While for grid-based systems it is the relationship between energy producers and those affected that must be carefully managed, in off-grid systems both dynamics within a household and with additional actors should be considered. Regardless of the system adopted, however, it is clear that the energy justice lens is relevant to the social sustainability of new renewable energy systems, and also to their environmental sustainability.

5.6 Conclusion: Energy Justice Research in the Global South

We argue, at this early stage of research in this area, for a loosening of theoretical logics of justice in energy justice studies. Theoretical accounts of justice threaten to bind energy justice researchers into pre-determined Western logics of justice (Barnett 2010; McCauley et al. 2019). Our macro and micro typology is an attempt to shake off the binds of such logic. For Caney (2010), justice research has previously focused on exposing and proposing archetypal normative frameworks. Attention should be drawn to where and when injustice is felt and experienced; in support of Hobson (2006), justice-based activism research must diversify its understanding of where injustice can be found in multiple contexts. Justice, in this regard, is pluralist.

Reed and George (2011: 839) comment, “researchers are cautioned that the long-observed disconnect between theory and practice in the field of environmental justice may be exacerbated should academics become more concerned with theoretical

refinement over progressive, practical, and possible change". The theorisation of justice seeks to expose ideal end points (and more recently processes) from various (usually Western) philosophical traditions. In a similar vein, Schlosberg (2013) argues that justice theorists need to be pluralist in accepting a range of understandings of "good". We argue from a geographical perspective that the comparative nature of spatial dimensions continues to offer an opportunity for expanding comparative philosophy. The first step in this direction is the acknowledgement that the study of justice is pluralist, and our understanding of spatial dimensions must develop accordingly. It is argued here that we need to explore the plurality of injustice too.

Martin et al. (2014: 2) acknowledge "that justice poses considerable conceptual challenges, not least because of the practical (if not intellectual) impossibility of reaching consensus". Their conclusion bears a self-reflective unease as they question the limitations of their own framing and methods, including the underlying logics of justice. This calls for acknowledgement then, that justice is contextual. Walker (2009: 622) comments, for example, that "as we move from concern to concern and from context to context, we can expect shifts in both the spatial relations that are seen to be significant and in the nature of justice claims being made".

We should examine multiple reasons for the construction of injustice. This chapter calls for an exploration of the construction of multiple energy injustices through activism-based research. The expansion in the theorisation of justice as a concept must be answered with a similar response in our empirical understanding of energy justice and the injustices it entails. As Barnett (2010: 252) comments in support of Sen (2011), "(r)ather than thinking of philosophy as a place to visit in order to find idealised models of justice or radically new ontologies, we would do well to notice that there is an identifiable shift among moral and political philosophers towards starting from more worldly, intuitive understandings of injustice, indignation, and harm, and building up from there".

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