

# A Community Engagement Model for an Inclusive Just Energy Transition in the South

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## Abstract

Within a dynamic global political arena, the economic ramifications of the COVID-19 pandemic, energy impoverishment, ever-increasing global awareness of climate change, energy justice and just energy transition have emerged as important aspects that require critical reflexive deliberation to ensure that those on the margins of the energy divide do not pay the price for such a transition. Existing models to ensure energy justice were described as failing to consider stakeholder perspectives and needs. It was therefore proposed that such models be inclusive and reflective of diverse stakeholders, including local households, communities, utilities and governments. To this end, the University of South Africa's Institute for Social and Health Sciences has developed a Transformational Model of community engagement in collaboration with communities which can be applied to articulate and guide the community engagement processes in an inclusive just energy transition. In this article, I present the model which offers opportunities to integrate multiple perspectives, prioritise the needs of diverse community stakeholders, interrogate power imbalances, and enhance working collaborations and partnerships, while also facilitating ongoing oversight and sustainable programme implementation. This model is a viable framework to achieve energy justice through an inclusive equitable transition to renewable energy technologies and by extension to reduce energy poverty. It has been applied in diverse community contexts across two provinces (Gauteng and the Western Cape) to engage with and build lasting community–institutional relationships. It has also been used to design, develop and evaluate contextually applicable sustainable initiatives, including a community-wide campaign.

**Keywords:** transition; energy justice; community engagement; energy poverty; renewable energy technologies

## Introduction

Improving access to safe, clean, inexpensive, reliable and sustainable energy, as envisioned by the United Nations Sustainable Development Goal 17, is widely recognised as essential to dealing with energy poverty and enhancing health and socio-economic development (Bacchiocchi, Sant & Bates, 2022; Kimemia, Van Niekerk & Seedat., 2021; Nixon, Bhargava, Halford & Gaura, 2021; Pandey & Sharma, 2021; Van Niekerk, Kimemia, Seedat & Annegarn, 2022). Energy poverty is defined as a situation in which households are confronted by everyday challenges in meeting their necessary energy needs owing to a combination of socio-economic, technical, environmental and political factors (Bednar & Reames, 2020). Energy poverty in sub-Saharan Africa continues to disproportionately affect low-income settlement areas and poorer households. Over 600 million individuals in sub-Saharan Africa do not have access to electricity (Baker et al., 2021). Although electricity access in South Africa is relatively high (Bohlmann & Inglesi-Lotz, 2018) with an electrification rate of 90% in 2018 (a marked increase of 58% since 1996) (Ye & Koch, 2021), a staggering 47% of South African households remain energy poor (Statistics South Africa [StatsSA], 2019a).

Various factors have been associated with energy poverty, including race, poverty, employment status, education, and high prices of electricity (Graff & Carley, 2020; Graff, Carley, Konisky & Memmott, 2021; Koomson & Churchill, 2022; Van Niekerk et al., 2022; Wang, Kwan, Fan & Lin, 2021). Previous global research indicates that although low-income households' overall energy expenditure is less than wealthier households, they mostly have higher energy burdens than wealthier households because a higher proportion of their household income is spent on energy (Brown, Soni, Doshi & King, 2020; Drehobl, Ross & Ayala, 2020; Kontokosta, Reina & Bonczak, 2020, Ross, Day et al., 2022). Low-income households in the United States were found to have disproportionately greater energy burdens as compared to the national median household (Kontokosta et al., 2020). Certain racial groups (African American households) were more vulnerable to energy poverty and accounted for almost half of all energy-poor households (Graff & Carley, 2020; Wang et al., 2021). Similarly, and despite the high rate of electrification in South Africa, low-income households in the country are burdened with a higher proportion of energy-related costs to fulfil their basic energy requirements (Pather-Elias, Reddy, Wolpe & Radebe, 2017). Energy poverty among Black South African households was found to be higher when compared to other racial households, and the high employment precarity in South Africa was found to contribute to this proliferation (Koomson & Churchill, 2022). In informal settlements and households living in backyard shacks in South Africa, energy poverty is particularly endemic owing to deprived access to electricity and the level of poverty, ie affordability (Sustainable Energy Africa, 2017; Van Niekerk et al., 2022).

Individuals and families who are burdened with higher energy costs often experience poorer well-being and health issues which result in many low-income families having

to choose between paying for energy or buying other essentials such as food and medicine, and paying for childcare (Brown et al., 2020; Climate Reality Project, 2020; Ross, Dreobl et al., 2022). People living in energy poverty in South Africa are therefore trapped in an intricate web of deprivation because of the direct physical, psychosocial and economic consequences stemming from energy poverty. This includes diminished productivity, property losses because of unsafe energy sources and appliances, adverse health outcomes stemming from exposure to poisoning, air pollution and burn injuries, and meagre resources for the treatment of burn and other energy-related deleterious health outcomes, which can have long-term consequences (Kimemia, Van Niekerk, Sempuga & Seedat, 2017, Van Niekerk et al., 2022). Relinquishing medical treatment to pay for energy expenses can also lead to premature death (Brown et al., 2020; Reames, Daley & Pierce, 2021).

The inability of poor households to buy electricity or not having access to electricity causes them to resort to alternate unsafe forms of energy such as coal, paraffin, candles and wood (Sustainable Energy Africa, 2017). Research findings demonstrate that low-income households in South Africa continue to use paraffin and wood as energy sources to meet their daily energy requirements (Bohlmann & Inglesi-Lotz, 2018; Kimemia, Vermaak, Pachauri & Rhodes, 2014; Ye & Koch, 2021). It is therefore disconcerting that, despite the danger of unsafe energy sources and the various harmful health outcomes, South African municipalities in rural areas primarily provide paraffin, fire gel and candles as energy sources (StatsSA, 2018). More than 86 500 poor households, comprising 2.5% of the 3.5 million poor households in South Africa, are provided with free paraffin in 20 municipalities, 0.6% (19 600 indigent households) with fire gel in 10 municipalities, and of the 5% (830 000) of South African households that use candles as a main source of lighting, 13 700 poor households (0.4%) are provided with candles in seven municipalities (StatsSA, 2018). Given the continuous structural divides and the disjuncture between policy and grassroots implementation in South Africa, access and transitioning to safe renewable energy technologies (RETs) are therefore essential to achieving equity for all by ensuring universal access to quality utilities, such as clean, safe energy.

It is both an enormous challenge and a momentous opportunity to transition from today's unequal carbon-intensive energy system to a fair and equitable one based on renewable energy to achieve the sustainable development goals (Baker et al., 2021). However, the heavy reliance on a fossil fuel-based economy renders the transition to renewable energy alternatives a particularly complex and difficult process (Pandey & Sharma, 2021). Within a dynamic global political arena, the economic ramifications of the COVID-19 pandemic, an ever-increasing awareness of global warming and climate change, energy justice and just energy transition have particularly emerged as important aspects that require critical reflexive deliberation to ensure that those on the margins of the energy divide do not pay the price for such a transition (Halsey & Wolpe, 2020; Jenkins, Stephens, Reames & Hernández, 2020; Van Niekerk et al., 2022). The notion of energy justice, also known as "energy equity", refers to the application of basic

principles of justice and fairness to the apparent injustice inflicted on people who are deprived of sustainable energy, ie energy-oppressed poor people (Guruswamy, 2010). In short, energy justice is about providing all individuals with safe, affordable and sustainable energy using a critical framework for all energy-related decision-making processes (Bacchiocchi et al., 2022; Graff et al., 2021). Ross, Day et al. (2022) contend that, to limit climate change in the future, transitioning to a safe low-carbon energy economy is inescapable, but warns that failure to prioritise energy justice and extend renewable energy access to disadvantaged communities may exacerbate existing inequalities.

Van Niekerk et al. (2022) urge the South African government to prioritise, develop and implement a substantive policy to ensure that safe energy is supplied to energy-poor households and communities (together with other interventions aimed at ensuring access to good quality housing and regular household incomes). One of the key elements of this guide to policy development proposed by the authors is a community engagement strategy. This strategy, they note, should attempt to stimulate and engender citizen receptiveness to an energy transition programme and utilise safe energy alternatives, particularly in the case of affected households and communities (Van Niekerk et al., 2022). In this article, I examine and present a case for the adoption of an existing model for community engagement that can be applied to contribute to an expedited migration to RETs. The model offers opportunities to consult multiple perspectives, prioritise the needs of diverse community stakeholders, interrogate power imbalances, and enhance working collaborations and partnerships, while also facilitating ongoing oversight and sustainable programme implementation.

In addition to the introductory part of this article, which is regarded as section one, section two presents a conceptualisation of energy justice and just energy transition, section three provides a brief overview of the Ukuphepha Transformational Model of Community Engagement, section four outlines the application of the model in transitioning to RETs, and section five provides some concluding thoughts.

## Energy Justice and Just Energy Transition

Energy justice aims to achieve equity through increased participation of previously disadvantaged communities in the energy system while removing the historical social, economic and health burdens that have been placed on them because of past energy practices (Initiative for Energy Justice, 2021). Energy justice necessitates foregrounding the energy needs of those people on the peripheries of the energy divide. The concept of energy justice, therefore, forms an essential part of the just energy transition, as it deals with the concerns about fairness and equity linked to the current extractive energy system and incorporates three elements that are vital to a just transition: deep democracy, cooperation and renewal (Initiative for Energy Justice, 2021). “Transitions” have been described as “non-linear processes of social change in which a societal system is structurally transformed” (Avelino, 2011, p. 3).

Energy democracy is a notion that arose primarily from social movements and aims to resist the dominant energy agenda, reclaim and democratically reform energy and electricity sectors by promulgating a move away from monopolised fossil fuel-based systems and advancing renewable energy transitions (Stephens, Burke, Gibian, Jordi & Watts, 2018; Van Veelen & Van der Horst, 2018). The movement strives to disrupt existing power relations by connecting social justice and equity to all forms of energy innovation through combining technological advancement with the prospective for socio-economic and political change (Stephens et al., 2018). The aim is to achieve decentralisation and social control of energy systems, equitable access and prevention of harm to both people and the environment (Van Veelen & Van der Horst, 2018).

Energy justice offers an analytical framework for evaluating the implications of decision-making in transitioning to clean energy (Bacchiocchi et al., 2022). It also considers where injustices occur, which affected parts of society are ignored, and the existing processes for their remediation to expose and decrease such injustices (Jenkins, McCauley, Heffron, Stephan & Rehner, 2016). Energy justice is therefore assessed through three core tenets: distributive justice, recognition justice and procedural justice. Accordingly, for energy injustice to be resolved, the first step must be the identification of the problem, ie distributional justice, which considers who benefits and who carries the costs of change in the energy transition (Bacchiocchi et al., 2022; Jenkins et al., 2016). Owing to factors such as geographic proximity, prior marginalisation and lack of access to benefits, including workforce development, these costs may be disproportionately distributed among communities (Bacchiocchi et al., 2022). The second step is the identification of those it affects, ie recognitional justice, which aims to recognise every individual or community who is affected by transformations in the energy system and recognise the socio-political and cultural ramifications of energy policies and decisions on all people (Bacchiocchi et al., 2022; Jenkins et al., 2016). Particularly important in this step is to note the ways in which energy systems and transitions may unduly affect marginalised communities (Bacchiocchi et al., 2022). It is only then that one can implement the third step by devising strategies for remediation, ie procedural justice (Jenkins et al., 2016). Procedural justice foregrounds inclusive processes in decision-making during every phase of the energy transition process.

Community engagement is therefore imperative for informing ethical decision-making in contexts of vulnerability, ensuring energy justice, transitioning to alternate forms of energy, redressing community concerns, and improving public health outcomes (Allotey, Tan, Kirby & Tan, 2019; Dwyer & Bidwell, 2019; Jenkins et al., 2020; Kallis et al., 2021; MacQueen, Bhan, Frohlich, Holzer & Sugarman, 2015). The Deputy Secretary-General of the United Nations, Amina J. Mohammed (2017), stated that participation, consultation and engagement are crucial to implementing the 2030 sustainable development agenda effectively. This includes creating an environment that promotes participation (SDGs 16 and 17), providing meaningful participation and engagement opportunities for marginalised, vulnerable and excluded people and communities, and finding ways to generate effective participation, ie exploring and

implementing new ways of mobilising and sharing resources, expertise and knowledge across multi-stakeholder partnerships. Arguably, community engagement is therefore the starting point for sustainable just energy transition as it places emphasis on local citizens.

Previous studies have indicated that energy interventions that use top-down models, with no community consultation and engagement and no or little regard for energy preferences and aspirations of such communities, result in the failure of such energy interventions (Nixon et al., 2021). Citing numerous narrowly focused models and all-inclusive models that take into account and track the entire energy system in a particular area, from extraction to conversion to final use and agricultural and environmental factors, Baker et al. (2021) argue that these models are deficient. They note that these models not only fail to consider important aspects of developing countries, such as supply shortages, resource constraints and the high proportion of informal economies, but also do not take into account and integrate the perspectives and preferences of local stakeholders regarding the goals driving their energy transition (Baker et al., 2021). This is precisely why community engagement advocates focus on issues of power and citizen control because, without decision-making power, community engagement can without a doubt become a sham, especially where projects are steered by external groups (Allotey et al., 2019).

Even though the South African government through its first policy document, the White Paper on the Energy Policy, commits to providing the poor and disadvantaged segments of the population with access to basic energy services, poorer communities in South Africa, as elsewhere, while still battling the vestiges of apartheid, face huge limitations imposed by poverty and ineffective operationalisation of policies dictated from above (StatsSA, 2019b). This further amplifies their energy poverty situation. Since the White Paper, several policies have been developed and revised to assist in the implementation of the White Paper on free basic electricity which sought to redress affordability constraints (Sustainable Energy Africa, 2017). Conceptually, these policies are sound, but in their implementation, they fail because of a lack of coordination that leads to electrification backlogs, diverse implementation approaches, affordability challenges, illegal connections, grid limitations and the use of unsafe sources of energy such as paraffin and candles (Sustainable Energy Africa, 2017).

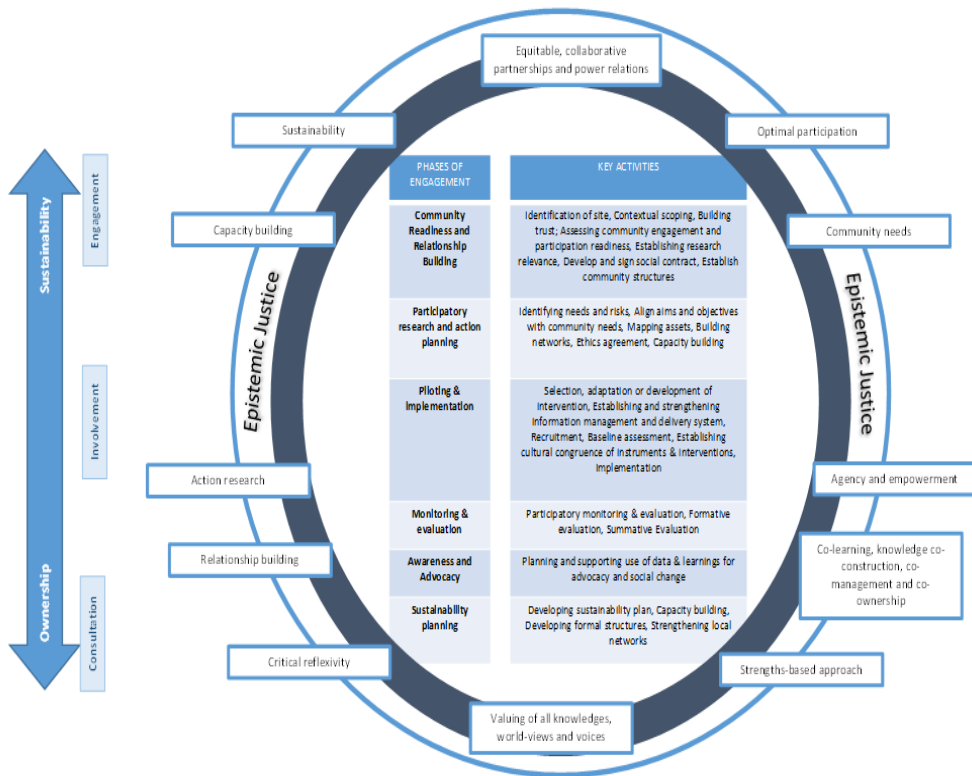
In energy development, energy justice is hardly ever a priority since local communities, particularly communities of colour, are often marginalised in decision-making processes about energy siting development (Ross, Day et al., 2022). When it comes to energy access and affordability, meaningful engagement with low-income communities rarely occurs, and if engagement does occur, it is often a once-off tokenistic activity instead of a participatory, collaborative, people-centred process over time (Dwyer & Bidwell, 2019; Halsey & Wolpe, 2020). Innes and Booher (2004) assert that in contexts in which public engagement is a legal imperative, the public is not engaged in a

meaningful way, but rather public hearings or review and comment procedures used by agencies and public officials merely satisfy legal requirements.

To this end, it is important to consider Keet's (2010) distinction between community engagement as colonisation and community engagement as transformation. He points out that historically anchored, unexamined power relations render authentic engagement impossible. This unspoken component of injustice is noticeably widespread in the community engagement practices of institutions and governments and can be ascribed to the colonial epistemic logic of subordination (Keet, 2010). Knowledge politics that locate technology and science as epistemologically superior to other forms of knowledge and being in the world generate asymmetries of power, and therefore repeatedly hamper the social agency and participation of citizens and local groups. (Pandey & Sharma, 2021). In such instances, true participation in planning or decision-making is not achieved, citizens requisite to be heard are not satisfied, and it is not inclusive as the public is not adequately represented in the engagement processes (Innes & Booher, 2004).

## Ukuphepha Transformational Model of Community Engagement

The Institute for Social and Health Sciences at the University of South Africa developed the Ukuphepha Transformational Model of Community Engagement, an exemplar of a contextually congruent model for community engagement to ensure optimum involvement of locals. This model can serve as a blueprint for ensuring effective stakeholder and community engagement and involvement, and for building equitable collaborative partnerships in the transition to RETs. The model draws specifically on work done by Terre Blanche and Seseli (1992), Eksteen, Bulbulia, Van Niekerk, Ismail & Lekoba (2012), Lazarus, Bulbulia, Taliep & Naidoo (2015) and Seedat et al. (2015). It provides a critical approach to community-engaged work that is embedded deeply in community-based participatory action research (CBPAR) principles and foregrounds the central involvement of communities (including community members, government officials, institutional representatives, policymakers, service providers, and non-profit, non-governmental and faith-based groups) in the planning, development and evaluation of community-building initiatives. This approach acknowledges that citizens are not just key resources, stakeholders or social actors in research processes, but that they are equal co-producers of knowledge and research outcomes that in the long run bring about just social transformation (Taliep, Bulbulia, Lazarus, Seedat & Building Bridges Team, 2022). The model (see Figure 1) therefore provides a framework that can help to disentangle epistemological and ontological biases, and to disrupt and transform conformist ways of learning, deliberating and knowing by “un-silencing” marginalised voices, affirming, and validating local knowledges through exercising critical reflexivity as outsiders, and giving due consideration to power dynamics and knowledge hegemony in knowledge production and decision-making processes (Taliep et al., 2022).



**Figure 1:** Ukuphepha Transformational Community Engagement Model (Taliep, Lazarus, Bulbulia, Ismail & Hornsby, 2018)

The model, which aligns with national and international priorities, in particular the UN 2030 Strategic Development Goals and the South African National Development Plan (NDP), consists of six, non-linear, interactive and dynamic phases that are expressed as follows: (1) community readiness and relationship building; (2) participatory research and action planning; (3) piloting and implementation; (4) monitoring and evaluation; (5) awareness and advocacy; and (6) sustainability (see Figure 1). These phases are further guided by 12 core CBPAR principles as demonstrated in the outer circle in Figure 1 (Taliep et al., 2018).

Research has indicated that engaging communities can be seen as occurring on a spectrum of engagement that can be distinguished by the level of decision-making power and power-sharing among all parties in the engagement activity (Hashagen, 2002). The model can be considered transformational as it transgresses symbolic engagement and empowerment activities, reflecting reciprocal processes across a continuum ranging from consultation to involvement and engagement. It is grounded in the values of social and epistemic justice, empowerment, criticality, equity and social



transformation (Bulbulia et al., 2018; Chávez, Minkler, Wallerstein & Spencer, 2007; Freire, 1970; Taliep et al., 2022), which inform all the community engagement phases and activities. This model reflects a participatory two-way process, where there is an explicit emphasis on co-learning and co-construction of knowledge, co-ownership, critical reflexivity, and challenging power imbalances. It foregrounds community ownership and sustainability as key outcomes, highlighting its focus on engagement as transformative, as counter to (re)colonising research processes (Aggett, Dunn & Vincent, 2012).

## Application of the Model to Energy Transition

This section outlines the various phases of the model, the key activities or steps in each phase, and the way in which it can be applied in the transition to RETs. Although these phases and activities are presented sequentially here, they are non-linear and so, for example, certain steps or activities such as relationship building does not just occur at the start of engagement but throughout all the phases.

### **Community Readiness and Relationship Building**

The model advocates a relational approach in which compassionate relationship building and ongoing negotiation are the focus. This entails establishing a presence (community entry), considering community engagement and participation readiness, establishing research or intervention relevance, building trusting relationships with stakeholders and members of the community, developing and signing a social contract, and establishing community structures.

Negotiating and gaining community access can be considered essential prerequisites to any participatory process and go together with building trusting relationships. It recognises community-based actors and stakeholders as meaning-makers and ensures inclusive participation right from the start of an initiative (Taliep & Bulbulia, 2018). The aim is to gain access to the community to create safe spaces for those who experience energy injustice; spaces in which they feel comfortable to freely express their views and concerns, clarify issues, voice expectations, and actively participate in decision-making (Bulbulia et al., 2018). Creating such spaces in which the community voice is elevated will ensure that those who are predominantly affected by energy issues are centrally involved in the conversation from the outset and engaged in the research process (Jenkins et al., 2020). The core principles that guide community entry include (1) respectful dialogue, ie unbiased and respectful engagement, (2) sensitivity to needs, ie constant awareness of stakeholder needs, (3) historical perspectives, ie critical consciousness of the community's historical experiences with development projects and institutional betrayal, and (4) openness to iterative learning, ie being receptive and open to community stakeholder's views and self-reflective to change of own perspectives. Communication and information are key elements of this process to generate support and build trust with all stakeholders in the community.

Locals are often disenchanted and weary of outsiders who make empty promises and exit once they have completed their research, often with little to no benefit to the community (Bulbulia et al., 2018; Taliep et al., 2022). Community members' refusal to participate in three renewable energy technology projects in India was ascribed to a lack of trust in such projects (Pandey & Sharma, 2021). This lack of trust was ascribed to "fear of exploitation by corporates due to loss of moral authority and experiential expertise" because of unsuccessful previous interventions, "durability of technology for long term use", and "difference in value systems and ideology" based on an unpleasant prior experience (Pandey & Sharma, 2021, p. 8). Findings from a study by Dwyer and Bidwell (2019) in the United States on procedural fairness and stakeholder trust in an offshore windfarm project highlight the importance of building trust. The authors note that trust is built sequentially through iterative interactions between process leaders and the participants. Participation allows researchers to build trust with local citizens and stakeholders, which is an indispensable element of community engagement processes. To foster trust, our model encourages equity and fairness throughout the community-engagement and co-development process so that community members feel heard and valued. This relationship of trust is further solidified through the co-development and signing of a social contract with community leaders and the setting up of a community advisory structure to serve as the oversight structure to the project. Dwyer and Bidwell (2019) note that the provision of a procedurally just process can enhance trust between stakeholders, developers, academic and government entities, and locals, which is necessary for generating acceptance for the proposed outcomes.

A community's readiness for transitioning from a carbon-intensive energy system to a fair and equitable one based on renewable energy can be gauged by the degree of their preparedness for the transition. On a continuum, community readiness can range from no awareness, denial or resistance, and vague awareness to clear recognition, active preparation, and a high level of community ownership (Ismail & Rawatlal, 2018). It may be argued that the level of readiness will be influenced significantly by access to information at all stages. In a report published by the United Nations (2010) on RETs implemented in Nepal, Eritrea, Guatemala, China, Argentina, the Lao People's Democratic Republic and Namibia to reduce energy poverty, awareness about the existence of the technologies and the ways in which to use them were cited as key barriers to the promotion of RETs as viable alternatives.

Even if a project is implemented, it is likely to be unsuccessful if members of the community are not ready to accept it. Community acceptance denotes the specific approval of siting decisions and acceptance of renewable energy projects by key local stakeholders, including community members and local authorities (Wüstenhagen, Wolsink & Bürer, 2007). Citing by way of example community resistance in Germany to new wind energy projects, Wüstenhagen et al. (2007) note that a key factor that could be a formidable barrier to transitioning to RETs is social acceptance, including broad socio-political support, and key stakeholders and citizens' approval of specific projects.

## Participatory Research and Action Planning

Participatory action-oriented approaches to achieving energy justice are vital for transcending “passive recipient” approaches to just community energy transitions (Lacey-Barnacle, 2020). Top-down, technocratic and hierarchical approaches to planning are described by Wüstenhagen et al. (2007) as, at best, insufficient to help create local conditions conducive to acceptance and trust, particularly for those project developers who come from outside the local community (Wüstenhagen et al., 2007). As opposed to top-down approaches that breed a sense of unfairness and distrust in the engagement process and outcome (Dwyer & Bidwell, 2019), the model foregrounds a “grounded” approach. The model particularly underscores co-learning and co-creation of knowledge as core CBPAR principles, and participatory research and action planning as critical building blocks to determining community concerns and negotiating solutions through interactive participatory engagement with all the relevant stakeholders.

As experts of their own lived reality, community members should be centrally involved in ensuring that renewable energy initiatives are relevant and responsive to their identified priorities and needs. In this regard, Jenkins et al. (2020) call on energy justice scholars to adopt the principle of “participatory justice” alongside recognition justice to learn from and work in partnership with communities living with energy injustice. The philosopher Hegel regarded misrecognition or the lack of recognition as a form of enslavement resulting from unequal encounters where the more powerful do not recognise the concerns of the other less powerful (Coolsaet & Néron, 2020). Disrespectful cultural and institutional processes which devalue certain people, local knowledges, their cultural practices, and cultural identity compared to others are at the heart of misrecognition (Pandey & Sharma, 2021; Velasco-Herrejon & Bauwens, 2020). Devaluing citizens’ needs as abstract and universal that can be redressed by market and technological solutions is one example (Pandey & Sharma, 2021). Recognising how certain marginalised communities may be disproportionately affected by energy systems and transitions is essential to achieving recognition justice (Bacchiocchi, 2022). To understand the ways in which exclusion and devaluation are implemented through epistemic practices, we need to ask: “whose knowledge counts in defining needs and priorities, who decides which pathways to take and who wins and loses in energy transitions?” (Pandey & Sharma, 2021, p. 2).

Participation presupposes that all the relevant stakeholders are directly involved in democratic decision-making concerning their lived reality and not simply in the approval of decisions made for a community. There must therefore be a simultaneous interest to proactively engage with affected communities and an inclusive set of stakeholders, learn from, privilege and translate their concerns (Jenkins et al., 2020). This aligns with the notion of recognition justice which acknowledges all individuals or communities affected by changes to the energy system and takes into consideration the socio-political and cultural impact of energy policies or decisions on all people (Bacchiocchi, 2022). The inclusion of civil society members in political decision-making, providing them with relevant information and creating safe spaces for them to

raise concerns or to question local government and authorities, enhance transparency and accountability (Kohler & Martinez, 2015). Dwyer and Bidwell (2019) note that RETs have been relatively slow to gain traction despite widespread support because of the perceived unfairness, poor quality of decision-making processes, and the effect of these processes on local projects. Participation is undermined when community engagement procedures do not support the power of citizens to make and execute decisions when citizens are unaware that they can play a role, and when they are not organised (Allotey et al., 2019; Kohler & Martinez, 2015). A just energy transition, then, considers both the relevant aspects of who is being represented or participating in decision-making processes and the measures that facilitate or hinder this representation or participation (Lacey-Barnacle, 2020).

An important principle of CBPAR is to value community knowledges and the role of locals in the knowledge creation process. Decision-makers must consciously include and count on community guidance and direction to ensure community agency (Ross, Day et al., 2022). This process of co-learning and co-creation of knowledge is based on a collaborative partnership in which local citizens and outsiders, for example, academic and institutional representatives, exchange knowledge, share ideas, make suggestions, transfer skills, and collaboratively develop novel understandings and action plans (Lazarus et al., 2015; Taliep, 2016). Meaningfully engaging with communities in the planning processes can increase people's support for the project, which is particularly important for ensuring a just energy transition and facilitating the development of renewable technologies (Dwyer & Bidwell, 2019; Wüstenhagen et al., 2007). The mobilisation of citizen knowledges enhances equity in decision-making regarding renewable energy investment, which can engender community approval of renewable energy initiatives (Ross, Day et al., 2022).

Reconfiguring knowledge politics by preserving recognition-based justice in establishing priorities of energy transitions (rooted in community and specific local needs and interests) may be an effective action in dealing with trust concerns and mustering support for renewable energy initiatives (Pandey & Sharma, 2021). A lack of community support was identified as a key barrier to the uptake of RETs, and in instances in which local citizen input and needs were integrated into programme design, more robust support and understanding were achieved from locals (United Nations, 2010).

### **Piloting and Implementation**

There are multiple levels of scale in the development and uptake of RETs. Rapiet (2011) notes that these may move from modelling (ie developing a prototype or computer simulation which serves as a guide for the development of a technology) to scaling the model via a pilot facility to a demonstration facility prior to broader implementation of the technology. Pilot studies and demonstration test or site facilities are small-scale studies undertaken to assess the feasibility of renewable energy initiatives. For some projects, though, a pilot facility may also be a demonstration facility, so there are no

clear boundaries between these two (Rapier, 2011). Demonstration facilities or sites are integrated facilities constructed to demonstrate that the different aspects of a technology work in unison at that scale, so each of these phases can be regarded as a doorway to the next as barriers at one level can hamper a technology from advancing to the next (Rapier, 2011).

Without piloting or demonstrating the practical possibilities of new technologies and getting a sense of what will or will not work, it is impossible to know if a particular project will be successful in future (Enertiv, 2018). Piloting provides developers with insight into the future by identifying challenges or barriers during the testing phase, and for refining and modifying the technology. This can be achieved by implementing the pilot study with pilot participants, households or communities, involving, training and capacitating community members to co-monitor and observe the technology, and obtaining feedback from intervention pilot participants or households or community members via, for example, interviews, focus-group discussions or regular reflections. Participatory piloting processes build democratic traditions, foreground community-centred learning and social justice, ensure optimal participation of community members in the research process, which can foster the building of trust. Piloting can help assess people's willingness to participate, collect preliminary data, gain general feedback on the technology, the scale of the process that was demonstrated, the level of consistency between the model and the demonstration process, the sources of raw material, and the availability of these materials for the process (Ismail & Hornsby, 2018; Rapier, 2011). It allows developers or researchers to assess contextual congruence, determine the resources required or estimated cost to implement on a larger scale, identify possible logistical or practical problems, and uncover local political issues that may have an impact on the implementation of the project (Ismail & Hornsby, 2018). Piloting also aids long-term decision-making and provides evidence to potential investors on the viability of investing in a scaled version (Enertiv, 2018).

Key factors to consider in implementation is the buy-in and recruitment of participants, the retention strategy, which are directly linked to relationships based on trust, community participation and collaboration. An example of a local small-scale RET project that obtained community buy-in and active participation is the solar systems collaborative project between the iShack Project, GreenCape's Alternative Services Delivery Unit, the Airports Company South Africa, Wärtsilä, a Finnish technology manufacturing company, and the Friedrich Naumann Foundation for funding (Omarjee, 2022). Unemployed locals were capacitated to install and maintain more than 580 home solar systems at a small fee, which covers a local entity's operating expense that employ locals to install and maintain the systems (Omarjee, 2022). The community therefore benefits financially through the provision of employment and a reduction in household energy costs.

Also important to implementation is awareness and knowledge about the renewable energy technology. Change is often scary, and awareness and knowledge can help

communities see change as an opportunity rather than a threat. Drawing up a recruitment plan can ensure that all participant selection criteria are met, and bad recruitment decisions, which can be time-consuming and costly in the long run, are avoided (Ismail & Hornsby, 2018). Recruitment strategies can include pamphlets, brochures, flyers, advertisements, information sheets, community notices, radio, print and social media announcements or postings, direct recruitment, participatory community outreach activities, telephone and electronic mail.

Another key step to guide and monitor implementation is the development of an implementation plan, which serves as a blueprint for the implementation process, anticipated performance expectations of the various intervention activities and the roles and responsibilities of team members (Ismail & Hornsby, 2018). The plan may include the negotiated objectives, planned inputs, outputs, expected benefits and outcomes, assumptions about the linkages in the delivery chain, evaluation, responsibility and accountability, timeframes, standards and quality control, possible implementation challenges, and mitigation strategies to manage possible risks and challenges that may emerge (Ismail & Hornsby, 2018).

### **Monitoring and Evaluation**

According to the logic of the model, each of the six engagement phases is intended to produce specific outcomes, to be able to evaluate (formatively and procedurally) each of the community engagement activities. Monitoring and evaluation are essential to the process of planning, developing, piloting and implementing any intervention. Monitoring refers to the regular, continuous, observation and assessment of programmes to “track the flow of inputs (resources), participation rates, and participant completion of program activities” to report on the basic performance and operations of an initiative, frequently in relation to specific targets (Patton, 2015, p. 279). Evaluation refers to the periodic review of strategic programmatic issues, the short-intermediate term changes or outcomes and long-term impact, ie the efficacy of the initiative.

Scholars emphasise the need for monitoring and evaluation to be central to the entire energy transition process. Van Niekerk et al. (2022) propose that monitoring and evaluating be a policy imperative that includes assessing the readiness of citizens to embrace and implement alternative energy, ascertaining implementation matters, evaluating household energy technology performance and utilisation patterns, and reporting on local health, safety and financial outcomes. Jenkins et al. (2020) recommend that academics view research on energy justice as a continuum as opposed to an object of study defined by funding terms and that they remain reflexive of their privilege throughout the research process, particularly regarding extractive data-collection methods that fail to collaborate with communities. They suggest the development of methods for both evaluation and reflexivity. Pandey and Sharma (2021) assert that achieving just energy transitions require considering and critically engaging with the assumptions and implicit knowledge politics that underlie renewable energy technology projects. This holds particularly in capitalist societies in which it is

important to identify the primary social justice concerns that affect the social approval of RETs to advance the transmission of clean energy (Velasco-Herrejon & Bauwens, 2020). Key questions to consider when evaluating the transition to renewable technologies include: How did the multiple stakeholders work together, negotiate solutions and make decisions? How was optimal community participation promoted in this project? What are the barriers to and enablers of engaging multiple stakeholders in the transition to RETs? What lessons can be learnt from the engagement processes to improve future projects?

In addition, with regard to uptake, implementation processes, outcomes and impact, we can ask the following questions as proposed by Patton (2015): What has happened, what has been accomplished, and why? What renewable technology was implemented? Was the technology implemented as designed (the fidelity question)? In what ways has participation varied, and why? To what extent have outcomes varied, and why? Are documented outcomes attributable to the intervention (the attribution question)? Did any unexpected outcomes and impacts occur, and what are they?

### **Awareness and Advocacy**

Transitioning to RETs requires more than just making the technology available; it requires the dissemination of information on the technology itself, what it entails, its benefits and the ways in which it works to potential users and investors (United Nations, 2010). A lack of awareness and access to pertinent information regarding RETs have been identified as key barriers to the uptake of these technologies and the cause of public resistance (Dwyer & Bidwell, 2019; Nasirov, Silva, & Agostini, 2015; Painuly & Fenhann, 2002). This includes limited information concerning the ecological and financial benefits of these technologies, scant awareness of them, and uncertainty regarding the financial viability of installing such technologies (Nasirov et al., 2015).

Baker et al. (2021) emphasise that the documented need for better communication between utility companies and communities underscore the necessity for stakeholder and community engagement across all levels, ranging from reciprocal communication in identifying challenges, planning for and developing solutions, through to engaging in communication strategies. Co-constructing a communication plan for strategic communication with diverse audiences including key stakeholders (for example, service providers, funders, and the media) and citizens is therefore a vital step for conveying the goals, benefits and need for the initiative using different types of communication methods to tailor messages to diverse audiences. Also important is the dissemination of information and findings throughout the lifespan of the project to keep everyone informed.

Directly linked to awareness raising is advocacy, which promotes human rights, inclusion, social justice and activism. Cox, Tice and Long (2019) indicate that achieving social justice means all citizens enjoy civil liberties, have equal access to resources and opportunities, and have a voice in political matters. Advocacy, they note, promotes

inclusive practices and so encourages the involvement of disadvantaged community members in the conversation. Advocacy is articulated through action agendas, methods and strategies that influence the attitudes, views and decisions of individuals, groups, communities and organisations. Advocacy can be achieved through, for example, mobilising existing assets and resources, raising awareness and consciousness through education and knowledge dissemination or national campaigns, generating support through community and stakeholder partnerships, community feedback and dissemination meetings, and through public events (Cox et al., 2019). A good example is the No Paraffin Campaign Webinar Series co-hosted by the Academy of Science of South Africa and the University of South Africa where representatives from multiple sectors joined hands, including local and international academics, civic associations, corporate and government partners, and engaged diverse topics relating to challenges and opportunities to domestic energy transition (Van Niekerk et al., 2022).

### **Sustainability**

A final imperative of the model is a commitment to sustainability, which implies “continuity of benefits” that community members should derive over time from a safe energy transition initiative in line with project objectives. Fostering community ownership to enhance sustainability is a central tenet of CBPAR and the model. Capacity building strategies aimed at furthering individual and collective abilities and building community infrastructure should be included in project planning to strengthen their capacities (Lazarus, Taliep, Bulbulia, Phillips & Seedat, 2012; Momsen & Taliep, 2018). In this approach, power is shared, capacities are built through participatory learning exchanges and mentorship, and democratic decision-making on all levels within a social justice framework is foregrounded (Taliep et al., 2022). Establishing community advisory boards or committees will increase democratic community participation, and community capacitation can boost self-sufficiency and proficiency and engender ownership commitment from the outset (Bulbulia et al., 2018). Community commitment and connection to the project enhance ownership and facilitate sustainability (Mancini, Martin, & Bowen, 2003; Lazarus et al., 2015). Developing a sustainability plan and intentionally focusing on building sustainability capacity are therefore essential.

Sustainability has been officially institutionalised as one of the strategic objectives of global development through the Strategic Development Goals and local development through South Africa’s Medium-Term Strategic Framework and the NDP. South Africa’s NDP foregrounds the country’s transition to a low-carbon economy as a preeminent challenge faced by the country and a priority (StatsSA, 2019b). Through the NDP and the Medium-Term Strategic Framework, South Africa envisioned a move to cleaner, safer sources of energy and dealing with the sustained electricity generation supply shortfalls through specific targets. These include increasing access to electricity; improving energy efficiency to ensure a more stable electricity grid and redress the intermittent energy supply interruptions, investing in renewable and cleaner forms of technology such as wind and solar energy projects by Eskom, reducing carbon



emissions, conducting research into methods of varying the energy mix, investing and focusing more on and deactivating outdated coal power (StatsSA, 2019b). Kimemia et al. (2017) note that to achieve sustainability in the energy sector, more focused efforts should be put into operation to support and develop more durable and sustainable RETs such as biogas, solar and passive cooling or heating, which have been demonstrated to have potential for community energisation.

## Conclusion

The enormous potential of RETs for redressing energy poverty and achieving energy justice foregrounds the urgency for ensuring community support, buy-in and ownership in the transition process. Participatory collaborative community engagement is imperative throughout the planning, policy formulation, implementation, sustainability planning, and monitoring and evaluation processes to ensure a just and equitable transition to RETs. In this article, I therefore support the call by some energy justice scholars for integrating “participatory justice” as a principle in the energy transition process. This is based on the assessment of the Ukuphepha Transformational Model of Community Engagement as a viable model to achieve energy justice and by extension to reduce energy poverty. The model as presented in this study therefore has a broader aim of achieving social and epistemic justice and provides a framework for ensuring that community voices on the margins are brought to the fore and are centrally involved in decision-making processes to ensure a fair and inclusive transition and foster community ownership.

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