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To cite this article: Carlos Tornel (2024) Decolonizing the political economy of energy transitions: new energy spaces and pluriversal politics in Mexico, Review of International Political Economy, 31:3, 1074-1098, DOI: [10.1080/09692290.2023.2294726](https://doi.org/10.1080/09692290.2023.2294726)

To link to this article: <https://doi.org/10.1080/09692290.2023.2294726>



Published online: 21 Dec 2023.



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Decolonizing the political economy of energy transitions: new energy spaces and pluriversal politics in Mexico

Carlos Tornel 

Department of Geography, Durham University, Durham, UK

ABSTRACT

This paper draws on Critical Political Economy (CPE) to explore energy transitions in Mexico. It analyzes struggles over competing energy visions from a decolonial, spatial and post-development perspective. The article frames energy transformations as more than a move *away* from fossil fuels: They encompass a radical overhaul of universalized Eurocentric capitalist modernity that call the state's role as both facilitator and driver of the energy transition into question. I examine two low-carbon infrastructure projects in the state of Yucatan, Mexico to build on Bridge and Gailing's notion of *new energy spaces* as the sites, scales and spatialities through which broader questions of political economy and contemporary struggles are being worked out. CPE of the energy transition must ensure that low-carbon infrastructures are not deployed as new forms of extraction, but rather as the material basis of pluriversal transitions informed by affected communities and their territorial struggles. Both studies on the political economy of energy transitions and territorial struggles can benefit from an open dialogue about how socioecological transformations are imagined, designed and implemented.

KEYWORDS

Critical political economy; new energy spaces; energy transitions; (De)coloniality; mexico

Introduction

As climate change becomes a climate crisis, the transition from fossil fuels to low-carbon energy technologies assumes an increasingly central place in the international geopolitical agenda (Blondeel et al., 2021). Yet, the substitution of energy sources has become an object of contestation and debate. On the one hand, a hegemonic coalition of incumbent actors (e.g. international institutions, development banks and (over)developed countries) advocate for a rapid technological substitution and offer financial incentives to maintain economic growth and (so-called) sustainable development (Spash, 2021). On the other hand, heterogeneous and myriad approaches understand the energy transformation as a

CONTACT Carlos Tornel  tornelc@gmail.com  Department of Geography, Durham University, Durham, UK

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rupture with at least one of the tenets of capitalist modernity—the centrality of accumulation, the dualist separation between nature and culture, the teleological notion of progress and development, and a narrowly defined universalism. Such insights offer multiple openings for pluriversal, emancipatory, democratic, autonomous, and bottom-up approximations to energy transitions (de Onis, 2021; Öslender, 2019; Post, 2023).

Political economists have (until recently) paid relatively little attention to the colonial-imperialist origins of energy transitions, the concept of energy itself (Daggett, 2019; Lennon, 2017; Lohmann, 2019), its physical manifestation through energy systems and infrastructures (Castán Broto et al., 2018; Baptista, 2018), and the nature of their transformation (Newell & Simms, 2020). The transition process has progressively moved from a socio-technical conversation (Geels, 2010; Miller et al., 2015) into an engagement with the politics and power imbalances embedded within the transition (Newell & Mulvaney, 2013). While useful and necessary, both traditional and critical approaches have systematically overlooked how capitalist modernity is uncritically presented as universally valid (Feola, 2020; Grosfoguel, 2018). This capitalist modernity has remained wedded to teleological progress, ontological dualisms, statism and industrialism in liberal, leftist, democratic and even ‘actually existing socialism’ during the 20th and 21st centuries (Grosfoguel, 2018; Holloway, 2022; Öcalan, 2020; Wallerstein, 1983/2003). As Clive Spash (2021) argues, scholars and policymakers have framed the energy transition as a passive revolution. Supporters of more mainstream views become apologists for the unquestioned supremacy of economic growth that integrates various subaltern groups and emancipatory demands into a *trasformismo* (continuation of capitalist relations), while critical scholars fall back on state and financial institutions to bring about such a ‘transition’ (not a democratic, decolonial, and place-based energy transformation) (Pearce, 2020; Newell, 2019; Newell et al., 2022; for critique, see Becker et al., 2020; de Onis, 2021; Kirshner et al., 2020).

This article investigates how the debate over energy transitions and energy justice is related to the Coloniality of Power (COP) and an epistemological commitment to development (Hesketh, 2021). I draw on geography’s contribution to Critical Political Economy (CPE) to examine ‘new energy spaces’ that combine new and old energy systems to (re)produce sites of struggle where ‘broader questions of political economic governance (and the social relations of capitalism) are being worked out’ (Bridge & Gailing, 2020, p. 4). In these spaces (territories, landscapes and places), the deployment of low-carbon infrastructure simultaneously reproduces possibilities for 1) extraction, violence and neo-colonial occupation; and 2) emancipation, self-determination and new autonomous forms of governance. In the latter case, these possibilities embody what Raúl Zibechi (2012, p. 73) refers to as the *dispersion* of power—the internal logic by which societies and movements transform their way of life through relationships with the territory that focus on a communitarian register and an ecology of knowledges.

This article critically questions the political economy (PE) of energy transitions and other critical appraisals that have centered the state as the main driver/facilitator. Most analyses remain wedded to a Keynesian-type of reformism where the state plays a central role in leading the transition away from market-based solutions and fossil fuels and toward state-sponsored capitalism and low-carbon infrastructure (Dunlap, 2023a; for a critique, see Spash, 2021; Newell & Simms, 2020; Scoones

et al., 2015; Sovacool, 2016). In contrast, a decolonial approximation to the CPE of energy transitions asks, ‘energy for what (and for whom), and under what definition of well-being?’ This article draws on two case studies from Yucatan, Mexico to argue that attending to ‘third’ or ‘new energy spaces’ can contest and reformulate how CPE engages with territorial, Indigenous and non-Indigenous-led struggles for democratic, autonomic, and sovereign energy transformations (Durán Matute, 2021; Hesketh, 2023).

This article is based on fifty semi-structured interviews and site visits. It documents solar and wind factories¹ in the municipalities of *Muna* and *Dzilam de Bravo*, respectively. Methodologically, these two cases were selected to contrast different technologies, regulatory and policy procedures, land-ownership configurations, and results. A first round of 36 interviews with Indigenous and peasant community leaders, civil society organizations, ex-local and federal government officials, private sector consultants, and academics working on the energy transition process in Mexico was conducted remotely from January to August 2021. A second round of 14 in-depth semi-structured interviews—including visits to project sites and the city of Mérida—took place between February and March 2022.² The interviews were anonymized (reported here using *actor*, *date*) and analyzed alongside the other documentary evidence. Thematic analysis (Evans, 2017) helped identify patterns and themes within the data, including the meanings that people attach to ‘energy justice,’ ‘energy transitions,’ and ‘territorial rights.’

The next section briefly outlines the literature on energy transitions, with special attention to geographical, decolonial, and anarchist critiques of PE. Section three contextualizes the Mexican energy transition process and case studies to identify how energy systems produce uneven forms of development and deploy counter-insurgency and pacification tactics through interactions with historical-political regimes of power. The discussion section highlights the importance of *new energy spaces* as sites that contest the incorporation of low-carbon infrastructure embodying the material, spatial, historical and political manifestations of contemporary struggles against capital accumulation. Lastly, the article reflects on the implications for the CPE of energy transitions and Global Political Economy (GPE) more broadly. It advocates for an energy transformation informed by local struggle and rooted in a territorial and relational understanding of energy.

Critical Political Economy of energy transitions: insights from decolonial and anarchist geographies

As Geoff Mann (2019) argues, PE emerged as the preferred post-revolutionary science of Western liberalism. While PE considers how power relations preserve the established order, CPE examines how the particular order came about through mechanisms of power (Wigger, 2022). CPE explains social phenomena and power relations in and through capitalism. It deconstructs and demystifies entrenched power asymmetries, exploitation, domination, and repression as the contradictions arising from the capitalist organization of production across time and place.

CPE asks who controls decision-making and how it becomes possible to govern (or not) energy systems (Newell, 2020). A CPE approach views transition processes from a historical, institutional, and material perspective that accounts for the centrality of energy in state geopolitics and international relations (Newell, 2021). As

Newell and Simms (2020) argue, relations, tensions and power imbalances (e.g. between governments, transnational corporations, and social movements) offer broader insights into how historical, political, social, economic, and technological conditions inform our understanding of energy transitions. For many analyses, energy transitions are driven by the market, finance, and the availability of new technologies and resources (e.g. solar or wind, scarcity or availability of land or minerals) (Brenner, 2007; Wrigley, 2010). The most widespread approach for analyzing these interactions is the Multi-Level Perspective (MLP), which studies the interactions between technological innovation niches, national-level management regimes, and some external pressures (usually referred to as the 'landscape') (Geels, 2010; Geels et al., 2016). The MLP systematically failed to engage with politics and power relations, instead falling back on a 'socio-technical' understanding of the transition (for a critique, see Shove & Walker, 2007; Meadowcroft, 2009; Newell & Mulvaney, 2013; Sareen & Haarstad, 2018; Bridge & Gailing, 2020). As Feola (2020, p. 242) argues, capitalism is more than the 'landscape factor': It permeates the workings and logics of socio-technical systems (cf. most sustainability transition research (STR)).

In contrast, CPE sees transitions as historical-materialist and power-laden processes shaped by 'economic, political and socio-cultural dimensions, with a view to...emerging contradictions and limits' (Gill, 1993, p. 16). It highlights the material, discursive and institutional arrangements that incumbent actors deploy to narrow transformative challenges and convert them into piecemeal, top-down, redistributive reforms. These are forms of passive revolution, a concept developed by Antonio Gramsci to describe a process of simultaneous revolutionary change and restoration that ultimately perpetuates class dominance (Hesketh, 2019). Radical and disruptive pressures and demands for transformative change are accommodated by a politics of reform (i.e. *trasformismo* (Newell, 2019)). Material, institutional, and discursive power ensures that any shifts do not disrupt prevailing social relations and distributions of political power. A CPE approach to energy transitions centers: 1) The uneven distribution of goods and bads (Newell & Mulvaney, 2013); 2) the metabolic and interconnected character of the transition as experienced in different places (Cederlöf, 2021); 3) the inherent interconnection of energy and the state as an 'environment making institution' (Parenti, 2015); and 4) capitalism's crisis tendencies (McCarthy, 2015; Pearce, 2020). And yet, as Alexander Dunlap (2021b) argues, terms like 'energy transitions' and 'renewable energy' largely render invisible the structural networks of harm and violence attached to the process of decarbonization. While a welcome and necessary push toward a more coherent understanding, scholarly work on the politically differentiated nature of energy transitions also has limits.

CPE of energy transitions and some limitations

Work on the CPE of energy transitions has consistently relied on state institutions, financial innovation, and technological development (Johnstone & Newell, 2018; Newell & Simms, 2020) to formulate a pathway for transitions. Most theorists argue that the state, markets, and finance can destabilize unsustainable pathways and/or generate progressive change (Newell & Simms, 2020). Secondly, as Kuzemko et al.

(2019, p. 18) argue, CPE has only just begun to engage with the ‘new pressures being placed on energy politics through the emergence of new actors attempting to open up new points of contestation over acceptable energy futures.’

The emergence of new actors—beyond the state and the market—and their multiple perspectives on energy futures contributes to a third limitation—the Coloniality of Power (COP) embedded in energy systems (see Allan et al., 2021; Baptista, 2018; Castán Broto et al., 2018; Dunlap, 2021a; Hesketh, 2021; Howe & Boyer, 2016; Tornel, 2023a). Decolonial logics from the emerging field of political ontology, specifically from Latin America,³ question energy transition processes. They demonstrate how energy systems are closely tied to a hegemonic worldview that reproduces historical forms of oppression, including those integral to the COP (e.g. inequalities around race and class) (Quijano, 2000). For instance, racial difference, as codified into an international division of labor, perpetuates ontological separations (body and mind, nature from culture) and Westernized forms of power (e.g. nation-states and private property) with Europe at the top of the hierarchy (Grosfoguel, 2018). The COP argument reveals how capitalist modernity (and its multiple iterations like development and progress) entails a ‘darker side’ (Mignolo, 2018) and creates a ‘sociology of absences’ (Santos, 2014). It rests on the institutionalization of colonial hierarchies of power, being, knowledge and gender and the erasure of non-western practices (Maldonado-Torres, 2017; Lugones, 2010).

The COP is experienced through what Dunlap and Acre (2021) call *Infrastructural Colonialism* (see also Batel, 2022), where infrastructure is utilized as a weapon of conquest. It becomes a *dispositif* to enroll people into a particular form of citizenship and modernity (Power & Kirshner, 2019) through spatial, economic, and psychological management (Dunlap & Acre, 2021, p. 7). Hesketh (2023) calls this the ‘coloniality of space,’ a dual system of land accumulation and epistemic erasure that entails soft pacification techniques *via* structures like inclusion, recognition, and participation (core tenets of energy and environmental justice) that ultimately distract, disperse, and discipline communitarian struggles (Coulthard, 2014; Gutierrez-Aguilar, 2020; Partridge, 2022; Povinelli, 2011; Tornel, 2023a). While often framed as socio-ecological conflicts, Indigenous, communitarian, peasant and other subaltern resistances entail many demands for epistemic justice to ‘mak[e] visible and politically relevant ways of knowing, [being and doing] that have been marginalized as a result of the imposition of a dominant system over others’ (Temper, 2019, p. 98). These are struggles for re-existence, shaped by the possibility of resisting the physical and ontological occupation of territories (Leff, 2017).

Fourthly, post-development and anarchist geographers target capitalist modernity’s reliance on industrialization without social limits (Illich, 2014) and the notion of development through progress (Esteva, 2022). They also critique the limitations of state power and the possibilities of formulating plausible democratic, autonomous energy futures. As Wigger (2014) argues, anarchist political economy (APE) relays a healthy skepticism of coercive power relations organized through the state, the capture of state power (Holloway, 2022), and the intrinsic interdependency of capitalism and the state (Machado & Zibechi, 2017). Alternatives are, instead, embedded into prefigurative place-based practices and everyday forms of resistance (Scott, 1990)—what the Zapatistas refer to as *mandar obedeciendo* and *preguntando caminamos*.⁴ Such a project localizes production into horizontal and socialized alternatives that re-embed the economic into the social, contest the monopolistic

nature of capitalist modernity (Öcalan, 2020), and articulate a confederation of multiple alternatives from below (EZLN, 2005). Knowledges and practices from the Global South—long marginalized by the dominant configuration of the state and the notion of territory—offer a fertile ground for emancipatory, autonomous, and pluriversal energy practices.

Fifthly, energy transition studies often fail to question the core notions of *transition* and *energy* themselves. An uncritical attachment to these terms allows certain myths to take root in state policy orientations. In reality, there is no such thing as a transition. There is only the *addition* of primary energy resources (Bonneuil & Fressoz, 2016, p. 101), a process that has not yielded any emission reductions over the last 30 years (Stoddard et al., 2021) but has increased the total amount of energy produced. The term ‘transition’ is merely a euphemism for crisis, ‘designed to reduce popular anxiety after the 1973 oil crisis (...) paving the way for other developmental myths such as sustainable development and green growth’ (Dunlap, 2021b, p. 4). It is no surprise that the transition process has adopted a plantation-like character by deploying large-scale infrastructure projects, securing access to new energy sources, and alienating energy from its social context to hide it from social analysis (Allan et al., 2021; Franquesa, 2018; Stock, 2023). A similar problem exists with ‘renewable energy,’ another euphemism to reproduce the fossil fuel vs. renewable energy dichotomy. It perpetuates the myth of technological substitutions and uncritically embraces the mineral-intensive, fossil fuel-dependent, and spatial occupation of its infrastructure (Dunlap, 2022). The supposed ‘renewability’ of these systems often obscures any coercion, pacification, and subversion of socio-ecological opposition along these value chains (Sovacool, 2021; Verweijen & Dunlap, 2021).

As Larry Lohmann (2019, p. 4) explains, energy as a thermodynamic concept has always been about ‘a particular pattern of exploitation of human as well as nonhuman beings.’ It is historically shaped by capitalism’s socioecological regimes of accumulation. For instance, the integration of non-human labor, colonial and imperialist politics, fossil fuels, and financial capitalism have all reshaped capitalist economy/nature relations over the last 500 years (Fraser, 2022, p. 92). Coal transformed capital-labor relations (Malm, 2016), while oil reshaped democratic politics and imperial ambitions (Mitchell, 2011), the spatial manifestation of *modernity*, and neoliberal subjectivities (Huber, 2013). The securitization of electricity and fuel that has shaped high-energy modernity also *enabled* biopolitical governance and control (Boyer, 2014). Acknowledging these limitations encourages a broader critique of the energy transition process.

Finally, low-carbon infrastructure to decarbonize and ‘green’ the economy is usually deployed to sustain the neoliberal ideology of facilitating private finance through state-led institutions showcasing their ‘entrepreneurial credentials’ (Vela Almeida et al., 2023). These technologies aestheticize extraction (Ulloa, 2023). They legitimize cost-shifting strategies in ‘green’ sacrifice zones (Zografos & Robbins, 2020), global counterinsurgency, environmental anxieties, fragmenting dissent, and opening new ‘green’ conservation, bioenergy and energy infrastructure markets (Dunlap, 2023b). Crucially, the state disavows any rejections of neoliberal capitalism’s techno-managerial solutions and disrupts any attempts to transform actually existing unsustainability (Mann, 2019). Even most ‘left’ governments cannot break with the logics of capital and end up reinforcing or superficially reforming its logics (Machado & Zibechi, 2017).

'New' actors and energy spaces

Recent contributions led by geographer Gavin Bridge reveal how energy transitions are space-making processes, simultaneously shaped by spatial contexts and powerful imaginaries like accumulation, nationalism, competition and social mobilizations (Bridge, 2018; Bridge et al., 2013; 2018; Bridge & Gailing, 2020; Kuchler & Bridge, 2018). The energy transition process is a geographically differentiated phenomenon that manifests through different sites and scales and constitutes space through its interactions (Bridge & Gailing, 2020, p. 1038). Bridge and Gailing use the term *new energy spaces* to denote the spatial character of transitions. They are constituted by 'novel combinations of energy systems and social relations across... spaces characterized by social challenges to high-carbon incumbents as on the proliferation of renewable energy landscapes or marked by the creative-destructive effects of low carbon technologies' (ibid.). This socio-spatial approach goes beyond energy systems' physical and material transformations of space.

Spatial categories like *landscape*, *scale*, *place* and *territory* are relational and structural. They enable a broader understanding of energy systems and transitions as place-making phenomena and as uneven, dynamic and contested processes over time and space (Bridge & Gailing, 2020, p. 1043). For example, Becker et al. (2020) utilize the concepts of *scale* and *place* to highlight the possibilities for autonomous urban energy communities in London and Berlin. Kirshner et al. (2020) use the concept of *energy landscapes* to link energy transition processes to historical legacies and collective memories of colonialism in Mozambique. Categories such as *landscape* and *territory* offer additional 'openings' to theorize alternative futures and horizons of the possible and are essential tools for reworking and resisting state power (Sanzana Calvert & Castán Broto, 2020). As Halvorsen (2019, p. 794) contends, the Latin American conception of territory reveals how knowledge is rooted in multiple genealogies that overlap with broader historical-political and emancipatory struggles. Such a process creates 'contact zones' where multiple onto-epistemic proposals—including the modern Eurocentric conception of a singular oppressive worldview—can come into dialogue with other onto-epistemic formulations of emancipation and liberation.

In other words, territory encompasses a plurality of power relations and political projects, both emancipatory and dominating, with multiple protagonists. Raul Zibechi (2012, p. 67) explains how a long history of political disenfranchisement and traditional movements' (e.g. unions, political parties, and governments) failures to create social change through the state in Latin America led to a re-territorialization of social struggle. This process was exacerbated in the first two decades of the twenty first century when so-called 'progressive' governments increased material extraction and state-captured rents to finance social programs (during the so-called *Pink Tide*) (Tetreault, 2023). Legitimacy and support from subaltern classes was mobilized for a supposedly 'post-neoliberal' alternative by superficially incorporating other onto-epistemic horizons like *Buen Vivir* as territorialized alternatives to development (Machado & Zibechi, 2017). The 'eco-territorial turn' (Svampa, 2018)—consisting of a coalition of Indigenous, peasant, civil society organizations, and academics—emerged as a territorialized response to the extractive, superficial attempts to decolonize and reformulate the state (Anthias, 2018). While the state remains trapped in a modern, colonial framework (Halvorsen, 2019), this turn has

(re)centered the multiple subjectivities and languages of valuation within a diverse set of place-based, onto-epistemic practices that recall the Zapatista slogan, *a world where many worlds fit*.

The Latin American experience reveals the limitations of depatriarchalizing, decolonizing and contesting capitalism through the state (Walsh, 2018). Nevertheless, the CPE of energy transitions literature continues to overwhelmingly center the state in the ‘transition.’ Green Keynesian programs respond to glib policies of ecological modernization such as the ‘green economy’ but continue to reproduce the fossil fuel vs. renewable dichotomy and disavow transformative challenges to liberalism and capitalist modernity (Dunlap, 2023b; Goldstein & Tyfield, 2018). CPE should understand energy transformations as more than moving *away* from fossil fuels. Transformations entail a radical overhaul of capitalist modernity and its unwavering onto-epistemic commitment to teleological progress (i.e. economic growth and development, private property, dualistic (nature-culture) separations, and a narrowly defined universalism) (Tornel, 2023a). As Bridge and Gailing (2020, p. 1040) argue, *new energy spaces* are ‘key contemporary sites of struggle, through which broader questions of political economic governance are being worked out.’ They constitute geographer Edward Soja’s *thirdspace*, which ‘attempts to capture what is actually and constantly shifting and changing...ideas, events, appearances and meanings (...) to encompass a multiplicity of perspectives’ (Soja 1996, p. 2, 5).

These spaces reveal overlapping and entangled knowledges and practices and multiple ways of thinking about place through historical, material, political, and decolonial perspectives. They stand as ‘territories in resistance’—places that coexist with the state’s appropriation of space for modernizing and development projects—and as struggles that position the local as a powerful site of thought and praxis (Halvorsen, 2019, p. 802). Öslender (2019) argues that the pluriverse, the many ways of being and the coexistence of many worlds, challenges the Eurocentric formulations that see space as empty. It opens the possibility of coexistence for different cosmologies and life practices. Such insights reformulate how energy systems and their transformations are imagined, designed, owned, and governed; they create potentially emancipatory practices that contest the singular (modern) perspective. As Abramsky (2010) reminds us, affected communities and workers articulate a power shift (material, social, and political) from the actually existing power relations shaping prevailing energy transitions.

New energy spaces in Yucatan: contesting the coloniality of energy transitions

Low-carbon infrastructure in Mexico emerged from a series of changes after the country reached peak oil and gas production in 2006 (Tetreault, 2020). The exhaustion of ‘cheap’ energy resources quickly drove up the cost of extraction, prompting the government to expand its pool of resources by spatially and geopolitically reconfiguring the territory (Boyer, 2014). In 2016, the Yucatan Peninsula experienced a significant deployment of low-carbon infrastructure (solar and wind). The peninsula, which historically had little to do with the energy industry (extracting, processing, or generating), was now positioned as a ‘powerhouse’ (Bracho et al., 2021) for low-carbon infrastructure deployment.

This process was catalyzed by the liberalization of the energy sector in Mexico, which began in 1992 and culminated with a Constitutional Energy Reform in 2013 (SENER, 2013), the Electricity Industry Law (LIE) in 2014, and the Energy Transition Law (LTE) in 2015. That same year, the Mexican government announced important international commitments to reduce greenhouse gas (GHG) emissions (36% by 2030, SEMARNAT, 2015), with additional commitments to increase ‘clean energy’ generation in the country (35% by 2024) (LTE, 2015). These announcements were backed by the creation of LIE’s Wholesale Electricity Market (WEM) and the inauguration of long-term energy auctions (LTEA), which aimed to increase large-scale energy capacity by incentivizing private investment (SENER, 2017).

The relatively low cost of so-called renewable energy technologies through the auction model made them seem like a ‘harmless’ panacea with the potential to correct the burning of fossil fuels (Baker, 2016). The state of Yucatan was allocated 23 wind and 21 solar factories.⁵ These projects entailed the occupation of more than 14,000 hectares of land, of which 30% is communal (Sánchez et al., 2019). As one of the interviewees argued:

The problem with the auction model was that everything was based on reaching a lower price. This became a perverse incentive that pushed companies to cut costs, leading to poorly done social and environmental impact assessments, as doing it right would have seriously increased the Kw/h costs. Yucatan shows that to actually create renewability you need mechanisms that cheapen land (like an agrarian mafia), supportive laws, regulations and political power. These projects have very little to do with renewable potential.⁶

Low-carbon infrastructure projects have already created significant tensions with Indigenous and peasant communities in Mexico. In the Isthmus of Tehuantepec, communities argued that projects violated their rights to Free Prior Informed Consent (FPIC) and advanced colonial and extractive policies in the region (Ávila & Daniau, 2022; Baker, 2019; Dunlap, 2020; Zaremborg & Torres Wong, 2017). Some researchers have called this process *aeolian extractivism* (Howe & Boyer, 2016). Others have positioned regulatory tools like Environmental and Social Impact Assessments (EIA/SIA) as counterinsurgency strategies that undermine Indigenous and non-Indigenous autonomies and reinforce power asymmetries between state-corporate interests and local communities (Dunlap, 2018; Tornel, 2023b). This includes the use of corporate discursive practices (e.g. ‘benefit sharing’ schemes and ‘social acceptance’) that demobilize and entrench participatory and decision-making inequalities within the regulatory framework (Reyes Maturano, 2022; Batel, 2022). Scholars and activists have also pointed to the lack of Strategic Environmental Assessments (SEA) in regions with high renewable energy potential; legal loopholes (e.g. varying baselines and loosely defined directly and indirectly affected areas) are regularly used (Zárate Toledo et al., 2021).

At the policy level, these projects are seen as a normative good—a so-called win-win scenario where Mexico drives foreign direct investment (FDI) and economic growth by decarbonizing (SENER, 2017; Melgar, 2010). Yet, problems exist in how these projects were designed and how justice considerations were added to the energy reform regulatory framework. As a member of civil society argues:

Rural communities are facing the double problem of imposed energy infrastructure and mining. The question that has persisted in their struggles is who benefits from the electricity generated and additions of so-called renewable energy (as it is usually the mining,

industrial and commercial sectors). (...) After years of work supporting and mapping the conflicts in many of these communities, I can see very little difference on whether it is the state or a company that is promoting the project. In the end, the energy is used to support a development model that is inherently unsustainable.⁷

Ticul A and B

The ‘Ticul A and B’ project covers 738.23 hectares of *ejidos* (communal) and private property, located mainly in the municipality of Muna, Yucatan. It also includes the municipalities of Sacalum (Plan Chac) and Ticul, just ten kilometers away from the Pu’uc Biocultural State Reserve and 300 meters from the Mayan community of San José Tipceh. The project plans to remove 604 hectares of jungle to install 1,227,200 photovoltaic panels, a substation, a transmission line, a road network, and an operation and maintenance building. The project would be developed and operated by the company Vega Solar 1 and 2, which intends to generate 310.5 MW of electricity (SEMARNAT, 2016). The developers split the project in two to ‘downplay the project’s cumulative impact’ (Tornel et al., 2023) by submitting two different Environmental Impact Assessments (EIA) and Social Impact Assessments (SIA). Of the project’s 738 hectares, 330 belong to the ejido of San José Tipceh and 408 hectares belong to a private owner who signed a contract with the company. The project’s social land was acquired by the private owner, who acted as an intermediary for the company and told the *ejidatarios* (landowners) that the land would be leased for 30 years to plant citrus trees. However, upon reviewing the contracts, the community realized the real purpose of the concession and the illegal manner in which the lands were leased, prompting a complaint to the National Agrarian System (RAN) of México. As one of the community members recalls:

The company and the intermediaries not only created false contracts, they withheld information from the landowners and the community throughout the process that eventually led to community in-fighting. We saw how, even after we asked for a consultation, the company and the authorities complicated each step of the process by not abiding to the terms of the contracts and coercing the community, mostly through tactics that forced them to sign and grant a coerced form of consent. (...) What we have today is a fractured community.⁸

The company officials met with the community’s assembly in November 2016 to sign a new contract. However, it was amended several times by the company after the meeting, according to the *ejidatarios*. This led part of the community⁹ and a network of civil society organizations to take the case to the Interamerican Court of Justice to force Mexican officials and company representatives to appear before a public audience. During the proceedings, the federal energy ministry agreed to carry out a consultation and recognized that FPIC was not obtained as per the 169 International Labour Organization (ILO 1997) regulations that require consulting Indigenous people about any development on their lands. However, despite ongoing consultations, Mexico’s Ministry of Environment and Natural Resources had already approved the project (SEMARNAT, 2016).

By 2017, the consultation protocol was finished, but the long proceedings had begun to create in-fighting in the community. By 2018, after several instances of physical violence, the community was completely divided, and the assemblies

became a simulation of ‘institutional good practices’ (López Gómez & Íslas, 2020). In the last consultative assembly (November 2018), ‘consent’ was granted, but the meeting was coerced—‘carried out under pressure by anti-riot state police with no outside observers present.’¹⁰ As de López Gómez & Íslas (2020) argue, the consultation process lacked all the attributes required for an Indigenous consultation in accordance with international standards. There was no free, prior, informed consent nor any good faith in culturally appropriate terms. The consultation took place after the project was already approved by several government authorities and was plagued by a lack of transparency and access to information; it ultimately imposed a particular way of understanding the territory (as a field with solar potential) that discounted other framings of possibility (Tornel et al., 2023). As a member of the community told me during a long conversation and site visit:

The outcome of the case demonstrates that companies and the government are not really interested in listening to communities. We suggested other locations for the project, we asked them to provide us with all the scientific data and to quell most of our concerns. The whole thing came down to the permits they had already obtained [such as interconnection, EIA, SIA] prior to an actual FPIC procedure, and not to the concerns expressed by the community. (...) The result was an increase in multiple forms of violence against us, including completely disregarding our way of doing things.¹¹

Negotiations with the company focused on the so-called ‘co-benefits’—the possibility of temporary employment and leasing contracts for more than 30 years. However, these did not include a reduction or cancellation of electricity tariffs, something the community repeatedly requested since most of the energy would be allocated for private consumption elsewhere (see Dunlap, 2019, on similar issues in Oaxaca). The community proposed other forms of co-ownership and ‘actual’ co-benefits like alternative locations for the project and distributed access to solar panels to reduce local families’ energy costs. However, the negotiation ‘boiled down to a series of pre-discussed terms that the company and the state had already agreed to, reducing everything to monetary compensations. In other words, there was no real chance for a proper negotiation.’¹² The company and the state failed to account for some of the community’s main concerns, including increasing local temperatures, problems with beekeeping, and difficulties maintaining traditional forms of farming and agriculture (i.e. milpa)¹³. The project has not been canceled, but remains contested in the court system.

Dzilam de Bravo

The Dzilam Bravo wind park (*Eólica del Golfo 1*) was developed by the Mexican company Vive Energía. It is located in the coastal municipality of Dzilam de Bravo, Yucatan, near other population centers (e.g. Dzilam González and Temax) and designated nature reserves. The wind factory was built on communally owned land that inhabitants of Dzilam González used for cattle ranching (SEMARNAT, 2013). In 2012, the first construction plan was presented with an intended operating capacity of 50 MW through 16 wind turbines of just over three MW each. It was to be built over 600 hectares of a conservation area. The wind factory would be installed through 30-year leases with private companies, with the possibility of extending to 50 years. The area is a low deciduous forest on a karst soil plain—a

soil type characterized as immature and fragile; it is easily dissolved and fractured to expose vulnerable subterranean hydrological networks (Encalada & Sanches, 2020). This area also affects wetland and mangrove areas protected by the Ramsar Convention.

In 2018, 28 wind turbines (2.5 MW each) were installed over 1,300 hectares, expanding the total capacity to 70 MW under a self-supply permit. The scheme beneficiaries included 39 private companies (CRE, 2019). The self-supplying scheme meant that local populations would not directly benefit from the project. Instead, 'co-benefits' included the construction of non-essential infrastructure (like recreational parks), temporary jobs, and CO₂ reductions (de Yucatán, 2021a). The project was proposed in an area where industrial development and the use of heavy machinery were prohibited, mostly due to the ecological frailty of the coastal areas. However, political pressures and lobbying campaigns convinced the state government to amend the *Ecological Management Program for the Yucatan Coastal Territory* (POETCY), which had prohibited the installation of industries (de Yucatán, 2014). As a former member of the state government told me:

The POETCY did not mention electricity in its original inception. In 2012, when the first measurements of wind potential arrived, the pressure to add a definition into the program began. However, the definition adopted excluded wind parks from the prohibition of industrial development in coastal areas, as the projects were branded 'light' or 'low impact' (...). This definition was mostly informed by federal regulations and was not necessarily fit for the local environmental conditions of the Yucatan Peninsula.¹⁴

Several environmentalists and local activists cite modifications to this program as key to the increase of low-carbon energy infrastructure in the state (Zárate Toledo et al., 2019). In 2013, several civil society organizations and academics declared that SEMARNAT's acceptance of the wind park's environmental impact assessment would allow other conservation zones to be opened to new 'low impact infrastructure' projects (CEMDA et al., 2013). Since the EIA and the installation permit under a self-supplying scheme were already approved by SEMARNAT and the Energy Regulatory Commission (CRE), the park was approved without consulting local communities. Additionally, the EIA did not include the transmission line (which was evaluated separately) or the specific construction methods to be used in the fragile landscape (Zárate Toledo et al., 2019). As members of civil society told me:

In the case of the Dzilam wind farm, small houses can be seen near towers of more than 200 or 300 meters high. A logic of economizing everything persists as distributive solutions seem to be reduced to the possibility of receiving a payment for the occupation of the territory. This usually erases and invisibilizes other activities that existed in the territory or transforms them into technical issues, for example, "we will move the trees and the bees to another place".¹⁵

The population of Dzilam de Bravo did not have a chance to openly receive complete and accurate information about the project because the contracts were handled within a private exchange between landowners and the company. As Encalada Gómez (2019, p. 108) writes, "They were not asked for their opinion, nor invited to any event in which they could give their consent to the project." Instead, the company undertook a set of 'soft' counterinsurgency tools to engage the local population and dissuade any real opposition to the installation and operation.

The promises of development, progress, jobs and other benefits like increased tourism were used to generate local support for the project, but remain contested and have debatable results (N. A. Escalante, 2021). Local populations were mainly concerned with proximity to the turbines, a perceived sense of injustice emerging from impacts on their local landscape, and ever-increasing electricity costs. Despite Yucatan having some of the highest energy tariffs and rates of energy poverty in Mexico (García Ochoa et al., 2022), the electricity generated from this project goes directly to private companies.

In 2021, the company and the state government compiled a series of documents analyzing the project's 'co-benefits' (de Yucatán, 2021a, 2021b). They garnered a series of lessons learned to be reproduced elsewhere, such as building infrastructure, job creation, protecting biodiversity, and mitigating GHG emissions. However, as local residents and activists have repeatedly denounced, the co-benefits mainly consist of non-essential infrastructure (like playgrounds) and other basic local government responsibilities like protecting biodiversity and granting access to jobs (Reyes Maturano, 2022). Similarly, as one of the activists told me, discourses of GHG emission mitigation 'trump any other possible co-benefits and are used to discipline local populations [and dismiss] claims about the socioecological impacts as either non-scientific or manipulated by a few opposing voices.' The interviewee continued,

[T]he issues we face here are multiple: First, the state of Yucatan has not conducted a SEA to account for the cumulative impacts of these projects. There is also a discursive issue: the state government—and the company, of course—treat renewable energy as an unproblematic energy source (...) Wind and solar farms should have been evaluated as any other form of industrial infrastructure, something that is prohibited in the coastal areas. Finally, the fact that local communities are not the beneficiaries of these projects reveals that the tactics used to acquire land are usually manipulative and exploitative, as only people with land titles receive information and are consulted, while impacted communities are excluded.¹⁶

Several activists and civil society organizations denounced the project's environmental impacts on local biodiversity and wildlife (Zárate Toledo et al., 2019; Articulación Yucatán, 2019). Some of the interviewees suggested that the turbines had mitigated most of their environmental impacts (such as weight in karstic soil and their impacts on local biodiversity).^{17, 18} However, no SIA or SEA was required by law since the project was approved before the adoption of the EIL and the ETL. Furthermore, the project presented a *local* and not *regional* EIA (Zárate Toledo & Fraga, 2016). Activists pointed to a lack of adequate biodiversity conservation and migratory bird assessments in the area (H. Escalante, 2021). Overall, this critique extends beyond the case of Dzilam de Bravo to a 'sectorial and technocratic policy' that lacks proper mechanisms to adequately identify and mitigate environmental impacts due to an overwhelming emphasis on creating adequate technical and financial conditions for its development (Zárate Toledo & Fraga, 2016, p. 91).

Decentering the state: new energy spaces and their contribution to the CPE of energy transitions

According to the Environmental Justice Atlas, there are 209 environmental conflicts in Mexico (Environmental Justice Atlas, 2023). Most of these conflicts are

embedded in an extractive form of development and land dispossession like mining and large-scale infrastructure. Such conflicts are also linked to a substantial increase in the number of murdered land and human rights defenders, with at least 176 killings between 2017 and 2022.¹⁹ These trends stem from a particular form of neoliberal extractivism that includes the reprimarization of the economy—an expansion of FDI and rent-seeking behavior to fund government programs while avoiding economic redistribution (Ye et al., 2019). As Torres-Mazuera (2023) argues, the progressive privatization of communal land was made possible through a combination of legal and extra-legal means that offered access to land and resources. Terms such as ‘low-carbon,’ ‘transition,’ and ‘green’ aestheticize dispossession and accumulation, making them invisible, acceptable, and legitimate for governmental (local and national) pushes to address climate change (Ulloa, 2023).

Avila et al. (2022, p. 1078) argue that the federal government’s drive towards decarbonization often imagines empty spaces filled with renewable energy potential; ‘expanding opportunities for corporate accumulation by obscuring the communal institutions, indigenous livelihoods, and biocultural dimensions of specific locales.’ Indeed, the entire Mexican territory is seen ‘as ideally positioned to become a clean energy powerhouse given its world-class renewable energy resource potential and the low cost of renewable energy generation’ (Bracho et al., 2021). Seeing the territory as ‘filled with untapped potential’ or with wasted spaces/opportunities reproduces an extractive gaze (see concepts like *terra nullius*) (Gómes-Barris, 2017). This framing has reconfigured land use, property, and ways of life for at least three decades. It reproduces multiple forms of violence through the continued expansion of capitalist frontiers and accumulation by dispossession (Cabrera Pacheco, 2017; Torres-Mazuera et al., 2021). As an academic and ex-government official told me:

In Yucatan, there is a history of discrimination against Mayan knowledge. For the government, the Maya are poor if they do not have concrete floors and industrialized food production models. Thus, federal housing programs neglect traditional construction methods and materials as well as Milpa. This is a pattern that has existed since colonial times and that today justifies the continuous expansion of megaprojects in the area.²⁰

The case of Dzilam de Bravo reveals how the state aestheticizes low-carbon infrastructure and uses regulatory tools to pacify and demobilize local populations. These included the fragmentation of the EIA procedure, the private sector’s lobbying to situate wind factories as ‘light industry,’ and reconstituting territory as ‘wasted space’ with an overabundance of resources (i.e. wind) (Gidwani, 2012). Social opposition was preemptively quelled by the companies and the state of Yucatan through ‘social co-benefits’ that demobilized local populations; additionally, *ejidatarios* were contacted directly to avoid consultation procedures with communities. Company managers repeatedly stressed that low-carbon infrastructure had few socio-environmental impacts, and dismissed any oppositional or contested claims as ‘unscientific’ and ‘isolated voices’ (H. Escalante, 2021). These ontologically and epistemologically violent strategies erased other situated knowledges from within the territory (Tornel, 2023b). They integrated subaltern groups into state-corporate structures through a passive revolution.

Similar tactics—fragmenting the EIA procedure and integrating the community through social-benefit schemes—were deployed in San José Tipceh. However, here, part of the community rejected the traditional development model due to a lack of

transparency and deceitful tactics. The community contested the coloniality of infrastructure and called out the company and state for failing to recognize place-based knowledge and practices. As a member of the community told me:

During the consultation of the project, we repeatedly asked for alternatives. For example, in forms of ownership, in reductions to our electricity tariffs (...) we also proposed other sites to install the project. However, the negotiations with the company and the federal government were not possible in those terms (...). It is not surprising that many communities are not seeking to develop their own self-consultation mechanisms reaffirming their territorial authority over the state's.²¹

These two cases offer insights into resistance, local articulations, and the role of energy more broadly. First, as Mayan poet and land-defender Uc (2019) argues, Mayan resistance is embodied by their continued existence. After more than 500 years of colonization and extraction, resistance is expressed in the everyday practices that retain language, food, rituals, and beliefs. These are epistemic disobediences—knowledges and practices that challenge the dominant ways of knowing—that contest Mayan exclusion or reduction to folklore, myths and ‘non-developed’ beliefs.

Such everyday forms of resistance, or *hidden transcripts* (Scott, 1990), reject the structures of power. This was evident in San José Tipceh, where part of the community managed to organize with networks of activists to contest the project (Morosin, 2020). Given the skepticism and the coercive nature of the procedures, it was no surprise that many communities in the Peninsula have now turned to *self-consultation* processes to exercise their self-determination and communal governing authorities (Temper, 2019; Torres Wong, 2022). Broader networks contest the expansion of ‘sustainable’ infrastructure and the local forces shaping extractivism (Svampa & Vera, 2023).

Secondly, territory is a core characteristic of social movements and their struggle for (re)existence (Leff, 2017). Calls for ‘epistemic justice’ emerging from these places go beyond simple integration, recognition, or participation within the existing structures of governance that shape energy systems and transitions. They question the persistent COP and infrastructure that shape energy-nature-society relations (e.g. legal incommensurability between worldviews, a modernist separation of nature-culture, and notions of private property). Struggles that contest the coloniality of space or the ‘material project of territorial dispossession’ and a negation of ‘other imaginaries of the world that are contrary to the hegemonic order’ (Hesketh, 2023, p. 2) must hold multiple knowledges, practices, memories, and configurations in a particular place. Conceiving territory as produced *not only* by the modern state opens it to a broader set of political values and objectives that (re)define territory from the position of struggle, and through a co-existing multiplicity of knowledges, practices and histories (Halvorsen, 2019, p. 804).

Third, ideas about how energy systems (generation, distribution and control) should be organized fit into broader political projects for autonomous forms of organization (e.g. energy democracy, energy autonomy and energy sovereignty) (Becker et al., 2020). Such projects deliver energy as an emancipatory project and acknowledge how energy systems are built into histories and colonial legacies (Castán Broto et al., 2018). Energy is relational, a natural commons and the basis of life for all (del Bene et al., 2019). In both cases, the state and companies

repeatedly translated community concerns into economic compensations and other ‘co-benefits.’ In San José, the consultation process devolved into incommensurable negotiations (Behn & Bakker, 2019) that ultimately distracted and pacified collective forces for place-based alternatives. Framing the energy transition as a spatial category reveals multiple possibilities for going beyond the state as a spatial unit. Scales and landscapes are sites where definitions of social justice, well-being, democracy, and sovereignty are *actually* worked out (Becker et al., 2020; Bridge & Gailing, 2020; Kirshner et al., 2020).

The implications for GPE and CPE more generally are multiple. First, this article has shown how, despite an important shift from the traditional technocratic and socio-technical view of transitions, both GPE and its critical approximations remain wedded to the tenets of capitalist modernity: Statism, industrialism and liberalism. Secondly, *new actors* and their interactions with territory are significant for energy transitions. The rise of neo-extractivism and the ensuing ‘eco-territorial turn’ in Latin America have made ‘the community’ (or ‘communitarian-popular horizon’) into a unit of analysis and a social emancipatory subject (Gutierrez-Aguilar, 2017). These ‘new’ actors and spaces, articulated through territorialized, communitarian Indigenous and other ‘subaltern’ or non-Indigenous struggles, are contesting claims of nation-state sovereignty and articulating a form of ‘international relations from below’ (Hesketh, 2023). Additionally, these territorialities contest traditional GPE and CPE approaches, highlighting other scales/actors as significant in the (re)distribution of power. Other forms of ownership, knowledges, practices, and memories can offer post-colonial, democratic, and emancipatory horizons of the possible (Bridge & Gailing, 2020). As Torres Contreras (2022) argues, there will always be disagreements between communities (Indigenous and non-Indigenous) and the institutions governing transition processes. However, the communitarian popular horizon challenges and (re)shapes how energy transformations are designed in favor of actual socio-ecological transformations and ‘civilizational’ alternatives (Escobar, 2015).

Additionally, we must position the state as a spatial unit that guides the energy transition, often within the limits of liberalism and ‘green Keynesianism.’ Transition processes and energy systems are closely associated with the nature of state sovereignty, power, national identities and politics, mostly through legal and regulatory frameworks (Becker et al., 2020). The state and (often) private finance promote ‘green’ infrastructure through counterinsurgency tactics to erase historical responsibilities, inaugurate new accumulation frontiers, and aestheticize and craft legitimacy for green capitalist solutions (Vela Almeida et al., 2023; Dunlap, 2023b). These tools reduce ontological differences into negotiating conditions for the deployment of infrastructure (i.e. co-benefits) and erase and/or reject others’ forms of living, doing and being in the territory.

The multiplicity of actors and ‘overlapping territorialities’ of energy transitions create openings or ‘third spaces’ (Öslender, 2019, p. 1694). Here, transition can become an emancipatory place-based struggle where material energy ownership and an ecology of knowledges embodies emancipatory and autonomist potentials. Energy systems are a material basis that enable other languages of valuation that are rooted in Indigenous cosmovisions and broader projects of autonomy (e.g. see Post, 2023, on *proyectos de vida* (life projects) in Puebla, Mexico). We must also rethink the state as a single entity (e.g. market facilitator, driving the energy

transition). Particularly at the local level, possibilities for transformation are concrete and prefigurative, not abstract and reactionary (as at the national level) (Cooper, 2016). As Latin American experiences show, the eco-territorial generally centers leaderless movements seeking to exercise and defend territorial autonomy and contest Western modernity's assumption of nation-state politics (Gutierrez-Aguilar, 2017; Hesketh, 2023; Machado & Zibechi, 2017; Zibechi, 2012).

Finally, this paper considered the dialectic between the coloniality of space and the possibility of articulating civilizational alternatives from below as a guiding feature of decolonial CPE research into energy transitions. The communitarian-popular alternatives emerging in Latin America directly respond to the monopoly of violence and the limits of contesting capitalism, colonialism, and patriarchal relations *via* the nation-state (Machado & Zibechi, 2017). As Hesketh (2023, p. 20) argues, the expansion of green and neo-extractivism in the region provides a window into alternative territories of belonging that challenge the nation-state and enable potential new alliances from below. Sites can articulate other visions of the future rooted in everyday forms of resistance (Öslender, 2019). These alliances are constituted by a series of place-based struggles, assemblies, networks, and pluriversal alternatives that contain diverse political projects that exceed the modern state's definition of sovereignty (Escobar, 2020). Emancipatory practices emerge from the multiple meanings attached to territory and the politicization of social and cultural differences (Zibechi, 2012). These places embody what Escobar (2015) refers to as transition discourses toward civilizational alternatives. As the Zapatistas (EZLN, 2020) argued in 2005 and reinstated in 2021, such sites articulate multiple struggles from below that point toward a new internationalism with other material and epistemic horizons for possible energy transformations.

Notes

1. I use the term solar and wind 'factories' to critique the renewability of so-called renewable energy. Dunlap (2021a) utilized the term fossil fuel+ to question the positive language (such as acceptance and sustainability), structural assemblage, and complex global networks of mining and fossil fuel use required to assemble, install, operate and disassemble low carbon infrastructure.
2. The physical limitations of conducting research fieldwork for several months during the COVID-19 pandemic reduced the number of interviews with local populations. They had to be substituted with online interviews with community gatekeepers, 'experts' and other actors analyzing the transition process in Mexico. These interviews were conducted with the ethical approval of the institution in which I was affiliated during my PhD research.
3. I have argued elsewhere for the relevance of these contributions to energy justice (see, Tornel, 2023b).
4. 'Mandating by obeying' and 'walking we ask questions'.
5. Of which 3 are in operation, 16 are in the project stage and 4 have been suspended. Of the 21 photovoltaic factories, 3 are in operation, 14 are in the project stage, and 4 have been suspended (Torres-Mazuera, et al., 2021, p. 164).
6. Interview 34, academic. 14 September 2021.
7. Interview 16, civil society. 20 April 2021.
8. Interview 31, community member. 20 July 2021.
9. It is important to mention that not all of the Indigenous community or the ejidatarios were/are against the project. This can be extrapolated to development, extractivist projects, and communitarian alternatives (See Gutierrez-Aguilar, 2020).
10. Interview 31, community member, 20 July 2021.

11. Interview 41, community members. 22 February 2022.
12. Interview 31, community member. 20 July 2021.
13. Milpa is a traditional harvesting system of Mesoamerica based on a polyculture of maize, bean and squash and is associated with a great diversity of crops and wild species.
14. Interview 45, ex-government official. 2 March 2022.
15. Interview 29, civil society. 4 June 2021.
16. Interview 29, civil society members. 4 June 2021.
17. Interview 26, academic. 31 May 2021.
18. Interview 49, private sector. 11 March 2022.
19. This number is an aggregate calculated with data from Global Witness (2022) and Frontline Defenders (2023). <https://www.globalwitness.org/en/campaigns/environmental-activists/decade-defiance/#accounting-over-half-2021-attacks-mexico-colombia-and-brazil> & <https://www.frontlinedefenders.org/en/resource-publication/global-analysis-2022>
20. Interview 48, academic. 10 March 2022.
21. Interview 23, civil society. 19 May 2021.

Acknowledgements

My thanks to the people interviewed for this research. To Alexander Dunlap who read and offered comments to a first draft of this paper. To Harriet Bulekely and Gavin Bridge who also read and commented on this paper, to the three anonymous reviewers for their insightful comments and suggestions and to Dr. Seçkin Köstem and the editorial team at RIPE. The author acknowledges funding from the Centro Nacional de Humanidades, Ciencias y Tecnologías (CONAHCYT) México. Programa becas en el extranjero, CVU: 576311.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributor

Carlos Tornel holds a PhD in Human Geography from Durham University. His research interests focus on the decolonization of energy justice and the pluriversal and autonomous transformations emerging from below. He is a member of the Global Tapestry of Alternatives and the National Energy and Climate Change Strategic Program in Mexico.

ORCID

Carlos Tornel  <http://orcid.org/0000-0001-6338-066X>

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