Chapter 14: Energy

An overview of strategies for social-ecological transformation in the field of energy

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Introduction

During the last 150 years, the availability of cheap and high energy density fossil fuels has enabled a dramatic increase in global primary energy use. This fuelled the uneven global development of modern industrial economies. While providing enormous amounts of goods and material wealth, this development is posing existential threats to humankind, such as climate change and the ecological crisis (Clark and York 2005). The shift away from fossil fuels to renewable energy sources is a crucial step in the right direction, but one to tread carefully. Renewable energy production has a lower energy return per energy invested (EROI) as compared with fossil fuels, reducing the overall net energy available to sustain high levels of energy use. In addition, the production of renewable energy rests on the extraction of vast amounts of non-renewable raw materials such as lithium, cobalt, neodymium or nickel which are used for batteries, solar panel cells and wind turbines, respectively. These raw materials are mostly extracted in Global South countries, resulting not only in environmental degradation during their extraction and allocation of waste, but also leading to social conflicts that involve notions of (in)justice, sovereignty and distributional conflicts. A low-carbon economy must be, therefore, a socially just and low-energy use economy.

Under capitalism, economic growth is necessary to keep the system stable, as well as being deemed as a precondition to satisfy human needs and well-being. However, the economy is embedded in the biophysical reality, which means that all economic processes

require energy and materials and produce waste. This makes absolute decoupling of growth from its environmental impacts – in other words, green growth, supported by techno-optimists – impossible. Furthermore, under capitalism, the way energy is produced, transformed, distributed, and eventually consumed, prioritises logics of power and profit maximisation over the satisfaction of human needs and well-being.

Degrowth is put forward as an alternative to tackle not only decreasing energy and material throughput, but also the enormous lock-in around production, finance, and the governance of energy to accommodate a plurality of low-energy visions of society in which social institutions are not reliant upon growth. While there is an increasing amount of literature that explores the theoretical and material feasibility of low energy use scenarios (Millward-Hopkins *et al.* 2020), degrowth scenario analysis (D'Alessandro *et al.* 2020) and complex modelling analyses (Nieto *et al.* 2020), there is a challenge regarding the socio-political feasibility of those scenarios. This poses a serious question, and the object of this chapter: what strategies could the Degrowth movement pursue to achieve its energy-related goals while securing living conditions and basic needs?

This chapter discusses a variety of strategies aimed at transforming energy systems away from fossil fuels and capitalist relations into low-carbon and low-energy use social arrangements. I conclude by highlighting the mutually interdependent and interconnected nature of these strategies as the key feature of their potential for being effective.

Resisting and disrupting energy capital

Scientific evidence suggests that, to avoid exceeding a 2°C global warming, more than a third of oil reserves and 50% of gas reserves need to remain in the ground (McGlade and Ekins 2015). Yet, the fossil fuel industry keeps heavily investing in new infrastructure to expand fuel supply (Piggot *et al.* 2017). Simultaneously, investment in renewable energy is at its record high (BNEF 2019). Resistance

movements emerge against the backdrop of environmental degradation, irreversible environmental-social impacts, territorial dispossessions and issues of control and access rights to resources, often triggered by fossil fuel projects (Temper 2019) and, more recently, low-carbon energy projects (Del Bene *et al.* 2018). Resistance movements threaten to disrupt the circuits of energy capital – understood as energy-related infrastructure and financial assets – while raising the question of who produces energy and for what purposes.

Resistance movements and actions are formed by Indigenous people, frontline communities and a wide variety of collectives such as environmental activists, journalists or social movements – 350.org, Fridays for Future, Extinction Rebellion, or the campaign Chiloé Libré de Saqueo Energético, which the second half of this chapter focuses on. The Environmental Justice Atlas project, launched in 2015, currently documents over 2046 cases of resistance around the globe over energy-related projects. It is widely recognised that these actions and movements influence the politics and practices of resource use towards less destructive social and ecological outcomes (Villamayor-Tomas and García-López 2018).

The organisation of workshops and discussion groups, civil disobedience, direct confrontational tactics such as mass arrests, marches, lockdowns and blockades are part of the extensive repertoire of strategies. However, there is an uneven distribution of the consequences of activism. Whereas in some parts of the world, activists may mainly deal with mass arrests, in other areas, defenders face physical violence or even murder. In 2018 alone, 61 environmental defenders against energy-related projects (disproportionately located in the Global South) were murdered (Global Witness 2019) and the trend has increased over the last fifteen years (Butt *et al.* 2019).

Additional resistance strategies involve the creation of politically effective – and unexpected – coalitions driven by common interests, such as the Cowboys and Indians Alliance to stop the Keystone XL

project (Lukacs 2014). Resistance movements tend to reframe their demands in terms of collective rather than individual preferences. Frequently those preferences cannot be reduced to monetary terms, widening the scope of the political debate for the inclusion of different languages of valuation (Martinez-Alier 2008). In addition, the effectiveness of resistance actions is often influenced and increased by the level of connectedness between bottom-up decentralised actions and transnational networks and coalitions. This last strategy adds an important element to resistance strategies that signals a shift from "not in my backyard" to "not on my planet" (Vedder 2019) or NOPE (Not On Planet Earth).

Legal strategies are double-edged means to stop or slow down the construction of energy projects. Investor-State Dispute Settlement mechanisms protect energy capital when energy infrastructure projects are blocked or interrupted and tend to compensate – frequently with public money – the financial investors for their "lost" potential returns. On the other hand, there are successful cases of litigation such as the outlawing of the expansion of London Heathrow airport for not meeting the government's climate commitments, the permanent ban on fracking in the state of Paraná in Brazil, or the Kenyan tribunal cancelling a developer's licence to build a new coal plant at Lamu.

Economic strategies are exemplified by the fossil fuel divestment movement, a broad-based civil society movement aimed at redirecting finance away from fossil fuels (Healy and Barry 2017). The movement is currently an international network of campaigns and campaigners involving 1,327 institutions with divestment pledges reaching US$14.58 trillion by mid-2021 (Global Divestment Commitments Database 2021). Typical strategies within the divestment movement involve the creation of alliances within members of the targeted institution (e.g., senate members of a university and their finance staff), awareness-raising events, marches, training workshops on the consequences of divestment – e.g., stranded assets which in turn increase the uncertainty around

the long-term financial viability of fossil fuel projects, press releases to local media and/or open letters from academia that pressure the institution to divest. In addition, the divestment movement can simultaneously be understood as a strategy to reframe climate change as a moral issue by raising questions of legitimation and reputation and stigmatising the fossil fuel industry while socialising the idea that fossil fuels are at their endgame (Helm 2017).

There is, however, an important potential drawback of the divestment movement (as briefly explained in Chapter 18). The strategy could backfire if small companies or state-owned companies, which are subject to less public scrutiny, buy these assets and start maximising the returns exploiting the reserves. This could lead to unintended consequences for the divestment movement (Raval 2021).

It is crucial to point out that all strategies described above depend on transnational networks of alliances to avoid cost-shifting and spatial fixes driven by Northern elites (and increasingly Southern elites too) as a response to disruptions of energy capital. One case in point is the Fossil Fuel Non-proliferation Treaty, a global initiative that aims at (1) Preventing the global proliferation of coal, oil and gas by ending all new exploration and production; (2) Regulating the phasing-out and dismantling of fossil fuel production infrastructure while defending the rights of Indigenous peoples and impacted communities; and (3) Fast-tracking collective action for developing low-carbon pathways that are fair for workers, communities and countries. These overarching strategies open the possibility of broadening the social-ecological transformation beyond *solely* transitioning away from fossil fuels, while facilitating the emergence of collective autonomy and processes of collective self-limitation, which could be key for low energy use visions.

Building alternatives

Under capitalism, energy systems are predominantly organised through symbiotic relationships between profit-oriented

transnational corporations and States aiming to control and secure the flows and stocks of energy to maximise profit and power to maintain their competitive advantage (Riffo 2017). This is predicated on the private ownership and control of productive technologies. Therefore, tackling the issue of ownership and control is key to any degrowth strategy aiming at decreasing energy and material throughput.

Community energy projects have proliferated over the last years. These involve control and ownership over energy utilities, while also allowing communities to collectively benefit from the outcomes – such as autonomous control and organisation over energy production and consumption (Seyfang *et al.* 2013). Collective ownership is not a panacea. It could be the case that a collectively owned enterprise is organised around growth. However, collective ownership is likely to be the precondition for gaining political agency and collectively deciding upon goals that would not just limit energy use, but would also include social measures of redistribution, reciprocity, equity and justice, opening up possibilities for social-ecological transformations (Kunze and Becker 2015).

Strategies towards community energy involve governance tactics at various scales. At the national scale, centralised governments can support and enable community energy projects through research, policy efforts and financial incentives, grants or direct support. However, as a response to policy uncertainty – the lack of policy, planning and intermittent financial support from national governments – there has been a mushrooming of transnational networks of governance amongst relevant cities around the world such as Cities Climate Leadership Group (C40), Cities for Climate Protection, Fearless Cities network or the Global Covenant of Mayors for Climate and Energy. The main goal is to align policy plans with climate targets.

Public participation in policy development is essential to put an end to the social exclusion of marginalised groups in the development of energy systems (Pandey and Sharma 2021). Public

participation raises the issue that hierarchical government-led or expert centred approaches are not always adequate to address policy issues and energy developments. One of the main strategies put forward is the creation of climate assemblies/citizens' assemblies.

The creation of climate/citizens assemblies is a strategy aiming to set climate-related mandates for national and local governments while improving their legitimacy. The set of demands posed by citizens' assemblies can range from the creation of debates and informative sessions, the development of adaptation, mitigation and resilience plans against climate change, the allocation of funds towards climate action or pressuring the higher-level government to take action. However, even if some demands are accepted and agreed upon with local government officials, serious challenges can appear that impede their implementation. Neoliberal pressures of privatisation and outsourcing limit the capacity of institutional actors to change locked-in inertia. While it is strategically important to pursue these pathways for change, community-based responses are emerging to find other ways to influence policy or directly build parallel alternatives.

At the community level, the strategies are manifold. On one hand, there is the creation of civil-society-led initiatives such as Transition Towns and carbon rationing groups (Bulkeley and Newell 2015). Transition Towns have grown from only 400 communities in May 2010 to more than 2,000 spread over more than 50 countries today. They constitute a "quiet, networked revolution" of communities of practice around the globe and play a key role in mobilising finance, setting standards of community governance and enabling political engagement (Rapid Transition Alliance 2019). In terms of energy-oriented plans, some initiatives aim at developing community energy plans for energy descent scenarios – low-energy use communities powered by renewable energy sources – and for taking back democratic control over decentralised renewable energy production. These types of community-based initiatives form the context in which social innovations flourish, leading to strategies of scaling-up

demands through all governance levels.

One key community-based social innovation is the development of Public-Common Partnerships (PCPs). These are alternative institutional designs that go beyond state/market dichotomies to include Commoner Associations – ordinary people associated with the energy project – and third parties (trade unions or expert groups). The objective is not just collective ownership, but a decentralised democratic governance model that embodies new common senses about energy, democracy, and collective control (Milburn and Russell 2019). This is a crucial strategy to build energy democracy and energy sovereignty at the heart of new energy systems.

Culturing low-energy use practices

Beyond challenging the very structures of control and growth-oriented relations that govern energy systems, Degrowth strategies need to be complemented with demand-side strategies aimed at drastically reducing energy use and consumption to stay within planetary boundaries (Grubbler *et al*. 2018).

Strategies pertaining to individual behaviour and lifestyles, such as consumption patterns – e.g., start a vegan diet or lower household electricity use as well as mobility choices, i.e., more cycling and less car use, are seen as potential "low-hanging fruits" that could be applied without significant trade-offs. Dubois *et al*. (2019) found that these voluntary decisions could lead to significant results by potentially reducing up to 50% of lifestyle-related emissions. However, excessive focus on individual behaviour has provoked criticism due to the individualisation of responsibility and issues of virtue signalling.

In this respect, degrowth strategies need to follow a dual approach that recognises both: (1) the transformative role of individual actions through empowerment and increased political agency and awareness; and (2) the acknowledgement that individual behaviours are conditioned by *practices,* which in turn are embedded in social,

cultural and economic contexts that reproduce certain patterns of demand.

From practice theory (Shove *et al.* 2012), we know that norms, values and belief systems play a crucial role in shaping, reproducing or questioning everyday practices of producing and consuming resources. *Practices* need to be first imagined as *concepts* against the backdrop of the dominant "common senses" that rule our imagination. That is why concepts such as *decentralisation, decommodification, relocalisation* of renewable energy sources and *visions of low energy use* societies are prerequisites for building alternatives. Then, the materialisation of those alternatives – cooperatives, networks of care, etc. – act as positive feedback loops that can establish and reinforce different kinds of cultures that displace the hegemonic one.

Due to the centrality of energy in the way modern economies and societies function, cultural shifts around it may necessitate re-culturing different ideas about technology, social practices around mobility, comfort, etc. In this sense, for example, reflecting on the role of technology in transformative post-growth energy systems is essential to go beyond simplistic techno-optimistic approaches, towards more a nuanced understanding of the *potentials* and *engrained logics* of technology as embedded in social contexts.

Demand-side structural changes towards climate compatibility, such as measures to accelerate the decline of particular industries or new taxes imposed on fuels, can however have regressive consequences, often affecting poorer members of society. These measures can trigger popular backlashes in the form of protests, which may be amplified by the absence of a cultural shift, and by vested interests and incumbent actors who make alliances with disinformation-based extreme right media to stigmatise specific measures or foster voting mobilisation against them. Here, the material and cultural aspects of energy are both sides of the same coin. One important political strategy to overcome these issues – disinformation campaigns, top-down regressive measures, etc.

– is the proliferation of Just Transition Alliances (JTA) that bring together environmental advocacy groups, urban dwellers, trade unions and peoples affected by energy projects. This strategy focuses on people and power and pays special attention to the history and concrete context in which the strategy is taking place. JTA are based primarily on community regeneration, which becomes a pre-condition and an antidote to social fragmentation driven by the interests of the few, opening the possibility of collectively designing low-energy use communities.

Conclusion

It is essential to highlight the interconnected, mutually dependent, context-specific nature of strategies and tactics (Newell 2021). Political praxis is full of contradictions due to competing mental models between actors about how change emerges, which scales of action to prioritise, or which concrete next steps are to be followed. In this chapter I propose how these contradictions can be strategically minimised by: (1) building politically effective coalitions between broad-based movements that reflect ideological diversity; (2) recognising that the main driver for political mobilisation could be issues of sovereignty, justice or self-determination rather than climate concerns (see case example below); (3) promoting bottom-up decentralisation, connected through transnational webs of actions; and (4) following a dual cultural strategy where individual actions are both important and embedded in complex culturally – and materially – based practices.

The development of social boundaries through collective self-limitation should be at the centre of the energy transition. Since "there is nothing automatically emancipatory about renewable energies" (Abramsky 2010), any transformative strategy needs to keep in check the social relations that set the governance of production and consumption (e.g., avoid a productivist approach to energy, albeit in public hands) and avoid the spatial fixes driven by financial elites as a response to disruptions of energy capital.

To conclude, how energy is produced and consumed is embedded in the structures of energy systems. A shift in the use of energy production and consumption means a shift in the balance of power of who gets to organise society, what values they espouse, and what social outcomes they want to fulfil. Any strategy aimed at transforming energy systems needs to be located in the here and now while occupying all possible political spaces.

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