Energy independence mbabane

Transition dynamics are highly context-sensitive and place-specific. Our theorization of transitions needs to be built upon such place-based specificities, as well as global interdependencies and dynamics between different geographical scales.

Colonial pasts often shape current investments in energy infrastructures, e.g., via knowledge production or developmental agendas, with influential roles played by donor agencies, development banks, and trans-national (state-owned) enterprises. This calls for a differentiated and historically informed analysis of the political economy of energy investments.

Furthermore, notions of energy justice and democracy relate to questions of the provision of basic needs, the relationship between energy transitions, energy crisis, and energy access, and what adverse effects of energy infrastructures particular groups reasonably have to accept. Often, notions of justice are intertwined with complex ideas of epistemic justice [34], for example, when individuals are excluded from decision-making. By empirically researching justice concerns and democratic aspirations of individuals, and by giving voice especially to "silenced voices," researchers can contribute to articulating alternatives and support productive ways of dealing with conflicts.

These themes are further explored in the three "Introduction", "Understanding the specificity of interdependent, yet place-based transitions", "Engaging with history and the political economy of energy transitions" sections below. Based on that, we reflect on more plural understandings of societal change in "Appreciating plural notions of energy justice" sections; before we bring a final reflection on the genesis and outcome of this article collection in "Conclusion" sections.

In their contribution to this collection, Koepke et al. (2022), for example, show how "socio-technical heterogeneity contributes significantly to the functioning of Southern cities by responding to user demands that are unmet by conventional, centralized grids" e.g. when "socio-technical alternatives" in electricity services "serve low-income users, the middle classes, and urban elites".

In line with this heterogeneous reality of energy landscapes, Edomah"s (2022) paper in this article collection leans on various epochs to contextualize the energy transition and energy systems change in Nigeria: pre-industrial (1800); early industrial (1850); industrial (1900); late industrial (1950); and information (2000). Accordingly, "... from the preindustrial (agricultural) era ... the 1800s, we notice a gradual change in technology use and social practices that became more energy intensive, thus requiring more energy dense sources..." (Edomah, 2022).

Building on the case of deployment of digitalization technologies in Nigeria and South Africa, Nawaiwu (2022, this collection) explores the potential of digital technologies in energy transitions. The article sets up

the following argument in favor of digital technologies:

"The use of digital technologies to enable sustainable energy transitions involves the adoption and implementation of these classes of technologies in ways that leverage their unique characteristics to offer new models of production, distribution, and consumption of energy."

In this context, among the promises of digital technologies is the possibility to move households away from the generation of energy, most often from fossil fuel sources, and to let them join platforms through which renewable energies can be implemented, for example, through the constitution of smart grids or the use of blockchain technology. The results show an apparent disconnect between the regulatory and policy environment in which such technologies are deployed, on one hand, and the localized efforts to implement them on the other. A similar concern informs the analysis of Gebresslassie et al. (2022, in this collection), in which regulatory environments are not always open to the adoption of challenging technologies, in this case, decentralized energy systems.

Their papers reflect on the heterogeneous co-construction of socio-technical relations in processes that simultaneously sediment material infrastructures and governance structures. This explains the stubborn persistence of the socio-technical systems that structure our life--what Hommels called obduracy [39]. Perhaps the next generation of research on transitions can also analyse how intentions of change, and the resulting changes, can be integrated within such systems in the forms of localized, experimental interventions.

Energy transitions are shaped by complex histories of colonial and imperial domination, which become highly visible in contexts where such histories are recent or even still present. Newell [40] has argued that energy transitions must engage with the racialized nature of energy systems, as manifested in the material constitution of infrastructures, the governance of energy systems, and their operation. The constitution of energy systems placed value on some lives over others, and transition efforts so far have done little to address the racialized constitution of energy systems [41].

For example, to the extent that energy transitions are connected to decreasing global GHG emissions, there is a danger that they become an arena for "carbon colonialism." A common understanding of carbon colonialism relates to the concern that powerful countries (in the "North") invest and coerce other countries to occupy the "discursive and physical spaces in the global South" in the name of environmental and climate protection while also masking historical responsibilities in accounting for carbon emissions ([35]; p. 5). They say: