V. Bini, V. Capocefalo, S. Rinauro (a cura di), Geografia e ecologia politica: teorie, pratiche, discorsi
Società di Studi Geografici. Memorie geografiche NS 24, 2024, pp. 87-94. Isbn: 978-88-94690149

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# REPOLITICIZING COMMUNITY ENERGY: GEOTHERMAL ENERGY DEVELOPMENT IN RURAL EAST AFRICA

1. A depoliticized community energy? – In 1981, the United Nations (UN) held a conference on the energy transition and renewable energy sources in Nairobi. The conference report said that "the issue is not whether an energy transition will take place but whether the international community will achieve it in an orderly peaceful, progressive, just and integrated manner" (UN, 1981, p. 3). Interestingly, it coupled the energy transition to desired and required "adjustments and institutional and structural changes in international economic relations". The report stated that such a transition provides opportunities for a new type of development, such as tackling the uneven power relations between the global North and South. In short, the energy transition was supposed to go hand in hand with another, political economic transition – the principles which were outlined in the New International Economic Order (UN, 1974).

A few years before that, but more attuned to the local (community) scale, Lovins (1976) also situated the energy transition firmly in the then prevailing political economic structure. He sketched two possible energy development pathways for the next fifty years, until the mid-2020s. One is the "hard energy path". This path increases the use of fossil fuels and is based on centralized, large-scale and arcane "hard" technologies. Judging this path as inherently unsustainable, he pleaded for another, "soft energy path". Among other, this path takes "end-use needs" as departure point, to which the scale and geographic distribution of renewable energy as well as the energy quality had to be adapted. The distinction between these two paths, he says, rests on "the technical and sociopolitical *structure* of the energy system, thus focusing our attention on consequent and crucial political differences" (*ibid.*, p. 77). He concludes his article by stating that "the most important, difficult, and neglected questions of energy strategy are not mainly technical or economical but rather social and ethical" (*ibid.*, p. 95). While critical of Lovins' approach, Mester and Poschman (1978) suggest that "the extensive treatment of political questions forms much of Lovins' appeal. Realistically, the energy debate cannot escape the ideology and controversy of politics and concentrate solely on the economics and technology of the energy form. Any discussion of energy policy reflects the ideological battles of present and of past decades" (*ibid.*, pp. 187-188).

Fifty years later now, where do we and where does the debate stand? First, we may conclude that the trajectory taken has resembled much of Lovin's "hard energy path". As De Vincenzo (2024) argues elsewhere in these proceedings, there are vast interests in keeping the fossil fuel-based energy system as it is. The incumbent system, he shows, is fiercely and successfully defended by powerful oil companies (Mitchell, 2011). That said, the unsustainability of this trajectory is now widely recognized. Renewable energy developments have taken a flight and so has the debate on it. In this debate, the issue of scale once more comes to the fore, with the agency of community and local solutions taking an increasingly prominent role. This so-called "community energy" (CE) debate emerged in the wake of an increasing number of initiatives set up and driven by communities in the 1990s and 2000s. These communities not just sought to transition to another energy system, but also to transform social, economic and political routines, such as the way we live together and our (unsustainable) patterns of consumption (Walker and Devine-Wright, 2008). Not unlike Lovins' soft path approach.

Of late, however, there is a tendency in this literature to what Mester and Poschman (1978) argued should be avoided: to depoliticize CE and to concentrate on the economics and technology of the (community) energy form. This, at least, is what Bauwens *et al.* (2022) suggest in their extensive literature review of energy-related community concepts. They observe "a relative reduction in scholars' attention to transformative notions of community that emphasize collective and grassroots processes of participation in energy transitions, to the benefit of instrumental conceptualizations of community focusing on more technical and economic aspects" (*ibid.*, p. 14).

What feeds this tendency? One explanation is that the rapid increase of studies on CE stems in a large part from the economic and engineering sciences (*ibidem*). This in turn may follow trends in policy and research funding arrangements that favor a technical and (neoclassical) economic approach to understanding and tackling energy issues and in which communities may be seen as instrumental devices to enact government preferred policy changes (Aiken *et al*., 2017). For instance, Devine-Wright (2019) analyzes a policy switch by the UK government from supporting CE initiatives to supporting "local energy" developments. While appearing as an innocent semantic move, it has potentially far-reaching consequences. Local energy, he argues, is derived from the transformative aspects that were central to CE. However, the local energy policy of the UK government is based on a neoliberal approach, emphasizing market actors and mechanisms, and "smart" technologies (*ibidem*). Likewise, the European Union (Eu) has formalized the concept of "energy community" in its energy policy and program (Eu, 2019), but considers it one in a range of agents in an otherwise market-driven renewable energy system. In short, there is what Creamer *et al.* (2019) call an increasing focus on "customer/consumer focused individualism" in CE. And this focus blends in well with technical and economic orientations on CE, leaving political questions largely untouched.

Yet, we argue that even the social science part of the CE literature deals only marginally with such questions. This can be explained by theoretical frameworks often used to study CE, such as the Multi-Level Approach and studies on acceptability (Van der Schoor and Scholtens, 2019; Leonhardt *et al.*, 2022; Creamer *et al.*, 2019). In their literature review, Van der Schoor and Scholtens (2019) argue that most scholars tend toward a practice-focused, instrumental notion of CE. This is prominently reflected by scholars' focus on "enablers and barriers" for CE. Leonhardt *et al*. (2022), for instance, reviews the literature on government instruments supporting CE. While insightful, it takes for granted or does hardly discuss how such instruments relate to CE *politically* – that is, how instruments may support some type of CE initiatives (like those in line with government policy), while discouraging others. The same goes for Fouladvand *et al.*'s (2022) review on thermal energy-types of CE; they focus on institutional and behavioral properties that characterize, enable and constrain these initiatives, but they make few links with its political dimensions.

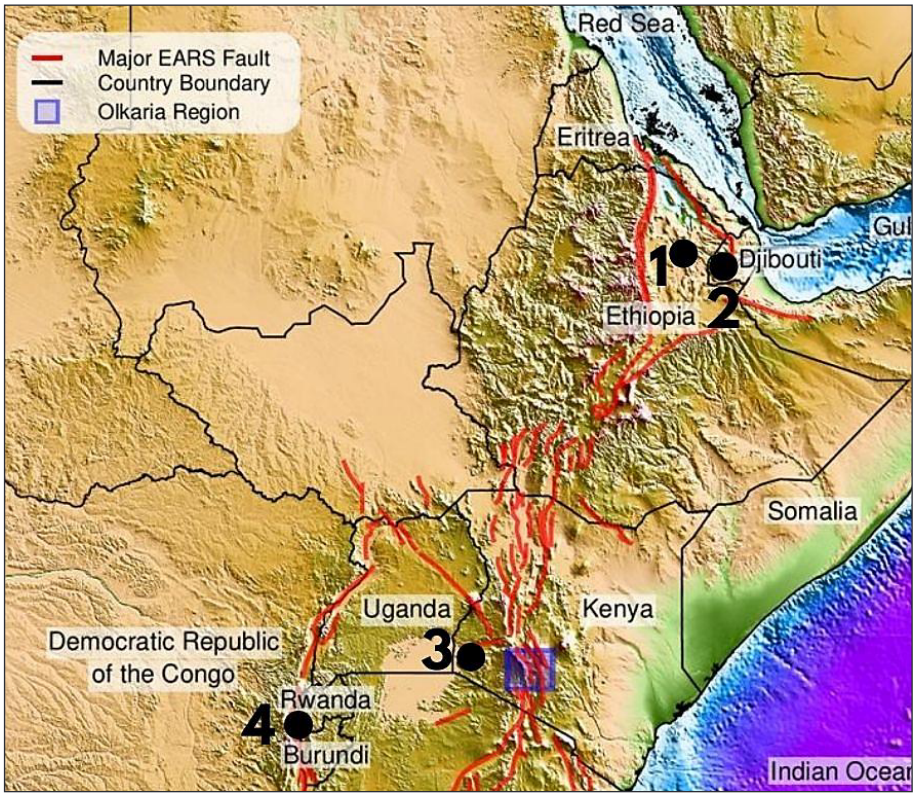
Those taking an energy justice and/or democracy lens to CE, engage with CE's various socio-political dimensions, such as inequality in energy access, affordability, energy poverty, participation and decision-making processes within and beyond CE initiatives. While tackling pressing issues, many such studies still put forward a relatively descriptive and uncritical account of what drives those issues (Van Bommel and Höffken, 2021; Hanke *et al.*, 2021). As Tornel (2022) argues more generally, there is little critical engagement with (dominant incumbent) politics driving (community) energy system, how such systems drive and are driven by national and global capitalism or the limits of applying a (Western) human rights lens (*ibidem*). A more critical and radical approach, argue Padovan *et al.* (forthcoming), could and should also be applied to the role of collective action in CE initiatives.

In short, we suggest there is a tendency to depoliticize CE. That is, to render issues of power and politics mute and those of a technical, managerial/governance and economic nature to the foreground. This is an unfortunate tendency – certainly in the current era, where the political questions on the energy transition loom even larger than during the 1970s and 1980s. Our intervention thus calls for a repoliticization of community-based energy developments. In other words, we suggest questions of power and politics, and embedding CE in broader political economic structures, is key to understanding and help pushing the energy transition in more just directions. We concur with Spijkerboer *et al*. (2022) and Walker and Devine-Wright (in Creamer *et al.*, 2019) that a political ecological approach to CE and energy transition can help in this task. We propose such an approach, after first delving deeper into several problem areas that we think exist in the CE literature, illustrated by a CE case that we investigated, called Geothermal Village.

## 2. The case of geothermal village.

– Geothermal Village (GV) is a CE concept based on geothermal as a renewable energy source. It aims to introduce geothermal-based stand-alone electric and thermal energy systems to off-grid African communities. The geographical focus of GV is East Africa. Cutting across this region is the East African Rift System (EARS), where geothermal resources are abundant. The EARS runs from Northeast Africa southwards, covering a large part of the Eastern African flank. Current research into GV focuses on four communities: Homa Hills, Kenya; Lac Abhé, Djibouti; Mashuyza, Rwanda; and Era Boru in Ethiopia. These places, as well as part of the EARS, are indicated in Figure 1.

GV focuses on so-called "direct use" applications of geothermal energy. Direct use refers to the use of geothermal resources found at shallow depths and with a low to medium enthalpy or temperature. Such




*Note*: 1) Era Boru (Ethiopia); 2) Lac Abhé (Djibouti); 3) Homa Hills (Kenya); 4) Mashuyza (Rwanda). The Olkaria region (Kenya) is used for geothermal indirect-use development.

*Source*: Map used with permission and adapted from Fadel *et al.* (2021).

*Fig. 1 - Geothermal village research sites along the East African Rift System (EARS)*

lower temperature geothermal resources could be "directly" put to use for human needs, that is, by and for communities living close to them. Potential direct uses vary and may include small-scale electricity generation, bathing and the drying of food items. Direct use differs from geothermal "indirect use", which refers to large-scale electricity generation from high temperature geothermal resources. This electricity typically feeds the national grid and therefore serves those connected to the grid. Countries prefer indirect use and thus the exploitation of high temperature geothermal resources, leaving the low-to-medium resources largely undeveloped. Yet, the latter offer significant potential for energy development in remote places, where communities are typically not connected to the national grid. In short, GV aspires to be a form of CE based on geothermal as the principal energy source.

We say "aspire", as GV does not yet exist on the ground. It is a concept or imaginary whose viability and applicability is currently being investigated through interdisciplinary research, covering geo-, engineering, and social sciences. This article draws on social scientific research on GV, specifically on short-term qualitative fieldwork carried out in all four places during the period November 2022-November 2023. In each place, semi-structured interviews and Focus Group Discussions were held with key actors in and near the communities as well as interviews with actors on the national levels. Secondary data constitute another important source.

3. Repoliticizing community energy: a global South perspective. – Our research on GV in the East African context provides an interesting case and lens to critically reflect on the CE literature and specifically, to highlight the importance of re-engaging with questions of power and politics. We discuss five interrelated problem areas that we think require critical attention if CE is to live up to its transformative roots. These are the geographical focus of CE as well as questions of scale, community, energy and development.

Regarding geographical focus, the CE literature has a clear global North (specifically West European) bias. Few studies on CE look at the global South and specifically, the African context. Because of this, argue Ambole *et al.* (2021), the global South could learn from cases in the global North. We agree that this offers potential for learning, but we (our case) stress(es) the need to critically assess whether and what practices and

ideas from the North could or should function as model for countries in the South. We emphasize the benefit of adopting a "Southern" and relational global North-South perspective to CE, for three main reasons.

First, and as also acknowledged by Ambole *et al.* (2021), the global North and South contexts differ significantly. Notably the idea of energy "transition" gets a different connotation in Southern contexts, where energy access is low and energy poverty high (Guerreiro and Botetzagia, 2018). In all four GV sites, most people have never enjoyed (reliable) energy access. Hence, they do not transition from one (unsustainable) to another (more sustainable) mode of energy supply. They aspire to move from none to some. Yet, the reason these sites are not connected is not necessarily one of remoteness or a matter of "catching up" with developed regions. In two of the four sites (Kenya and Rwanda), the grid is in fact present or nearby and still, few people are connected. The reason energy access is low and poverty high is more complex and is found in a longer history of uneven development; in all four GV countries, some peoples and spaces (e.g. middle-to-high class in urban centers) have systematically been privileged in terms of energy access, while others have been marginalized (e.g. the rural poor) (Newell and Philips, 2016).

Adopting a relational lens, moreover, is important to acknowledge that this uneven energy development is not just the result of domestic policies and politics, but closely connected to international relations – not least between Europe and Africa. North-South development, to take a notable example of such relations, often carries with it normative ideas and frameworks that entrench rather than tackle the root causes of uneven development in our case countries. Because of this, lastly, it deserves recommendation to take the Southern context and knowledges as departure point, to find solutions adapted to the specific contexts, and to assess what could and could not fit in from Northern CE examples; and vice versa, what a Southern lens can offer CE cases in the global North. A Southern lens is needed to help challenge the legacies of decades of neoliberal development and the undermining of CE, not least through its perverse forms of individualism. Radical alternatives that challenge this and offer pathways for truly collective energy systems at community level based on concepts such as care and the commons (e.g. when it comes to property regimes) are proposed and demanded by "Peoples of the South"[1]. CE scholarship could benefit from these alternative approaches.

Two other issues relate to scale and the notion of community. These issues are well captured by Creamer *et al.* (2018, p. 1), who argue that CE is "commonly presented as singular, bounded and localized". There is ample scholarly engagement with the term community in CE; scholars outline the term's ambiguity and malleability (Bauwens *et al.*, 2022) as well as the diverse ways in which CE can manifest itself in terms of energy source, technology choice, ownership, people's engagement, motivations, desired results – in short, community as process and outcome (Walker and Devine-Wright, 2008). Despite this, Creamer *et al.* (2018) argue, scholars still tend to connect CE to a bounded group of people at the local scale. This is reminiscent of debates in development studies in the 1970s-2000s, when bottom up and community-based development approaches had popularized, but had also come under increasing scrutiny. Critics argued that both "revisionist neoliberals" and (early) post-development scholars tended to essentialize the local "as discrete places that host relatively homogenous communities or, alternatively, constitute sites of grassroots mobilization and resistance" (Mohan and Stokke, 2000, p. 264). As Hart (2001) shows, this neglects not just the way in which the local is embedded in what is euphemistically called "globalization", but also potentially play "into deeply disabling discourses of globalization", including problematic dichotomies like local = passive/static versus global = active/dynamic (*ibid.*, p. 655; see also Aiken *et al.*, 2017). This tendency may also cause one to overlook how communities themselves engage in (re)scaling strategies so as to challenge dominant scalar notions and politics, such as those associated with the central state on the national level (Minoia and Mölkänen, 2021).

Our research confirms the importance of (investigating) broader political economic structures on potential GV developments. Two of our sites, in Djibouti and Rwanda, show this most clearly. Both countries are small and have very centralized government regimes, organized around authoritarian leaders who have led their countries for two decades. Both nations have quite recent histories of conflict and violence between different ethnic groups, and their regimes have since tried to maintain a relative stability through a mix of coercion, balancing power relations at the top and, in the case of Rwanda, rapid development (Borowicz, 2022; Styan, 2016; Mann and Berry, 2016; McDoom, 2022). This comes with severe consequences; next to a lack

[1] See *Manifesto for an ecosocial energy transition from the People of the South* that "critiques the 'clean energy' transitions of the Global North and offers an alternative vision from the global South". https://fpif.org/manifesto-for-an-ecosocial-energy-transition-from-the-peoples-of-the-south. See the Global Tapistry of Alternatives for a range of alternative frameworks and ideas for energy and other transitions, https://globaltapestryofalternatives.org/index.

of freedom and high levels of inequality, governance systems are organized from top to bottom in ways that few local developments escape the attention of powerful actors at higher scales. In Djibouti, for instance, any geothermal development ought to be driven by the national agency for geothermal development ODDEG. This agency falls directly under the President's office, given the strategic and political importance attributed to this resource. It means that the Afar community of Lac Abhé that GV aims at is much more closely connected to higher scale actors and processes than one would assume traveling to their remote and arid places. The Afar community is also a good example of how fragile the idea of a "bounded community" is. Again, on first sight, one would be inclined to see the Afar as a quintessential bounded and localized community. But the Afar in fact have a very long nomadic-pastoralist history and this community is closely tied to a far greater Afar group that next to Djibouti, spreads out over parts of Eritrea and Ethiopia, including the GV site in the latter country (Alemu, 2015). The point is, even the ostensibly remotest and most bounded communities are not insulated from (sub)national forces and instead implicated in broader spatial-political developments. And that has a bearing on how community energy unfolds and what space exists for transformative politics.

What underpins these notions of scale and community, is a conception of energy (system) as a social relation. This is missing in Creamer *et al.* (2018); while they convincingly show that "community" is inevitably bound up with a variety of actors at multiple scales, their account remains silent on what energy is. Political ecologists make explicit that energy should not just be seen as a resource or object for human appropriation, but as a political, socio-metabolic strategy for attaining energy potential (Cederlöf, 2021, p. 80; Tornel, 2022; Padovan *et al.*, 2023). Energy is a social relation in that it connects communities with (distant) actors through the materiality of things – be they infrastructure, property relations and other elements in community energy systems. Novel (community) energy systems, argues Bridge (2018), should therefore also be considered in relation to incumbent systems. Applied to our case, what differentiates geothermal from other energy sources is the difficulty, uncertainty, and high investment requirements to unleash its energy potential. Besides preliminary geological studies, drilling is the (only) way to accurately assess geothermal energy potential. But drilling is expensive, which at once makes a community rely on external experts as well as public and development agents willing and able to do this. And even when one drills, it is still very uncertain whether to find geothermal resources with high energy potential.

Kenya illustrates how through energy, social – and particularly property – relations embedded in incumbent systems potentially bear on GV developments. Newell and Philips (2016) analyzed how Kenya's energy system has been formed through neoliberal development and tight links between national and transnational capital. This plays out in applying private property regimes on energy resources and development, including geothermal. In our GV case, the right to develop geothermal resources are in the hands of a private developer, rendering the community into a dependency relation vis-à-vis this developer. While the developer is willing to have the community benefit from the resources, it is ultimately he who decides. How this developer-community relation plays out will largely depend on the geophysical properties and hence the potential of the resource, which is subject to research still. For GV, lower-to-medium enthalpy resources are sufficient to construct a simple system that could satisfy some primary (re)production needs. For the developer, the higher the potential of the resource, the more elaborate the system and functions he could develop and the higher the potential profit – which is one his driving motives. Whether and how these two developments (GV and the developer's) are compatible materially (beyond social agreements that are already there), remains to be seen.

Finally, GV and a global South perspective on CE directs our attention to another, perhaps the most, contentious term: development. There are many ways to define or conceptualize this term, but in all endeavors, one ends up having to grapple with *normative* and *ethical* questions (Castree, 2003, pp. 289-294). Illustrative is the definition of development by Chambers (1997) as "good change". "Good" immediately triggers the question what is good, for whom, how to do good, by what mechanisms. The "good governance" agenda pursued across the global South promptly reminds us that development that pretends to be good need not necessarily be so for all population groups – and certainly not for the rural poor that constitutes a large part of the population in our GV sites.

In the previous section we mentioned that GV does not yet exists on the ground. GV is an imaginary, which means it incorporates a development *vision*. One way to outline such a vision is to juxtapose it to an undesirable development. Indeed, GV aspires to be an alternative to large-scale geothermal developments of the kind existing in Kenya, aimed at large-scale electricity generation for the national grid. This is the mainstream geothermal development trajectory, in terms of who is driving it (major national and development agencies), how (market means) and for whom (those fortunate to be connected to the grid). Communities like those in

GV tend not to benefit much from these megaprojects and, moreover, these projects in Kenya have come about through dispossession of (Maasai) people from their lands (Hughes and Rogei, 2020). GV works on a different development idea. While GV should not be romanticized, the vision is for geothermal development to be grounded in and directly benefiting the community. Yet this type of direct-use geothermal development has not yet received much attention by policy-makers, who continue to be chiefly focused on indirect use developments. It thus requires engaging in social struggles to gain support for this alternative development trajectory.

4. Conclusions. – Mester and Poschman (1978, p. 187) stated long ago that "any discussion of energy policy reflects the ideological battles of present and past decades". If CE reflects such a battle, it is this: the tendency to pretend it is somehow not ideological, that is, free of politics and power struggles. Using our research into geothermal village in East Africa, we conclude that the development and form of a community energy system should not be treated as an apolitical process. We confirm the UN's and Lovins' propositions fifty years ago that such a system is inevitably bound up with political and normative questions and that it is embedded in (i.e. facilitated and constrained by) broader political economic structures – and should be studied as such. We substantiated this argument through a discussion of five problem areas that we think exist in the CE literature and by using GV to illustrate our points. To these points we add one more, namely the need for a critical social science approach to CE. One that introduces concepts that allows us to see and analyze the power struggles and politics at play in CE initiatives.

Concretely, we suggest a geographically informed political ecology (or geopolitical) approach to studying CE, along the lines set out by Bridge (2018) and Bridge and Gailing (2020). Bridge (2018) argues this should inter alia come about through a critical reflection on the geography of knowledge production, which means asking the question what it would mean to study and theorize energy systems from elsewhere than the global North. Our article, though brief, is meant to do exactly this. Bridge and Gailing (2020) furthermore invites us to consider how new energy spaces come about. New energy spaces, they argue, are the "production of novel combinations of energy systems and social relations across space – hence a process of uneven development". Indeed, it works on the premise that space is not some kind of container with fixed properties, but is produced through a metabolic socio-ecological process. And this production of space and nature, Bridge (2018) contends, is an open-ended process. Though playing out on a terrain of power struggles (Li, 1999), "it creates a space for progressive politics, through which alternative energy spatialities can emerge that redistribute social power and work against (rather than with) the political economic grain" (Bridge, 2018, p. 14). It is up to those involved in and researching GV and other CE initiatives to look for and use that space for repoliticizing CE and reembrace its transformative potential.

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SUMMARY: Community energy and the more recent concept of energy community point at some form of community-based (renewable) energy system in a broader context of energy transition. Research into these concepts has rapidly expanded in the past decade. According to Bauwens *et al.*, this expansion has gone hand in hand with an increasingly instrumental conceptualization of community and eschewing normative questions on communities' transformation. We take this point further and argue that CE and in particular energy community are inherently depoliticized concepts that require urgent (re)politicization. That is, rather than rendering CE technical and economical, and its power and political dimensions mute, we argue the latter are fundamental in contemporary energy transitions. This is all the more important when factoring in other than Western geographies. We therefore call for a geographically informed political ecology of CE. An approach, in short, that extends beyond the global north, takes the multi-scalar

politics of energy transitions seriously and more critically engages the question how ongoing or envisaged CE concepts (ought to) challenge unsustainable energy trajectories. We discuss the potential and challenges of this approach by reflecting on one specific CE concept in East Africa called geothermal village, whose feasibility is currently being investigated within a research framework between the European and African Union.

RIASSUNTO: I due concetti di Community energy e, di conio più recente, energy community si riferiscono in prima battuta a una qualche forma di sistema energetico (rinnovabile) basato su una dimensione comunitaria nel più ampio contesto della transizione energetica. La ricerca su questi temi si è intensificata nell'ultimo decennio. Secondo Bauwens *et al*., questa intensificazione è stata accompagnata dalla crescita di un utilizzo strumentale del concetto di comunità evitando di adottare approcci più normativi riferiti al suo potenziale trasformativo. A partire da questa evidenza, in questo contributo si argomenta che il concetto di comunità energetica e in particolare di energy communities è intrinsecamente depoliticizzato e richiede urgente (ri)politicizzazione. Il che significa porre l'attenzione sulla centralità delle dimensioni politiche e di distribuzione del potere nelle transizioni energetiche contemporanee e nello sviluppo delle comunità energetiche, invece di indulgere nella descrizione delle loro componenti tecniche ed economiche. Ciò è ancora più importante se si considerano aree geografiche diverse da quelle occidentali. In questo contributo si rivendica quindi la necessità di un'ecologia politica delle comunità energetiche geograficamente informata. Un approccio, in breve, che si estende oltre il nord del mondo, prende sul serio la politica multiscalare delle transizioni energetiche e affronta in modo più critico la questione di come i concetti di comunità energetica attuali e futuri (dovrebbero) sfidare le traiettorie energetiche non sostenibili. Nel contributo si discute anche il potenziale e le sfide di questo approccio riflettendo su uno specifico modello di comunità energetica in Africa orientale denominato geothermal village e la cui fattibilità è attualmente oggetto di studio nell'ambito di un progetto di cooperazione tra l'Unione europea e quella africana per promuovere la ricerca sulla transizione energetica.

*Keywords*: community energy, geothermal, sustainable development, East Africa
*Parole chiave*: comunità energetiche, energia geotermica, Africa Orientale, sviluppo sostenibile

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