

For Energy Democracy Handbook (Routledge)

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Abstract

Social science tools and practitioner experiences help to understand relations of democratic processes to low carbon energy transitions in the Global South. This requires interrogating Euro-centric assumptions about participation, national development, and infrastructure models in conditions of inequality and state capture. Issues of historical extractive energy injustice and the asymmetries of Southern climate vulnerability as compared to Northern GHG emission sources, drag this topic into political focus for questioning the models of mass consumption that have driven economic development over two centuries. Can democracy be reinvented with renewables?

The UK Low Carbon Energy for Development Network (LCEDN) has since 2012 pooled expertise across disciplines involved in energy research in the developing world, to enhance the ability of renewable energy systems to address poverty and gender inequality issues off-grid. The LCEDN has come to constitute an overarching community of practice linked to other communities of practice formed by the NGOs, businesses and policy community committed to low carbon transitions and centred on energy development justice. The LCEDN and associate communities have determined to widen an agenda of acquiring evidence from case studies, critical participatory approaches and research into grassroots and municipal initiatives, thereby identifying weaknesses in the standard depoliticised discourse of energy-for-development.

Faced with manifest failure to control climate change, the LCEDN's attention to energy decentralization reveals the critical importance of formal and informal institutions for democratic renewable energy services to counter the unconscionable and disastrous waste inherent in centralized systems, and the political economy of incumbent energy supply and distribution mechanisms. Low carbon energy transitions imply decentralized governance structures working positively with socio-cultural change, particularly but not exclusively

towards gender equitable coping strategies, to reverse existing infrastructural priorities that exacerbate disempowerment.

Introduction

It is not uncommon for academics and practitioners who advocate renewable energy solutions to energy poverty and lack of access in the Global South to be met with the following indignant response: “the main reason ‘the West’ has achieved economic and political dominance, functional democratic institutions, created research capacities for continuous technological innovation, and lures the most scientifically talented and progressive individuals from the rest of the world is the socio-economic difference in living conditions built on two centuries of fossil fuel-driven industrialised consumption.” The stark logic that then follows is: prioritising low carbon energy condemns people of the Global South to permanent inequality of energy access and lesser expectations of political and economic futures and lifestyles.

This example of confronting glaring global inequalities means that the ideas of energy democracy addressed in this collection as both a normative project of transition, and as a field of empirical practice, face some very different dialogical engagements, challenges and frictions in the context of work in the Global South, than is common in conversations about energy democracy in late industrial societies. This is fundamentally the case where government aid organizations from liberal western democracies overwhelmingly dominated by centralized hydrocarbon energy production and where unlimited household access to energy is taken for granted (so long as affordable), come to talk to impoverished global Southern communities, which have never had access to grid electricity, about the benefits of limited decentralized renewable provision. preaching

Determinist, ‘energy exceptionalist’ (Stirling 2014) views of development of high-income countries are convenient to moralizing nationalisms, when divorced from broader understandings of Anthropocene-forming political-economy, but they leave out some inconvenient truths. Absent are the imperial-colonialist realities through which resource abundance in less aggressive and militarily forceful nations and regions were and continue to be subjected to the depredation, not just by their own elites but also by higher-income

countries. Gone too are the understandings of how sociotechnical dominance of globalizing capitalism has been built on the energies of enslaved and indentured bodies along with extractivist resource-theft. It is not too much of a stretch to suggest that the sanitized socio-political constructs of democratic forms in rhetorics of Northern techno-morality are little more than echoes of the eugenicist geographies of a by-gone imperial age -‘Liberty’ (for instance) was once understood by Victorians as transmitted by blood (Robb 1995).

Mythical genealogies of energy access notwithstanding, the years since the financial crisis have witnessed a definite wave of critical analyses and studies of the relationships between economic growth, climate change effects, energy transitions and political entitlements to infrastructural services. These analyses have served above all to raise questions about the primordial monad of centralized energy supply, the questioning of which had been side-lined as something of a quaint hobby since the seminal work of Schumacher and Lovins in the early and mid-70s.

History shows us that the institutions for democratic participation in the prosperous West were fundamentally arrived at through nationally organised labour unions exercising power at critical points in the industrial regime of coal, rail and steel (Mitchell 2011). Since the ‘energy crisis’ of the early 1970s however, deterritorialising neo-liberal political landscapes have materially flowed with the production of oil and gas corporations minimising workers’ rights, and putting the energy regime beyond the reach of nationally-located union activity.¹

Since the beginning of the sustainable development era (1987 Brundtland report, 1992 Rio Earth Summit) but more intensely since the idea of ‘peak oil’ became prominent, the Stern Report (2006) and the financial crash of 2007, 21st century sustainable energy politics have had to contemplate the shock effects of *The Great Acceleration* (McNeill and Engelke 2014). This brings states, societies, communities, households and persons to confront and reinvent

¹ Hughes (2017:40) “The slave trade destroyed individuals and African societies. Even before climate change, the oil trade poisoned individuals and polluted societies, many in Africa. Consumers have always been able to investigate this pain. To do so, though, requires detective work at the point of origin. The trace—the vintage of this harm—does not travel with the commodity across the seas. Fuel’s great transformation disembedded energy from ethics.”

themselves in conditions of economic austerity exacerbated by climate change, and in the knowledge of the structural limits of national grids (Bakke 2016).

Three decades of globalisation have significantly damaged capacities for the reproduction of livelihood systems in the Global South, diminishing the ability of workers to exert pressure on wages and pressuring households to send labour migrants to seek work abroad, while domestically becoming increasingly pushed to find alternatives to customary forms of accessible biomass such as woodfuel. In this general context of environmental and political-economic transformation, characterised by marketisation of rural life, the condition of an agroprecariat, conflict and international refugee movements, it is the case that sustainable energy agendas for decades to come will require thoroughly different sorts of thinking about democratic actors in the Anthropocene. This will need to involve deliberating how to approach the political arenas of utility consumers and prosumers, how to deepen participatory energy citizenries' connections and control over renewable energy infrastructures, and broadening attention to how people themselves are able to reinvent cultural landscapes of everyday energy practice.

In this chapter we present findings and analyses from seven years of collaborative work over a range of research programmes, partnerships and network-building emanating from UK-located institutions. Without denying the historical accuracy of the opening observation about the difference made by Dirty Carbon Democracy, we can identify some distinct areas of work which could critically extend skills and capabilities for practices of Low Carbon Democracy, and contribute to a more inclusive conception of what it already entails among people described as being among the most energy poor.

The broader context of energy-related democratic deficit in the Global South could be told in another whole chapter: where people have been displaced by big hydro-dam construction (Baviskar 1996, Roy 'Cost of Living', Middleton et al International Rivers), and petro-states systematically exclude citizenries from benefits of oil and gas income, while encumbering them with untold environmental injustices (Watts 1983). Our focus is primarily on the challenges facing possibilities for democratic participation in new kinds of social energy systems.

The work of the LCEDN has primarily been with and about the 2.5 billion people who are significantly dependent on biomass as their main energy source, for whom decentralized,

community energy projects represent a substantial form of empowerment over their current situations and (particularly in locations such as Sub-Sahel Africa) perhaps their only chance of access to electricity. But empowerment does not arise through ‘mere’ electrification; energy initiatives need to be situated in the lived socio-political realities of those communities and have inbuilt the specific potential for enhancing livelihoods, which social science inputs can provide.

In the context of UN SE4All programmes and the research programmes of DFID that the LCEDN has participated in (especially Understanding Sustainable Energy Solutions, Transforming Energy Access, and Modern Energy Cooking Services)², the projects of energy transition research have been predominantly techno-economically conceived with social scientists brought in to provide community engagement, understandings of local context, gender awareness, and facilitation of interactions with non-academic stakeholders -the tension involved in stressing the importance of the sociocultural in the face of a strong techno-economic modelling tendencies is, however, substantial and constant.

Being alert to the normative neo-liberal assumptions overwhelming contexts of research (Harriss-White 2013), we welcome the opportunity to address the broader field of energy democracy here. Szulecki (2018) observes that twentieth century democratic planning around energy has tended to be an expert enclave from which society and social science were excluded, and yet much of the pressure for extending electrification came from decentralised innovation and local public pressure (Scott 2012:nn). In the twenty-first century’s disposition to view energy in a broader context of diverse socio-technical actors and imaginaries, it will be useful to consider the poisoned gift of euro-centric energy legacies, in contrast to which other ‘worldings’ of energy could be possible. The emerging comparative and historical view of fossil fuel energy’s making of the Anthropocene (McNeill and Engelke 2014, Bonneuil and Fressoz 2017) and making of the modern democratic polity (Mitchell 2011) provide exceptional imperatives for tracing other possible worldings of social energy systems.

In the process of research into low carbon possibilities in areas of off-grid and under-the-grid social realities and experience, we have a central purpose of making social relations connected with energy use, systems and innovation visible to an interdisciplinary community.

² See lcedn.com

This often challenges entrenched skills and cognitive formations of how to go about engineering solutions to perceived problems, and finding out how energy services feature in the priorities relevant to people's lived worlds where water, food, health, security, and disempowerment are frequently more prominent among their top-most concerns.

Transition in paradigms of everyday practice to new pathways for increasing accessibility and adoption of low carbon energy systems is not simply about offering greater technological choices, but actually transforming power relations and power norms. Low carbon democracy would involve participation from all members of a society in finding ways that energy systems might improve livelihoods on the ground, enable sustainable local economies and become part of communities' institutional self-governance. Renewable energy technologies can bring opportunities for decision-making in ways that grid-dependency, and infrastructural biases of incumbent petro-regimes cannot, or even actively prevent. The crucial change in power relations is to do with inclusive participation in the areas of energy production, distribution and exchange, and the means for knowledge development in how to mobilise action for socio-technical change.

The work of the LCEDN has initiated and collated studies of governance in renewable energy systems which have opened up to social scrutiny all manner of technical alternatives which could be shared in broader contexts of gender, class and ethnic difference. They reveal (among other aspects) political assumptions and discretionary choices hidden in technical solutions that are frequently advanced on the basis of a calculus of efficiency, rather than in terms of equitable access outcomes. This is especially notable in work done off-grid and as the agenda for low carbon transitions advances (as it must), it must be clearly understood by high-level stakeholders and major energy transition funders alike that grafting technocratic, western-centric assumptions about what constitutes efficiency onto Bottom-of-the-Pyramid (BoP communities) is setting them up to fail – BoP communities have their own (very different and variegated) understandings of efficiency.

The entire idea of low carbon energy transition and the vast *dispositif* of post-War energy access thinking is open to more critical examination (Bonneuil and Fressoz 2017:101), especially in Euro-centric top-down versions of templates for impact through technology transfer. By contrast, the versions of transition actively underway in some grassroots communities are far from being top-down, and are opening up new possibilities for emerging

informed energy citizenships, innovating and experimenting with new skilled practices alongside claims for political and deliberative spaces through low carbon energy alliances – previous work by the authors has promoted discussion of these possibilities under the label ‘ethnoengineering’³. These take energy out from the control of a technocratic elite, and a dis-embedded ethics, effectively resituating energy transitions of the 21st century as taking place alongside multiple other transitions: agrarian, urban, digital, conflict-and-climate related.

Locating Lines of Power

Before continuing with a future-oriented account of socio-technical innovation in renewables comes the awkward task of discussing the barriers to such a transformation. If one asks do renewable energy technologies *intrinsically* have greater potential for democratic control, the answer has to be no, but the consensus is that off-grid renewables are certainly more socially embedded (Ahlborg 2018, Hughes 2017), which means there can be greater socio-technical potential for democratic control of energy production/consumption. The power lines are more clearly visible to the unconnected and excluded.

If on the other hand renewables are adopted by the already powerful, for instance by a landowning elite installing a micro-hydro system but not benefitting the landless or large dams displacing people, dispossessing them and inundating their land, this is embedded in a social structure of inequality. Examples include cases of Dalit people not finding access to a system that provides enhanced capacities to the elite landed class and reveals the questionable validity of the term ‘common’ if micro-hydro is assumed to be a common property resource management system (Suji 2018). Or where a commercial venture arrives in a community and does not engage with the community in the design of a renewable system, sets unrealistically high charges and unreasonable payment systems (this could be for a mini-grid or for purchase of an SHS – leaving the community poorer than they were at the start of the project).

At another common site of energy poverty in the Global South it is frequently the case that in rapidly urbanising conditions, often stimulated by environmental or political crises, informal settlers are regularly present on waterway edges or on public lands. Their entitlement to live

³ See the LCEDN website –<https://www.lcedn.com/blog/ethno-stuff> – Ethno-engineering is “a method of defining and solving complex issues with constantly evolving deep experiential knowledge of the environment, without utilisation of modern mathematics, science and technology, relying on bottom-up management, practicing resourcefulness, and being contingent upon a holistic worldview” (Hess and Strobel 2013 p58).

where they do is contested by municipal authorities, yet these people are meanwhile productive contributors to city economies. Though their rights in property-based, citizenship legibility are not recognised, they have needs for basic services including energy. Some purchase illicit connections at two or three times the normal rate for elicited metered supply, but some pay three times the unit rate of grid connection for a solar home system (Campbell and Adamu 2019; Energyonthemove.online).

If a certain access struggle with global/local energy regimes is characteristic of grid-based and fossil-fuel systems from the twentieth century's legacy, how differently can we conceive of the ways that the current energy poor are perceiving energy in their lives? The domination of the grid creates a deep sense of unequal citizenship among those denied connection, but also creates a cultural space of unplugged powerlessness as compared to the possibilities that low carbon agendas could offer for legitimacy, community welfare, and environmental and technology justice.

Who are the Energy-Disenfranchised? Formal and Informal Political Spaces

In his seminal work *The Politics of the Governed*, the Indian historian Partha Chatterjee explains the limited value of Western Enlightenment notions of democratic citizenship and rule of law for understanding the dynamics of collective action and claims-making in countries like India, with such large populations of people who can only effectively survive by circumventing the law and managing when necessary to garner support from the powerful through extra-legal means of occupation, protest and appeals to diffuse moral entitlements.⁴ Given these realities of disempowerment, and the lack of access for most of the poor to formal institutions of citizenship, how are individuals, households and communities facing new scenarios of energy access and need?

There is a notable gap in knowledge about the energy needs of the urban and peri-urban poor. Castan-Broto et al (2017) provide an excellent review of the kinds of questions that need to be asked of this information lack, and of the default responses to energy provision in urban environments.

⁴ Of course this is true not just in urban contexts. In rural areas state offices are frequently institutions for everyday corruption. A Nepalese villager confided to one of the authors that "If you follow the law you will go hungry".

Problems in slums are ‘invisible’ when government officials do not acknowledge their needs or even their existence. On the one hand, local governments may lack capacity to respond to the needs of informal settlements. On the other hand, urban development practices regularly ignore or misrepresent their existence...Access to electricity in such conditions, for example through off-grid systems, may have transformative impacts both in terms of directly improving the lives of people at the household level, and enabling them to be recognized as urban citizens through the provision of services. (2017:778)

Understandings of the needs of poor urban women and men, and attention to their priorities such as for clean cooking, and how both grid and off-grid electricity could service domestic, entrepreneurial and community activities have hardly encroached into dominant energy policy arenas.

In one of the authors’ research projects, a neighbourhood leader from an informal settlement in Kathmandu drew attention to the appointment of a new pro-poor head for the Nepal Electricity Authority

[The NEA head] gave a statement that all Nepali citizens in the country should have access to light. It made us hopeful because the Nepal electricity authority previously had a different narrative and a kind of barrier towards us. They said, *“The number of landless people is very low. You will get electricity connection shortly.”* We were asked to bring the verification from the ward office regarding landlessness for connecting electricity to our households. The ward office which itself hasn’t recognized us as landless, cannot in any case agree to provide the verification of landlessness. [‘Energy On the Move’ project interview by Nabraj Lama with neighbourhood leader March 2019]

The state of inadequate energy democracy for urban informal settlers reinforces their more general struggle to find accountability and just treatment in infrastructure provision. This is far from a simple ‘lack of resources’ scenario as exclusion of these urban groups has clearly been configured in the growth of ‘Third World’ slums as first ethnographically reported by Oscar Lewis in the 1960s and theorised as the ‘Myth of Marginality’ in the 1970s (Perlman 1975). Davis’ (2006) ‘Planet of Slums’ and McNeill and Engelke’s (2014) histories of informal urban expansion escalating with the era of structural adjustment make it clear that

rather than being a simple condition of an unfortunate kind of infrastructural falling-short, the shanty towns actually have been integral to the viability of city economies⁵.

They constitute in many ways a structural component of the city as the ‘integrated reject’, as Srecko Horvat (2109) discusses in his reprise of Roland Barthes’ term; serving to define in respect to the outsider figure the ideal of normative city living aspirations. Another way of seeing these highly visible invisibilized is as transgressors against the urban hyperreal; they conflict jarringly with the imagined urban and the representations of cities as symbols of modernity and of national pride. But these cities are themselves "The generation by models of a real without origin or reality" (Baudrillard, 1983: 1)

Countering the status of being marginal and seeking equality of respect feeds informal settlers’ collective struggle. Against the slur of being accused of stealing electricity, a community spokesperson quoted by Das and Walton says:

Sir ji, how can you call us thieves? If you don’t give us electricity on the grounds that we are not an authorized colony—and people naturally need electricity—a man wants to run a fan, his little children are burning in the heat—he will get electricity with whatever means—then why call him a thief?" (2015: 48)

By critical pressure on authorities and politicians to take heed of the plight of the urban poor in Delhi, Das and Walton argue

democratic politics have been deepened by the participation of the poor. After all, it is because they have put political labor into going to courts, insisting that the law take into account what the constitutional provision of the right to life actually means, or their active participation in asking how city life is to be made viable that democracy has taken shape, (Das and Walton 2015:53)

Attending to these articulations of marginality in the informal settlements which are predicted to quadruple in numbers by 2050 it is possible to discern a significant deconstruction of the cosmology of modern energy, as if ‘energy’ as currently understood has driven human need

⁵ "The insistence on a rigid visual aesthetic at the core of the capital city tends to produce a penumbra of settlements and slums teeming with squatters, people who, as often as not, sweep the floors, cook the meals, and tend the children of the elites who work in the decorous, planned center." (Scott 2012:45)

and progress since the dawn of time and as if it now constituted a bridge by which the dispossessed can access ‘modernity’, the tide that lifts all boats. The slum dwellers call to account the abstract notion of energy as a matrix of nature that is dis-embedded from ethics, and point to the necessary inquiry over democratic participation in deliberating a public space for reinventing energy in the social distress of the Anthropocene.

An agenda for intensified research into democratic dimensions of energy programmes has to address the invisibility of energy poverty among the urban poor, as well as the relationship of rural to urban contexts. It is often assumed that this division corresponds to presences and absences of markets, infrastructures, communications, and access to state institutions, and that the asymmetry of development facilities for empowering citizens can be overcome simply by providing greater energy access. The reality of existing provision, of electrification, or LPG access, is often well below the claims of rural energy access programmes, when only minimal supplies to restricted numbers of users has actually been achieved, and targeted village communities correspond to vote harvesting strategies, or support is favoured for male property-owning rural workers, while women cannot qualify (Nathan et al. 2018)⁶. There is a gendered invisibility of the energy poor in both urban and rural situations, which significantly disempowers democratic trends.

From among responses to the crises of de-peasantisation, urbanisation, environmental stresses and infrastructural incapacity in neoliberal times, there is an affinity of interests that create spaces of socio-technical possibility and produce considerable allure for community-based solutions (and the LCEDN has to reflect on its institutional ecology in like confluences). The authors would claim moreover that in a world beset by the urgencies of anthropogenic global warming, that is working in contradiction to the need for universal energy access, community-based decentralized energy initiatives are the only means to bridge these contradictory processes and at the same time imbue energy access with elements of democracy and empowerment.

We need to be cautious about how these calls for democracy and empowerment are designed and situated, however, not to mention who they are made by - While critiquing the blindnesses of top-down techno-centric assumptions about how to do development through

⁶ The issue of a property ownership requirement to access a grid connection is plainly critical in countries where it is difficult or impossible for women to assert land ownership rights.

commoditised energy technology fixes, there are serious matters of concern for a new politics of energy knowledge and practice if the capacity for grassroots innovation are over-stated, and the embedding of energy decision-making in collective processes of deliberation and contestation are not rendered visible. Contesting inherency once again, decentralized community energy initiatives will not inspire a social revolution by themselves.

Notable for the attention that has been paid to inventiveness among urban poor in India is the phenomenon of *jugaad* or everyday bricolage. Kaur (2016) demonstrates the power of images and storylines of local creativity in finding low-tech solutions to poverty and hardship, but also explains the affinity that the fetishization of self-reliance provides with the interests of the neo-liberal state in maintaining that welfare and state intervention hinder India's intellectual capital of innovation. The claim for an imagined symbolic community sharing capacities for innovation and deflecting from India's immense inequalities leads Kaur to caution against unreal expectations:

The invocation of *jugaad* as a grassroots revolution unsettling multiple peripheries – the rural on the one hand and the Global South on the other – conjures an image of change, progress and mobility in a setting that continues to be unequal
(2016:324)

With respect to South African urban development Redfield and Robins argue that democratic sensibilities of its citizens have “become tightly tethered to popular demands for access to state services, technologies and infrastructure” (2016: 145). Furthermore, exposure of the vulnerability to indignity of the conditions of living of the poor, with flimsy toilet facilities or inadequate energy provision, activates deep-seated historical resonances.

To live adjacent to a grid, and yet not enjoy its benefits, vividly renders continuing racialised inequity in material terms. In this sense, for South Africans, the relative “modernity” of service delivery is less an abstract conceptual dispute than a continuing political issue. (ibid:152)

As with Harvey and Knox's (2015) term ‘the promise of infrastructure’, making energy access into a normative expectation of everyday life creates conditions of a modern infrastructural gaze that conversely sees certain territories as places ‘where there is no infrastructure’. This risks creating neo-colonial mentalities of *terra nullius* where engineers

and planners perceive absences and blank slate territories, voided of existing collectives of livelihood ‘services’ performed by diverse human and non-human networks of knowledge and practice. Where are the spaces of recognition for people to register precedence for subsistence and claims to territory-making (Latour 2017), and how can distributed energy governance build on informal rights, moral ecologies and the movements for alliance-making that ‘deep democracy’ (Appadurai 2002) practices in contested spaces are busily enacting on a daily basis?

On the back of the LCEDN’s gathering-in of renewables research and case studies across the Global South, it is therefore important to comment how many grassroots activities and networks are busy doing things on a very local basis and beyond the radar of metropolitan research. Dipti Vaghela (n.d.) has documented the proliferation of small decentralized energy initiatives, especially micro-hydro and biomass gassification in Myanmar beyond the purview of the military regime there, and working in a culture of research communication far from the obsessive internet-frenzy of self-promotion associated with research reputations circulating in the Global North. Smitts and Bush’ (2010) study of Lao PDR demonstrates an enormous gulf between understanding the extent and enormous scale of horizontally expanding numbers of pico-hydro installations that fail to divert central policy attention from turning to foreign investment for large scale dams at national level.

In Anthropocene circumstances of destabilisation, visions of orderly sustainable energy transitions need to be seen in realistic terms as purposive ideologies, in which ‘fallacies of control’ (Stirling 2014) have to be tempered and the uncertainty of the ground beneath our feet acknowledged to be a very important but vulnerable humus. The ‘reckless Anthropocene’ (de Waal n.d.) and processes of disassembly (Bridge 2018) profoundly re-situate any doing of politics in sub- and supra-national new territories of energy. It is with a notion of exploring emerging institutional networks and registers of re-worked relationships for democratically distributed energy potential that the sustainability of people’s ‘relational capacity to act’ becomes the premise for any energy politics.

Scott’s (2012) astute observations of the role of infrapolitics, and the ‘mechanical intelligence’ of vernacular livelihood practices of people familiar with the crafting of material worlds encourage attention to broader cultural landscapes of thinking and doing, which would make for co-constitutive enhancement of livelihood possibilities, ethno-engineered realities and participatory technological democracy. Nonetheless, he credits the state with a

uniquely vital intervention in conditions of conflict where rights of civil equality have to be asserted.[quote to follow]

The analyses of urban slum dwellers' rhetorical creativity developed by Walton and Das and that of Redfield and Robins build on Appadurai's study of Mumbai in which relations of solidarity at micro-scales provide affordances of federated collectivity. Such temporalities of effective change emerge with very different characteristics than NGO-led development project 'interventions'.

once mobilized and empowered by ... partnerships [at all levels], the poor themselves will prove more capable than the usual candidates—the market, the state, or the world of development funding—of scaling up and speeding up their own disappearance as a global category Appadurai (2002:44)

In the following section, we explore some of the pathways of research that have attempted to re-boot the intellectual and practical alignment thinking about low carbon energy transitions work and discuss a growing body of work attempting socio-technical research collaborations. Within a wishful space of intersectoral research dialogues between interdisciplinary academics from North and South, local community members, NGOs, 'pro-poor' donor-supported research programmes, some of the examples of work that has been conducted since 2012 under the remit of the Low Carbon Energy for Development Network have shown glimpses of the way, and barriers in the way, towards low carbon democracy.

Seeking Low Carbon Energy Development via a UK network

From 2012, the space opened up for interdisciplinary energy work in the UK research community was initiated by the then Department of Energy and Climate Change. The Engineering and Physical Sciences Research Council, and Department for International Development subsequently funded and managed a programme of thirteen projects on Understanding Sustainable Energy Solutions from 2013 onwards. LCEDN assisted in finding

elements for comparison, common thematic elaboration, and interrogation about ‘inclusive’ development agendas being evident in the different projects. A considerable community of research practice was formed, led by 11 Principle Investigators in 13 separate projects. Despite both the techno-economic and engineering skewing of many project conceptions, and the highly charged institutional flux of competitive academic mobility in the UK, a number of project studies and analyses emerged from the programme which substantially recast the interdisciplinary knowledge base for low carbon development thinking: including questions that pertain to energy democracy.

The USES programme was designed in a climate change-oriented context of seeking for “new ways of doing policy” (Brown et al 2017:112), and thus it covered energy systems and decentralised use, solar, bioenergy, urban and transport, and energy efficiency. Its overall aim was to achieve an

“improved understanding of clean energy options and opportunities for developing countries; improved understanding of the social, market and political economy aspects of scaling sustainable energy access for poor people; strengthened developing country research capacity on clean energy and improved access to practical and policy relevant knowledge on the challenges and opportunities for sustainable energy solutions” (ibid: 121).

Working across the USES projects, which all had to audit their impact for beneficiaries and for other researchers, there were important lessons learned about communicative processes. As a different order from a technology transfer model, the ‘dialogical production of impact’ takes time, needs adequate funding, and requires broad-based stakeholder involvement:

It takes time to build relationships and platforms, to share knowledge and develop impact, and it is these relational conditions of possibility for an impact that need much better recognition in participatory ownership of project objectives. Research does not automatically lead to impact, so considerable resources need to be devoted to creating opportunities, nurturing relationships and influencing policy strategically. (ibid:122)

One of the projects was ‘Renewable Energy And Decentralisation’ (READ), working with local government actors in Kenya and Rwanda to engage with processes of decentralization

in Kenya and Rwanda, bringing attention to the fact that there are “surprisingly few studies of the relationship between political decentralization and energy issues in the Global South.” (READ final report p. 36). Even where countries do have formal decentralization policies, a 2009 UNDP study found there were only four cases that explicitly address energy decentralization. The common storyline is less of local governments picking up “new roles and responsibilities in relation to energy but rather it is frequently of local governments struggling to even maintain inherited infrastructures rather than actively seek to expand their role” (Brown et al 2015:39). The report advised that “local people ... play a more active role in articulating local solutions to the challenges which they face including those relating to energy” but added “this assumes that political decentralization is accompanied by the encouragement and facilitation of local consultation and priority setting which is, of course, not always the case” (ibid.:36). Interesting examples where people at local levels had become notably engaged in planning and implementing energy projects have been especially noted in Bangladesh, Nepal and Mali (ibid: 37), while the general situation in the Global South is of regional and local authorities having no “direct legislated responsibility for meeting the energy needs of their citizens.” (ibid: 38).

The READ project held a number of multi-stakeholder and community interactions, producing an app and videos to communicate the value of including a variety of local actors in energy planning (http://thereadproject.co.uk/?page_id=23). Hybridising the two concepts of energy literacy and energy efficiency, a new term ‘energy proficiency’ is proposed by the READ project members Batchelor and Smith:

energy proficiency is the degree to which local authority officials are fluent with the nature, role, and socio-political context of energy production systems in their nation and region, and can obtain, process, understand, evaluate and act on energy information to provide sustainable and efficient energy for their communities.

(p.21)

The project material effectively communicates how decentralization has to be seen as processual. The project’s final report concludes more strongly the process is political, and will have defenders and challengers:

The what and where of political/energy decentralization is only the starting point (the rhetoric) - questions of agency (who is involved, what factors are at play), process (how is it being pursued/achieved - i.e. through what mechanisms), and specific interests (why are they doing it) are ultimately the key to understanding what is possible/not possible” (Brown et al 2015:45).

Drawing from a number of USES project examples, Cloke et al (2017) turn the usual deficit model concerning energy literacy on its head. Instead of being about informing and educating unknowledgeable communities and publics about technology use and maintenance, they suggest that a reverse information dialogue needs to take place educating “energy technology developers and project implementers about the project community’s livelihood needs and aspirations in which energy plays a key enabling role” (2017:267)

Broader lessons about planning for renewable energy infrastructures according to the contrastive conditions of geographical distribution of people and landscapes suitable for renewables were drawn from a comparison of Kenya and Ghana in the Green Growth Diagnostics project of the USES programme. Non-standard and bespoke solutions adapted to local circumstances of need and possibilities for development of energy services are part of a new way of energy planning compared to importing policies from other places (Pueyo 2018:96), counter to the inordinate neo-liberal and undemocratic external influence of donors and corporations on the development of energy policy in countries in the Global South (Newell and Phillips 2016). Who then is configured to join a more democratic planning process?

This is a question that has relevance in Marvin and Silver’s attention to urban energy governance in the SAMSET project that embraced municipal level energy policy making based on experiences from South Africa, Ghana and Uganda. Imported energy policies based on “Global North-anchored understandings of what constitutes an urban energy network” face huge challenges in conditions of energy service operation where there are large numbers of energy users depending on biomass, and where the urban poor do not often have regularized property relations, and suffer generally from inadequate service provision (2017: 854). The colonial and capitalist legacies of race, gender and class difference play out in urban spatial configurations, and associated urban energy regimes with “ongoing production (and circulation) of inequalities and injustice through and across energy systems together

with sites and processes that produce divergent visions of future energy transition” (Silver & Marvin 2017:856). The SAMSET project aimed to “design, test, and evaluate a knowledge exchange framework to facilitate the implementation of an effective sustainable energy transition in Africa’s Sub-Saharan urban areas” (lcedn.com/USES), and it might be said that it is the challenges rather than solutions that were most prominent in the findings.

The research networks facilitated by the USES programme found new spaces for skills development and partnership work in the Transforming Energy Access programme, and latterly the Modern Energy Cooking Services initiative. This last programme consists in a radical refusal to accept the marginalization of cooking from central energy sector attention in Africa especially, which is a prime example of anti-democratic energo-patriarchy at work. Based on novel practices (for technical researchers) of undertaking participant observation and keeping cooking diaries, solar eCook equipments have been trialed across four countries, involving consultation and assessment processes with women in domestic settings, in order to evaluate the chance of soon-to-be competitively priced eCook systems finding a market advantage in urban African homes where fuelwood and charcoal are currently used. Batchelor et al. (2019) argue that only with new kinds of agendas produced by climate change concerns, by recognising the massive scale of global inequality and the prominence of gender inequality as intrinsic to conditions of marginality, has it been possible to attempt to shift the discourse of ‘normal’ regarding biomass cooking.

Core to this strategy is to crowd in stakeholders, to experiment at scale, and to ensure that local policy and market environments are conducive to change. To do this, the programme has set itself the task, alongside other international actors, to ‘change the narrative’. To move the narrative away from the thought that biomass and solid fuels are the main solution for cooking energy, to one that explores and leverages interest and investment in modern energy. One that builds on the world’s commitment to SDG7: “access to affordable, reliable, sustainable and modern energy for all [**inclusive of cooking needs**]”

Conclusion

It is undeniable that fossil fuel energy systems have been central to the expansion of extractive global economic relations over the last two hundred years, and to the forms of democratic representation that were struggled for by men and women in the capitalist Global North. As that system unpicks itself after peak oil, austerity, and with the Anthropocene reaching public consciousness, giving rise to 'new green deal' types of political pressure, and the increasing availability of renewables, a novel territory for socio-technical collaboration, a gender-equitable and ethical economy, and re-localisation of energy decision-making around climate resilient systems governed by informed energy citizenships is more than a possibility.

The ongoing hegemony of techno-centric approaches to energy research remains a severe impediment, as the de-politicised view of modern energy infrastructures configured as objective delivery systems to abstract users and detached from conditions of reciprocally lived worlds of relation and locality perpetuates views of development in terms of catch-up, and leap-frog that present transitions as manageable substitutions of one kind of infrastructure for another, without appreciating the obvious normative revolution that is required in order to keep below a 2 degree increase in global warming. The normative revolution will need wholesale revaluation of economic relations, and ways of living relationally on land, by water, and with energy. Renewable technologies have yet to be domesticated and socialised in and by actor networks without the unjustly asymmetrical competition of ubiquitous and subsidised fossil fuel techno-mass. The neo-liberal myth further propounds that economic and technological change come about by individual choices in aggregate momentum, rather than (to date) by decisions in and between powerful institutions well practiced at democratic exclusion.

A low carbon rather than high carbon energy democracy will need to emerge from democratic learning practices and new forms of democratic energy literacy. Diverse kinds of knowledge and skill have to be developed out of local landscapes and their solar, hydro, aeolian, biomass, geothermal, and other affordances. Community-led micro-hydro and community electrification examples already demonstrate hybrid innovations between local autonomous resilience traditions of skill in technical practice and governance institutions with new contexts of utility stakeholding, and IT mediated service regulation. The democratisation of capacities for innovation and learning in renewables are fundamental to a low carbon democratic culture, and displacement of the layers of energo-patriarchy.

While community-scales of appropriating low carbon energy technology can only be part of a more complex approach to reducing inequality and advancing people's relational capacity to act on realising their kinds of preferential transitions, they are no panacea for the greater set of global challenges

The literature on community energy projects is full of good practices and processes that have contributed to project success; inclusion of multiple stakeholders, capacity-building, affordability, maintenance, demonstrations, thorough dissemination and education practices, local manufacturing and training centres, simultaneous implementation with employment-generating practices, the development of symbiotic services (irrigation, etc.). But not all of these will work in all contexts and what is vital to understanding which will work where and what other innovations might be needed cannot be achieved through top-down perceptual models based on finance and technology (Cloke et al 2018: 270)

Discussion of energy transitions need to be resituated from the techno-economic into deliberative spaces that are accessible for the poor in the settlement and mobility scenarios of coming decades of climate-changed livelihoods. The evidence from consideration of studies on energy access for the poor in the Global South and techno-economic projects of renewable energy development is that the great divide of perceptions separates energy modernity from off-grid. The way that energy developers see places as simply 'where there is no infrastructure' has to be disrupted by a process of rendering energy relationships visible and the energy hyperreal torn down. Technology developers with knowledge of these unequal realities are indeed part of the necessary complement of participants in democratic energy renewal, as are the neighbourhood decision-makers who are translating 'energy poverty' into a basis of mobilising rights to belong in cities, and in villages that can be transport linked and powered from local sources without profits from energy purchases being relocated elsewhere.

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