

Approaches to energy transitions: Carbon pricing, managed decline, and/or green new deal?

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Abstract

The need for wholesale energy transitions across the globe is now clear, but there is still much debate about how best to achieve carbon neutrality by 2050. Carbon-pricing has so far been unable to avert the coming climate catastrophe. Instead supply-side, managed decline of the fossil fuel sector and proposals for Green New Deals, or Just Transition are gaining steam among academics, policy communities, and movements and even entering mainstream politics. In this article, I review three main approaches to energy transition and highlight their underlying goals and assumptions. I argue that movements for energy transition must center social and economic justice in their struggles if they want to gain broad-based appeal.

KEYWORDS

carbon pricing, climate change, energy transition, fossil fuels, green new deal, just transition, managed decline, supply-side policies

1 | INTRODUCTION

In 2018, the Intergovernmental Panel on Climate Change (IPCC; Intergovernmental Panel on Climate Change, 2018) released its report on Global Warming of 1.5°C concluding that global anthropogenic CO₂ emissions need to reach net zero around 2050 if we want a chance at keeping global warming to the 1.5°C goal of the Paris Agreement. This report provided the scientific consensus on the need for a full energy transition away from fossil fuels, an agenda that was already being advanced by Indigenous and environmental organizations across the world.

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For example, Oil Change International (Muttitt, 2016) in partnership with 14 organizations published a report in 2016 advocating for a managed decline of the fossil fuel industries in order to meet the 2016 Paris Agreement targets. Meanwhile local scale transition movements have long been enacting a switch from fossil fuels to renewable energy (Connors & McDonald, 2010).

Since the release of the landmark IPCC report the need for wholesale energy transitions has gained new momentum and entered mainstream politics. A growing number of countries have legislated net zero energy transitions (mostly with a target of 2050) including New Zealand (Menon, 2019), France (Felix, 2019) Denmark (Timperley, 2019), the UK (Darby, 2019), Hungary (Darby, 2019), and Sweden (Rathi, 2017). Two other significant developments (though neither have been enshrined into law) include the introduction of Green New Deal resolutions and plans for the USA and the European Union, two very populous jurisdictions with significant global emissions. On 14 February 2019, a nonbinding resolution “Recognizing the duty of the Federal Government to create a Green New Deal” (116th Congress bill profile H. res. 132, 1st Congress, 2019), was introduced to the US congress and proposed transitioning the country to 100% renewable, zero-emissions energy sources in 10 years. And in December 2019, the European Commission (2019) introduced a roadmap for a Green Deal, which would commit Europe to becoming “climate neutral” by 2050. It is clear that the phasing out of fossil fuels has become a key terrain of struggle as climate movements continue to gain steam and as jurisdictions race against the clock to bring global emissions to zero by 2050.

The urgent requirement for a global energy transition is becoming well-recognized, but there remain significant disagreements within and between social movements, academics, and policy communities about how best to achieve wholesale transition. In this article, I outline three broad approaches to energy transition being pursued by scholarly, movement, and policy communities. I highlight the underlying goals and assumptions associated with each approach and argue that movements for energy transition must center social and economic justice in their struggles if they want to gain broad-based appeal.

This piece departs from other reviews of energy transitions which have primarily focused on the concepts of energy and climate justice (especially analyzing how the burdens associated with transition should be shared between the global north and the global south (see, for example, Armstrong, 2020; Muttitt & Kartha, 2020; Newell & Mulvaney, 2013) and energy democracy (especially the potentials for distributed and community or publicly-owned energy systems and increased participation in decision-making (see, for example, Becker & Naumann, 2017; Szulecki, 2018). Instead, this article is primarily concerned with categorizing and comparing different paths toward wholesale transition that are or could be immediately pursued by jurisdictions with the power to enact climate legislation and implement climate policy. Questions of global justice are included as part of the decolonizing thrust of the final approach, but are not the primary focus of this article. Here I put forward a three-part typology of the primary approaches gaining traction among movements, policy think tanks, and, increasingly, governments. Rather than focusing on what geography and geographical concepts can offer analyses of transition (Bridge, Bouzarovski, Bradshaw, & Eyre, 2013) I suggest that the discipline of geography ought to engage these approaches if it wants to contribute to the unfolding politics of energy transition. In particular, I will argue that the first approach (demand-side green capital) ought to be criticized by geographers and that the second (supply-side managed decline) and third (climate policy as social and economic justice) approaches ought to be forwarded by critical geographers.

2 | DEMAND-SIDE GREEN CAPITAL

One approach to wholesale energy transition looks to markets and to consumers as both the source of the climate emissions problem and the potential solution to transitioning off of fossil fuels. There is no shortage of examples of this approach to transition, which has become the primary policy response of governments all over the world, supported by think tanks, environmental organizations, and even private fossil capital.¹ According to the World Bank, in 2020, 46 countries and 32 subnational jurisdictions had or were scheduled to implement carbon pricing (which

applied to about 22% of global GHG emissions) either through an Emissions Trading System (ETS) or a carbon tax (The World Bank, 2020). By 2017, seven of the world's largest 10 economies had implemented carbon pricing. Notably, there are a growing number of countries in the global south where carbon pricing has been scheduled or already implemented (Argentina, Mexico, Chile, Columbia, and South Africa) and more where implementation is under consideration (Brazil, Senegal, Cote D'Ivoire, Thailand, Vietnam, and Indonesia; The World Bank, 2020).

Mainstream neoclassical economic theory underpins the carbon pricing approach, which seeks to correct market externalities (i.e., that GHG emissions have been emitted, cost-free, into the atmosphere for hundreds of years) by internalizing the costs of pollution through market mechanisms. The focus of carbon pricing is on the demand-side of the economy; the assumption is that consumers of fossil fuels and fossil fuel intensive goods drive economies and that producers are reactive agents, simply responding to demand. It follows, then, that a tax on carbon (though usually only applied to the carbon content of fossil fuels and not more widely) will ensure that consumers make greener market choices, switching from more expensive, carbon-intensive goods to cheaper less carbon-intensive goods or reducing their consumption to match their ability to pay. While ETS (cap-and-trade) are generally targeted at industry (supply), they count as demand-side policies since they attempt to regulate emissions rather than fossil fuels. Both carbon taxes and ETS apply to producers only in their capacities as consumers of fossil fuel inputs (and thus emitters of carbon) in the production process; they do not target the producers of fossil fuels themselves or attempt to directly restrict the supply of fossil fuels. By making carbon emissions and carbon-intensive inputs more expensive, carbon pricing schemes incentivize all industries to decrease the use of fossil fuels in their production processes or to switch to low-carbon lines of business.

While the demand-side green capital approach champions market measures as the fairest, most flexible and least-cost policies, there is nevertheless a role for governments in this path to energy transition. In addition to maintaining a predictable and stable carbon pricing regime, governments following this approach often use carbon tax revenues to subsidize energy-efficiency or low-emitting substitutes, sending signals to capital and consumers that they should make choices consistent with energy transition. Governments also actively reform regulations so as to allow for more investment in renewables. With consumers and producers acting in their best interests by reducing their costs and, thereby, their climate pollution, decarbonization is thought to flow naturally from this series of disincentives and incentives. As decarbonization progresses, it is believed that fossil fuels will be phased out as a result of declining consumer demand to which industry will respond by switching to low-carbon business lines. Notably, the United Nations Framework Convention on Climate Change has singularly pursued a demand-side focus on carbon emissions since it was formed in 1992 (Muttitt, 2016).

There is, however, little evidence that carbon pricing can actually deliver the kinds of deep decarbonization and fossil fuel phase out required to keep global heating below 2°C. Tvnnerheim and Mehling (2018) suggest that carbon taxes have delivered lower emissions than business-as-usual scenarios in the countries where they have been implemented, but that the scale of the reductions is marginal and completely inconsistent with bringing the stock of global emissions to zero. Even Sweden, which implemented its tax in 1991 and has the highest rate in the world at US\$140 per tonne of CO₂, only saw a 4% reduction in road transportation emissions from 1990 to 2015 (186). Of particular note is that calculations of emissions reductions associated with carbon taxes are usually compared with business as usual scenarios, where energy consumption, and its associated emissions are expected to continue to grow alongside GDP.

In fact, economic growth is fundamental to the neoclassical approach to decarbonization and energy transition. Advocates claim that carbon pricing is the most "efficient" climate policy tool as it allows markets to allocate and account for emissions, having negligible or even positive effects on economic growth. For example, Murray and Rivers (2015) concluded that in the province of British Columbia, Canada, the carbon tax instituted in 2008 had little net impact on economic performance with minor negative effects in emissions-intensive sectors like cement compensated by positive effects in other sectors. They also suggest that it is possible that a carbon tax could spur additional economic growth, especially if the tax revenue is used to lower "price distorting" income taxes. In this approach then, economic growth is assumed to continue under decarbonization. As long as energy sources are

made “green” through electrification and the sources of that electricity are renewable, there is no need to curb absolute energy production or consumption and markets can be left to their own devices. Business continues as usual, but with the social costs of carbon priced and internalized.

There is much in this approach to criticize for geographers who have been attuned to questions of social and ecological justice and who understand capitalism as a system prone to social and ecological crisis. At first blush, the focus on internalizing the social costs of carbon seems to address James O'Connor's (1991) second contradiction of capitalism: that capital underproduces and degrades the nature upon which it ultimately depends as an input for production and a sink for wastes. Global heating will increasingly imperil the capability of producers to set and sustain value in motion as the stock of various “natural resources” and species dwindles, as weather becomes more variable, and as calamities, pandemics, and so forth become more disastrous. Thus, the state steps in to price carbon so as to secure the conditions for the reproduction of capitalism. This is the sense in which the demand-side green capital approach can be understood as a socio-spatial “fix”; a mechanism through which the second contradiction is pushed off and economic growth is (temporarily) secured (McCarthy, 2015).

Indeed, as McCarthy suggests, decarbonization will allow for vast new outlets for capital to circulate, and thus new outlets for profit-making. The scale and scope of a worldwide energy transition opens up a new frontier for green capital at a time when other lines of profit have dried up because of “overaccumulation” and recession in the world economy. This is even more apparent with the crisis of COVID-19 where an epic overaccumulation of goods (oil, garments, electronics, etc.) and services (air transportation, restaurants, etc.) are finding no buyers under conditions of lockdown and layoffs. Opening up an expansive and profitable new line of accumulation (estimated to need \$72.8 trillion USD of capital to transition to 100% renewable by 2050; Jacobson et al., 2019), will provide opportunities for value to circulate once again and, thus, expand and enrich its owners.

The green capital approach to energy transition focuses narrowly on carbon and continues to prop up a system that many have described as growth based on theft. Carbon pricing measures only carbon dioxide equivalent emissions and says nothing about the other ecological implications of a world energy system based on renewables. Human and non-human displacement will be needed to make way for renewable infrastructure, since renewable energy is much less dense than fossil fuels (McCarthy, 2015) and ecological destruction will accompany the mining and refining associated with building out green energy infrastructure (Mulvaney, 2014). In terms of theft, the green capital approach continues social relations of production that are based on the exploitation of labor (theft of time), accumulation by dispossession through neo and settler colonization (theft of land), and the elimination of cultures, cosmologies, and bodies (theft of life; Tuck & Yank, 2012).

2.1 | Supply-side managed decline

After decades of demand-side green capital advocacy and policy approaches, the crisis of global heating is only accelerating. Deep emissions reductions have not been achieved; most jurisdictions across the globe have increased their absolute emissions over the last 20 years. Energy transition must now happen more aggressively, over a shorter time period, which will cause more overall, though certainly uneven, disruption to economies and lives. Since the late 2000s, a growing chorus of academics and movements have been suggesting that wholesale energy transitions, on a timeline and carbon budget consistent with maintaining a habitable planet, require a managed decline of fossil fuel production. Building on decades of community resistance movements to fossil fuel extraction and nongovernmental research and advocacy (Carter & McKenzie, 2020), academics are now calling for policies that restrict the supply of fossil fuels and support renewable energy transitions (Erickson, Lazarus, & Piggot, 2018; Frumhoff, Heede, & Oreskes, 2015; Green & Denniss, 2018; Muttitt, 2016; Muttitt & Kartha, 2020; Paul, Santos Skandier, & Renzy, 2020; Piggot, Erickson, van Asselt, & Lazarus, 2018). Importantly, contributors to this approach do not reject demand-side policies outright, but they do argue that green capital approaches alone have proven vastly insufficient to meet the scale and scope of the climate challenge ahead of us.

Supply-side approaches to energy transition shift the focus of interventions from the consumers (the end-of-pipe combustion of fossil fuels) to the producers (the suppliers of fossil fuels) through a wide range of policy tools that limit the exploration, extraction, or transportation of fossil fuels. Green and Denniss (2018) break down supply-side interventions into restrictive policies such as fossil fuel subsidy reductions, supply taxes, production quotas, and bans or moratoria on extraction and supportive policies such as direct government provision of low-carbon infrastructure, research and development subsidies, and renewable energy feed-in-tariffs (p. 75). Le Billon and Kristoffersen (2019) distinguish between financial constraints to supply (including removal of subsidies, taxation, reducing investments in production, etc.) and material instruments that create legal or physical obstacles to production, transportation, or transformation (including blockades of specific projects, moratoriums, export embargoes, etc.) And Piggot (2018) differentiates between price-based instruments (removing subsidies, taxing production and export fuels, etc.) and quantity-based instruments (regulatory approaches, bans and moratoria, limiting public financing for fossil fuel projects, etc.).

Supply-side approaches target fossil fuel producers for their responsibility for climate change: the world's 90 largest industrial carbon producers are responsible for nearly two-thirds of all known industrial greenhouse gas emissions since 1751 (Heede, 2013). Drawing on the example of the tobacco industry being held accountable for their coverup of research and the health implications of their products, this approach argues that the onus should be on fossil fuel producers, rather than consumers, to pay for energy transition and that their harmful products should be phased out. Attention is given to the enormous amount of power and influence that has been wielded by the industry to cover up the scientific evidence of global heating and to prevent policies that address climate change (Frumhoff et al., 2015) through its "regime of obstruction" (Carroll, 2020). Rather than producers simply responding to the demands of consumers, this approach sees industry as manufacturing demand, using their corporate power to materially and ideologically produce economies, built environments, and livelihoods that require the consumption of fossil fuels (see, for example, Huber, 2013).

Managing decline through supply-side policies requires a strong state that uses "command and control" regulation and economic planning to wind down production while keeping more fossil fuels in the ground. Exacting costs on fossil fuel industries through enhanced regulations and supply taxes and restricting the supply of fossil fuels should also increase the price of fossil fuels, which conventional economics suggests will discourage consumption. Since 2017, France, Belize, Denmark, New Zealand, and Ireland have all implemented bans on oil and/or gas exploration or production and Spain and Germany have banned coal mining (Carter & McKenzie, 2020). Erickson et al. (2018) suggest that a simple and cost-effective pathway for winding down oil production in California would involve the state issuing no new permits for oil wells. With the natural rates of depletion of existing wells, they calculate that this strategy would cut California oil production 70% by 2030 and contribute to substantial GHG reductions, calculated at 6–19 MtCO₂ globally (p. 1040). This figure only includes GHG reductions associated with combusting the extracted fuels and does not include the CO₂ that would be saved through the declining production process. Studies are showing that emissions from the production of fossil fuels are much higher than previously calculated due to venting, flaring, well-head leaks, spills, and so forth (El-Houjeiri, Brandt, & Duffy, 2013; Schneising et al., 2014).

Geographers are well-positioned to both contribute to and critique this approach to energy transition. While the green capital approach focuses uniquely on GHG emissions, the supply-side approach is potentially more rooted in local ecologies and economies. Geographers have long contributed to the literature on front-line communities resisting extraction in both the Global South and the Global North and understand well and holistically the social, economic, and environmental impacts of extraction and the complexities of community demands to wind down production. So far, the supply-side literature has been focused at the level of national and international policy contemplating, for example, which national jurisdictions should bear the heaviest burden and which jurisdictions are most likely to be first movers. These are crucial questions of justice that geographers can and are contributing to. But there is also a real opportunity here for geographers to consider the more complex ecologies of energy

transition (beyond emissions) and to analyze how they are playing out at multiple scales and in particular communities.

In contrast to the green capital approach, managed decline is agnostic about both economic and energy growth as well as the role of green capital in transition. Its calls to phase out fossil fuel production leave open questions about the appropriate place for collective versus private consumption and the build out of renewable energy as just another frontier for private capital. Geographers have a lot to contribute here, since supply-side approaches can include publicly-funded and owned low-carbon infrastructure which could rework built environments and produce space in ways that could reduce absolute energy consumption and demand, an important consideration given the land, mining, and offset footprints of renewable energy (Newell & Mulvaney, 2013). While supply-side energy policies will disempower carbon capital (by removing subsidies and planning for decline), there is no guarantee that private capital won't simply transfer its power and profitability to renewables, using energy transition as a socio-ecological fix, as explained above. There is role here for geographers to analyze renewable energy transitions as ecological fixes and to propose policy alternatives that promote social, economic, and ecological justice alongside decarbonization.

2.2 | Climate policy as social and economic justice

In order to avoid a renewable energy future where private capital enriches itself at the expense of humans and the environment, a third approach to transition considers climate change policy as inadequate unless it reimagines and rebuilds the social and economic systems at the root of ecological crisis. In other words, this approach sees wholesale energy transition as an opportunity to “change everything” (Klein, 2014), focusing on the redistribution of wealth and power to those who have been left out of current carbon economies. Movements and policy communities are driving this approach to transition under demands and plans for Green New Deals (GND) and Just Transitions (JT), but a wide range of social and economic justice proposals should be considered as part of this approach. In this section, I group this diversity of calls into a three-dimensional or “3D” framework where decarbonization is posited as just one the 3Ds associated with transition.² In addition to decarbonization (the first “D”), advocates of climate policy as social and economic justice focus on aspects of democratization and decolonization, with an emphasis on the redistribution of land, wealth, and jurisdiction; delivering universal social programs; and decommodifying energy and transportation infrastructure.

The social and economic justice (hereafter “3D”) approach and the supply-side managed decline approach both agree that demand-side green capitalism has failed to deliver an energy transition, including the kinds of deep emissions reductions needed to avert climate catastrophe. However, the 3D approach is less agnostic than managed decline about the role of “green” capital in transition. While there is still a diversity of perspectives about the extent to which colonial capitalism needs to be reformed rather than abolished in order to establish truly sustainable economies in this approach, there is certainly an emphasis on taking key sectors (like the oil and gas industry; Paul et al., 2020), services (like healthcare in the United States) and infrastructure (especially energy and transportation infrastructure; Wilt, 2020) out of the market in order to meet the goals of ecology and human wellbeing (Galvin & Healy, 2014). While it is clear that this approach seeks a much more bold transformation of economies including constraining the profit imperative in key sectors, its commitment to challenging capitalism is an open question (Nugent, 2011).

Another important difference is that the 3D approach centers marginalized, Indigenous and working-class people, both as a normative principle (repairing the inequalities associated with the carbon capital economy) and as a strategy for pursuing broad-based movements capable of challenging the power and interests that have actively obstructed transition. While carbon pricing has ignited populist backlash among the working classes (Raymond, 2020; Umit & Schaffer, 2020), a justice approach is consistent with a “political program meant to directly appeal to the material interests of the working class” by pursuing “ecologically beneficial policies within the already

existing movements around the decommodification of basic needs like “Medicare for All” or “Housing for All” (Huber, 2019). The universal programs at the center of GND proposals, for example, offer new benefits like social programs and jobs guarantees, that are more easily understood as directly improving peoples' lives and less easily conceived as costs imposed by elites on working people. Here, the 3D approach also departs from degrowth movements and philosophies, which emphasize downscaling production and consumption in accordance with environmental limits (Kallis, Kerschner, & Martinez-Alier, 2012; Paulson, 2017). GND proposals would initiate large public investments, that, at least in the short term, would build out a tremendous amount of infrastructure and number of programs and require expansion. Whether the redistributive thrust of 3D approaches could be reconciled with no growth or degrowth economies is a question these movements have largely side-stepped.

Just Transition is a principle and a framework that originates in the labor movement and arose out of concern to protect and transition workers in industries subject to environmental policies (Newell & Mulvaney, 2013). And while JT has been advanced by unions in workplaces that were disproportionately white and male (for example, in North American extractive industries) the principle and proposals have since been expanded (Evans & Phelan, 2016) to cover a wider range of workers who have traditionally been subordinated in carbon economies, including the largely racialized and feminized sectors in the food and accommodation, care, and service industries (Mertins-Kirkwood & Deshpande, 2019). In line with Bauhardt's (2014) criticism that energy transition has focused too strongly on male-dominated fields such as energy and construction, the latest articulations of JT and GND proposals put the crisis of social reproduction at their center and aim to expand work in the caring economy.

I call this approach's focus on reforming economic and social systems in order to advance marginalized and working-class people's interests democratization: the second “D” of the 3D approach. Here, democratization is understood in an expansive sense. It is much more than procedural justice, or the inclusion of marginalized voices in decision-making. Democratization is applied to the social relations of production (or the economy) with a strong redistributive thrust that would wrestle profits, ownership, and power away from a small group of elite who have been enriching themselves through carbon capitalism.³ Central pillars of this approach include decommodification, especially of essential needs such as healthcare and housing, and the redistribution of wealth through much more aggressive and progressive taxation of the rich, of corporations, and of financial capital. In fact, proposals for a GND in the UK, and subsequently in Europe, emerged after the 2007–2008 global financial crisis and centered on mechanisms to reign in international financial capital (Luke, 2009). With the focus squarely on elites and the rich, the justice approach locates the problem of climate change and its solutions not with individuals who need to make sacrifices in their lifestyles. Instead, this approach sees solutions in economic planning and the production of low-carbon goods and services for collective and equitable consumption. This would include redirecting resources away from things like the police and the military toward job-creating programs in low-carbon, unionized, “care” professions, articulating with the key demands of Black Lives Matters movements (Aronoff, 2020).

Decolonization is the third “D,” I associate with this approach to energy transition. A robust literature exists that contemplates how global energy transition and global GHG targets can be made in ways that redress the inequalities that exist between countries in the Global South and Global North. This literature suggests that efforts to reduce GHG emissions should take into account the theft of resources, labor, and life which were central to the industrialization of empires, now the Global North, and how limiting fossil fuel consumption and production (stranding assets in the ground) might infringe on the Global South's rights to development (Armstrong, 2020; Caney, 2016). Le Billon and Kristoffersen (2019) and Muttitt and Kartha (2020) suggest that climate justice principles that account for the legacies of uneven global development be used to decide the scale and pace of decarbonization. For example, high-income countries (that have a greater ability to pay for transition), countries with the largest historical cumulative per capita production of fossil fuels, and places where the social costs of reducing extraction are lowest should take the lead and be most aggressive in their draw-downs.

While approaches to global climate justice are well established in the literature and in the politics that play out at international forums through the UNFCCC, Indigenous sovereignty, rights, and the return of land are admittedly still marginal to GND and JT proposals, which are primarily proposed at the level of national states. In Latin

America, where there is “massive and ongoing resistance of Indigenous and working-class communities to extractive and megadevelopment projects” (Cohen & Riofrancos, 2020), there is hope that a new era of GNDs will break from the resource nationalist paths of the pink tide governments that used state-owned extractive enterprises to reinvest resource wealth locally, but pushed even deeper into Indigenous territories in a familiar pattern of dispossession (Fernandes, 2020). There is a growing recognition that just energy transitions must undo the theft of Indigenous lands and life that underlie the capitalist economies of both the Global South and the (settler-colonial) North, which will require states to return land and resources and recognize the inherent rights and jurisdiction of Indigenous Peoples.

Writing in Jacobin, Nick Estes (2019), asks: “Why is it easier for some to imagine the end of fossil fuels but not settler colonialism? To imagine green economies and carbon-free, wind turbine, solar power, and electric bullet train utopias but not the return of Indigenous lands?” In settler-colonies, Indigenous Nations, communities, and organizations are articulating their long-held demands for state recognition of their sovereignty, for real self-determination and for land back with movements to address climate change. In the US the Red Deal, put forward by The Red Nation, has laid out a platform that prioritizes Indigenous liberation through the enforcement of Treaty rights and other agreements, land and water restoration, free and accessible institutions that promote health and wellbeing, and the divestment from police and military institutions (Yazzie, 2019). While the exact content of, and blue prints for, decolonization are diverse, there are consistent demands to move beyond metaphor (Tuck & Yank, 2012) and to focus on the return of land to Indigenous Nations and the recognition of Indigenous jurisdiction. As Manuel (2017) argues, decolonization has to reverse the process through which Indigenous Peoples were reduced from 100% to 0.2% of the landmass which is now “Canada.” There can be no justice in just transition without Indigenous leadership on climate change policy, without expanding the 0.2% land base and economies of Indigenous Nations, nor without state recognition of Indigenous jurisdiction over their full territories.

The 3D approach is ripe for contributions from geographers. As movements for climate, for Black lives, and for Indigenous sovereignty gain steam in the 2020s, geographers can be part of reimagining and changing everything. As 3D proposals and movements work to undermine capitalism by decommodifying housing and energy infrastructure, and transitioning from private to collective consumption and transportation through public services, the expertise of geographers will be needed to reimagine and plan whole new built environments. Insights from feminist, Indigenous, Black, queer, disability, and other intersectional geographies will be key to ensuring that the remaking of these built environments are truly liberatory for all. Contributions could come from virtually every subdiscipline of geography with justice-focused proposals for reworking cities, addressing the local grievances of front-line extractive communities, restoring land and water, planning infrastructure, increasing collective consumption, reimagining property rights, sharing governance, and much more. Geographers could be key to fleshing out the visions of these movements by proposing concrete policies and plans. They could do so by working independently, or more directly in partnership with movements and policy communities. Geographers are also needed to ensure that GND and JT proposals are not just another socio-ecological fix wherein capital finds new green outlets for growth while inequality, exploitation, and theft continue unabated. In this respect, geographers can play a key role in analyzing and assessing the socio-ecological impacts of the redistributive, decommodifying, and decolonizing policies at the center of the 3D approach.

3 | CONCLUSION

As I write, in the fall of 2020, we are in a moment of crisis and a period of upheaval. The global COVID-19 crisis has dramatically and suddenly changed so much about how and whether people across the globe work, about whose jobs are considered essential, about the scale and scope of government relief measures and economic planning, and much more. At the same time, the global movement for Black and Indigenous lives is making serious gains changing accepted wisdom about the spending of public dollars on institutions of policing and violence rather than care and wellness. The global climate movement, which had been gaining steam in the leadup to the Coronavirus, is now

loudly calling for a just recovery from the pandemic. Behind the just recovery movement is a 3D approach that engages with the movement demands of Black and Indigenous lives in order to advocate for a recovery that puts marginalized people and the planet first. Changing everything is suddenly on the table; the neoliberal axiom “there is no alternative” is falling to pieces.

Geographers have a unique opportunity to contribute to the movements and policy communities advocating for energy transition. As the politics of transition move away from the one-dimensional focus on GHG emissions reductions through carbon pricing, critical geographers can play a central role in fleshing out a more 3D approach to human-environment relations, one that emphasizes the complexity of ecological relationships and that helps to lay out the social relations needed to support them and us all. By focusing on policies that provide real material gains for marginalized and working class communities, that remove key resources, services, and infrastructure from markets, and that target the suppliers of fossil fuels, we might just build the kind of broad-based movements capable of changing everything.

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ENDNOTES

- ¹ Companies like BP, Husky, and Suncor have vocally supported carbon taxes (Bakx, 2019).
- ² I would like to credit Dr. Simon Enoch of the Canadian Centre for Policy Alternatives for coining the “3D” approach of decarbonization, decolonization, and democratization.
- ³ In this sense, it is consistent with the definition of energy democracy offered by the Rosa Luxemburg Foundation which suggests that “the decisions that shape our lives should be established jointly and without regard to the principle of profit” (Kunze and Becker, 2014, p. 8 cited in Szulecki, 2018).

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