Gramsci Landscapes: Delimiting the Trenches of the Clean Energy Transition

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NOTE TO READER:

This working paper is an attempt to bring debates about the rural politics of the clean energy transition—where there is widespread opposition to clean energy deployment—into environmental sociology. My co-author and I wrote it a couple of years ago, and are now on the verge of revising it to submit to a journal. But beyond this particular paper, I am now leading some empirical research in New York State on efforts by environmentalists and clean energy companies to circumvent local opposition to renewable energy. And I am going to be writing a book on eco-apartheid that will bring debates about racial capitalism to bear on the landscape politics of energy. As indicated by the third paragraph of the paper (written just before sending this to you), I am also looking for ways to connect the situated politics of clean energy build-out with broader debates on green political economy, and industrial policy, that I hope to work on in the context of this CIFAR fellowship. I would be especially interested in discussing the ways that we could productively link debates about industrial policy narrowly, and public-private partnerships on economic deployment more broadly, with the political sociology and geography materials that this particular paper digs into.

Abstract

Landscape will play a central role in the massive clean energy transition that is already underway. Renewable energy systems require 10-1000 times more space than fossil fuels, plus new contentious infrastructures like transmission corridors. This transition thus implies the geographic reorganization of investment and energy production, setting off contestations and negotiations across social groups and places. Taking the North Atlantic as our empirical focus, our paper explores the emerging the landscape politics of the renewable energy, seeking to draw together debates in sociology, geography, and design. Our aim is to broaden existing discussions of wind power reception with a broader account of the spatial politics of looming, massive landscape change that takes the design of that change seriously as a key element of sociological analysis. We focus on three dynamics in particular, set in a Gramscian framework borrowed primarily from *The Southern Question*. First, the fact that big energy companies like Samsung are shaping large landscape transformations under cover of urgency, exacerbating local community opposition (with parallels to fossil fuel infrastructure battles). The speed and scale of Big Clean's deployment threatens to re-inscribe an old industrial model, igniting reasonable place-based revolts (a second "Blockadia") that could slow decarbonization. Second, we argue that design, though often associated with boutique one-offs and technocratic Dutch development schemes, is a key domain of struggle that can yield different kinds of attitudes about renewable energy landscapes. New Deal programs were most successful when pursuing a site-specific model of infrastructure that pioneered landscape-sensitive design. The precedent is imperfect, but requires attention. Third, coalitions organizing for and against the renewable energy transition are modeling new kinds of alliances, at once within regions and across them as urban activists seek to support community-based, rural clean energy development.

1. Introduction

One numeric range summarizes the social and spatial challenges of the clean energy transition that is needed to avert runaway climate change: 10-1000. It takes 10 to 1000 times more physical space for renewable sources to generate as much energy as their fossil fuel equivalents (Smil 2015). For the United States to operate with 100% renewable energy, that energy system will require a physical footprint of unprecedented enormity, prompting Trainor, McDonald, and Fargione (2016) to argue that this "energy sprawl" has become the most important driver of land use change in the United States. A second number is almost as relevant: two. According to the National Renewables Energy Laboratory (National Renewable Energy Laboratory 2012: 26) of the US Department of Energy, for the United States to provide 90% of its energy with renewables by 2050, the country's length of energy transmission lines would have to roughly double. More enormous metal scars on the landscape (cf MacDonald et al. 2016).[1] And nearly all of this spatial development would have to occur in landscapes outside cities, a fact often elided in technocratic celebrations of urbane, low-carbon living (Barber 2017; Cohen 2017b). For example, the Sierra Club's "Ready for 100" campaign, which gets cities to pledge to source energy from 100% renewables, is superficially a form of urban politics; in fact, the massive territorial implications of that objective are ex-urban.

The big numbers are estimates, with differences in range and extent. The details of a clean energy transition (including, for instance, the role of nuclear) will make a difference. Still, these numbers indicate with reasonable certainty that a transition to zero-carbon energy implies an epochal geographic reorganization of investment and energy production, setting off contestations and negotiations across social groups and places. Geographers have paid more attention than anyone to the spatial implications of the fledgling energy transition (Bridge 2018, 2008; Bridge et al. 2013), and we follow their focus on sprawling space, just as sociologist Saskia Sassen productively brought a spatial analysis of global capitalism into urban sociology (Saskia Sassen 2001; Saski Sassen 2014). But geographers, even when attentive to political processes, often skate over the social dynamics of political contestation that sociologists pay more attention to (McAdam and Boudet 2012; Adams and Shriver 2017), as we seek to do here.

This situation major implications of the urban politics of environmental justice. While communities of color in New York argue against new natural gas facilities in communities like

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[1] Also see MacDonald et al 2016.

Astoria, whiter rural communities upstate are fighting to block the construction of new wind and solar energy fields, and new electric transmission—the essential preconditions for a fossil-free energy supply in New York City. The contested politics of clean energy build-out should also challenge too-neat upstream accounts of green industrial policy, with their focus on research and development. Indeed, the shift in discourse towards a frame of "research, development, demonstration, and deployment" is helpful (Siddiqui et al 2007); but the big question on renewable energy deployment is not the efficiency of new wind turbine blades or nacelle technology, it is how many turbines can be erected at all. And contests over the possible extent of high-voltage transmission lines may ultimately force a far more decentralized energy grid than many researchers consider optimal for resource efficiency and resiliency. As the cliché goes, everything is connected. Both urban-centric accounts of environmental justice, and technology-centric accounts of and clean energy innovation, will have to be conceptually and empirically linked to an account of rural landscape politics.

Taking the United States as our empirical focus, then, our paper explores the emerging *landscape politics* of the renewable energy transition, entering a debate largely shaped by both narrow and technocratic empirical analyses. An interdisciplinary pair composed of a landscape architect and political sociologist, we turn to the work of Antonio Gramsci as a helpful framework for thinking through the conjoined space and class politics of this transition, and we argue that landscapes—and landscape design as a social, political, and intellectual practice—are strategic terrains where energy politics will literally hit the ground.[2] Our goal here is not a systematic, empirical account of those landscape battles, but rather an effort to situate them in new terms that could facilitate dialogue across different debates about the energy transition and climate justice.

To put it crudely, much of the clean energy build-out must happen in Trump country. It would be too easy to characterize such social spaces as stubbornly opposed to anything environmental; their politics are complex (Hothschild 2016; Skocpol and Williamson 2011). But the widespread presence of anti-wind protest groups—numbering nearly 200 in the U.S. and nearly 100 in Canada, in one recent count ("Links to over 2200 International Anti-Wind Groups" n.d.), and liable to grow as more and more of the remote and public lands are taken and wind and utility solar creep closer to rural and urban communities—testifies to the broad contestations that

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[2] See also Powell 2018 for a "landscapes of power" analytic framework similar to our own.

could come. Non-urban spaces of course are inhabited by a wide range of people, from recently unemployed coal miners to commuting professionals, from disenfranchised Black and Latinx communities suffering the consequences of recent pollution to Indigenous communities abandoned by (or under assault from) public institutions; never mind the enormous geographic and political variation between, say, Appalachia and the Pacific Northwest. Our aim is not to flatten these differences; but we do want to speak with a certain level of generality about forces and trends that we expect to characterize social struggles over the landscapes of the emergent energy transition as an initial step in starting a new conversation. And we are sanguine about the challenge. Not only are countless communities outside cities resisting clean energy deployment; as Patel and Goodman (2020: 432) report, "In the words of one rural political organizer, who requested anonymity because of their ongoing work with political campaigns, 'the Green New Deal is fucking toxic in rural America.'"

We worry about a political tension found in conventional energy politics between urban and non-urban spaces. This tension seems to ally urban progressives with billionaire climate advocates and huge multinational companies—"Big Clean"—threatens to produce a new "Blockadia" (Klein 2014) against clean energy (Cohen 2017a), could cement regional power blocs riven by internal inequalities, and foreclose potential alliances across spatial lines between overlapping popular sectors (workers; the poor; much of the middle class; Black, Indigenous and people of color [BIPOC] communities)—alliances that could be the best hope for not only pushing through an epochal shift to clean energy, but that could also take advantage of this huge intervention into the built environment to redress inequalities of race and class, and to build infrastructures (physical and social) of economic security, freedom, and play—something like a "Green New Deal". To foreground the new, we background the old—bracketing, for now, the manifold complexities of the landscape politics of fossil fuels, including the contestation against them.

We begin by arguing that the work of Antonio Gramsci, especially the perspective laid out in *The Southern Question* (Gramsci 1995), can help us think about the socio-spatial politics of an energy transition marked by coalition politics and the prominence of design practitioners as influential intellectuals. Next, we attempt to parse the sources of rural opposition to clean energy construction; explore the potential role of design; take up the problem of scale; look back to the New Deal; and touch on bold imaginative designs from Northern European architects. Finally,

we take note of some reformist efforts at the level of policy advocacy and infrastructural intervention whose approach to coalition-building exemplifies a hopeful path forward. Throughout, our objective is to put into dialogue two ways of thinking about the clean energy transition that are rarely linked: landscape architecture and political sociology's critical tradition.[3] We in early stages of empirical research into emerging coalitions; mainly, what follows is based on reading across a range of relatively technical literatures and rethinking them in light of more critical traditions of political economy and sociology.

2. A new southern question?

From New Hampshire to Maryland to Oklahoma to Ontario to Idaho to Vermont to Texas and beyond, communities have resisted in varying degrees the construction of renewable energy and/or associated transmission lines. With renewable energy still supplying only a tiny albeit rapidly growing fraction of U.S. energy, we expect an increasingly brutal acceleration of clean energy deployment—and thus some mix of resistance and embrace of this transition. As the Dutch landscape architect Dirk Sijmons writes in *Landscape + Energy* that already, contests over wind turbines and linked power lines are exploding everywhere they are proliferating. How we address these, he writes will shape "whether the transition will die in the NIMBY [not in my backyard] trenches, or whether it will form the occasion for a transformation of the landscape that will ultimately benefit everyone" (Sijmons et al. 2014: 18).

But the category of "everyone" in environmental politics is always suspect. An energy transition is at root a variety of economic development. In the long history of capitalism, such transitions have pitted (changing) racialized class fractions and places against each other (eg, see Needham 2014). In North America today, surveys of political attitudes reveal strong differences between regions, and between urban and rural residents (on which, more below). The intersections of space and class can be subtle. Recent qualitative research on the Tea Party and Republican right has found that outside cities, conservatives have been remarkably successful in building and sustaining coalitions of activists and voters in support of economic and (anti-) environmental policies that seem to run strongly against many of these coalitions' members' immediate economic and bodily interests (Hothschild 2016; Skocpol and Williamson 2011). Yet

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[3] (We are aware of the burgeoning literature on "socio-technical" approaches but in our view—not spelled out here—the "social" dimension of analysis in that paradigm is far too timid.)

we have also seen conservative landowners rally to environmental causes, including climate advocacy, most famously Nevada's ranchers who joined Indigenous communities to form a "Cowboys and Indians" alliance to contest the Keystone XL oil pipeline. In each case, these coalitions are connected to urban counterparts, ranging from wealthy Wall Street interests to scrappy anti-gentrification activists.

The multifarious tensions between city and country, and between different coalitional alignments, recall the political analysis of economic development tensions that the Italian Communist theorist Antonio Gramsci (1995) developed in *The Southern Question*. Gramsci's uncommon attention to contextual specificity, political organization, and cultural meaning have long marked him as unusual in the Marxist tradition. More recently, geographers have emphasized the *spatial* dimension of his historicism (Ekers et al. 2013; Kipfer 2013). Take this classic passage about southern soldiers (from peasant background) sent north to Turin to repress a workers' strike:

> The soldiers' state of mind is well characterized by this reminiscence of a tannery worker from Sassari…: "I approached a bivouax of Square X (in the first days the Sardinian soldiers bivouacked in the square as if in a conquered city) and I spoke with a young peasant who had greeted me politely because I was Sassari as he was. "Why have you come to Turin?" "We have come to shoot the gentry who are on strike." "But it is not the gentry who are on strike, it is the workers and they are poor." "Here everyone is of the gentry; they wear collars and ties; they earn 30 lire a day; I know poor people, I know how they dress; in Sassari, there we have a lot of poor people; all us peasants, we are poor and earn 1.5 lire a day." "But I'm a worker too, and I am poor." "You're poor because you're Sardinian." "But if I strike with the others will you shoot me too?" The soldier thought for a minute, then placing his hand on my shoulder he said: "Listen, when you strike with the others, stay home!" (Gramsci 1995: 25-16).

Soon, Gramsci relates, this kind of fraternizing seems to have worked; the brigade was split apart and sent away, singing new songs.

When here Gramsci narrates Southern troupes describing their mission, in northern Turin, to put down a strike by factory workers whom they believe are effectively gentry, he is showing how spatial distance can be used by Southern regional intellectuals to massively exaggerate one class chasm (between peasant and worker), while papering over another (between Sicilian

landowner and peasant; and by implicit extension, between Northern industrialist and Southern peasant).[4]

Abstracted from the specifics of the regions in question, a central question that Gramsci poses in the *Southern Question* is: Under what conditions *of conscious political organization* can spatially divided urban workers and rural peasants jointly create a process of economic development? And (more tragically): Under what conditions can rural elites play peasants' and workers' social and spatial distance against them, absorbing middle-class professionals into a consolidated, cross-class, elite-led, rural "historic bloc" that isolates urban workers and reinforces elitist national projects? Extended into the present case and the looming energy transition, we would ask: Under what conditions would a broad coalition of workers and people of color in and outside of cities identify with, support, and through political mobilization secure, a dramatic energy transition that also improved their everyday lives in meaningful ways? Under what conditions would elites with a narrower and more affluent social base press an energy transition that aroused widespread apathy—or even worse, backlash—threatening to miss key deadlines to prevent catastrophic climate change, while also missing opportunity to use massive investments in the built environment to redress deep inequalities of race and class?

Importantly, for Gramsci, this kind of question did not spotlight only "backward" rural regions. Rather, his framework made demands of *both* urban and non-urban residents who understood themselves as not belonging to the elite. One central demand was resisting a parochialism of place that misrecognized the city's relationship to the country. As Gramsci wrote in his *Prison Notebooks*, he found in Italian cities:

> among all among all social groups, an ideological unity against the countryside… There is hatred and scorn for the "peasant", an implicit common front against the demands of the countryside—which, if realized, would make impossible the existence of this type of city. Reciprocally, there exists an aversion—which, if "generic", is not thereby any less tenacious or passionate—of the country for the city, for the whole city and all the groups which make it up. This general relationship is in reality very complex, and appears in the forms which on the surface seem contradictory. (Gramsci 1971: 91)

Would it be unfair to transpose this account to contemporary boosterism about *urban* climate politics? Such boosters, like Benjamin Barber (2017: 67), often slip from discussions of building

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[4] Of course this issue of fraternizing troupes breaking down fraudulent class prejudices reliant on distance is a classic theme in revolutionary struggle, from revolutionary St Petersburg in 1917 to Beijing during the Tiananmen uprising in 1989.

retrofits to grand statements like "Human civilization was born in cities, and democracy was first nurtured in the polis. Cities are our most enduring political bodies… Cities define our essential communitarian habitat." The statement exemplifies the notion that cities in particular are the best hope for climate change because not only are they energy dense, but their residents live close to each other, are cosmopolitan, educated, culturally disposed to democratic deliberation, and so on.[5]

The ostensible virtues of energy efficiency and cultural dynamism of urban residents are always drawn in implicit contrast to suburban and rural cultures—which are implicitly rendered as atomized, parochial, uncaring, authoritarian, and stale. Beyond the city resident's morally self-satisfying caricature, the deeper, meta-cultural work done by this distinction is the sustenance of an idea about urban and non-urban spaces existing in parallel, diverging social worlds.

To be sure, in Gramsci's writing (and in any sensible concrete analysis), abstract reductions like "peasant", "rural", "urban" and "worker" must be understood in part as stand-ins. As we argue below with reference to infrastructure and landscape design, hyper-local specificity is crucial. In this paper, we use the broad social terms heuristically, as strategic simplifications to sketch a fresh approach to landscape politics. We also recognize that in practice, political discourse and practice also simplify. Since of course any space is riven by racialized class fractions that are re-inscribed in broader, simplifying political narratives, we too are interested in how representational simplification can exaggeratedly associate new clean energy build-outs with particular cultural categories (whether workers, elites, globalists, homeowners, etc).

We want to simplify Gramsci's basic categories even further, following on recent debates about populism (cf Riofrancos 2017), to ask: Under what conditions is a project of large-scale new energy infrastructure broadly understood as belonging to a broad popular "us" (including rural and urban workers)? Under what conditions is it a remote or even hostile project of an elitist, urban "them"?

An important upshot of Gramsci's approach is the notion that "intellectuals" broadly understood play a central role in directing both the political economic dimensions of economic

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[5] The claim that cities' carbon emissions are actually lower than elsewhere rests on a misleading accounting trick—the fact that contemporary cities are relatively post-industrial (they have outsourced the production of what they consume). In San Francisco, about four fifths of the carbon emissions associated with in-city consumption occur beyond city limits (Stanton, Bueno, and Munitz 2011; Wachsmuth, Cohen, and Angelo 2016).

development *and* their cultural aspects—that is, shaping the symbolic frameworks according to which people and groups understand their relationship to material changes. Gramsci's category of intellectual includes bureaucrats, clerics, shop-keepers, journal editors, and so on. Today, thinking of economic development around the world we could add more kinds of professionals to this list—economists, NGO aid workers, engineers, health volunteers, and so on, not to mention "organic intellectuals" of the sort Gramsci also theorized, like local peasant and union leaders. In this paper, we want to consider yet another kind of intellectual, the design practitioner (engineers, workshop facilitators, surveyors, political aides, regional planners, architects, landscape architects, etc.)

Designers are of interest because they carry consequential material power in the physical dimensions of economic development and because their material interventions are also symbolic interventions (Cohen 2016a); how their position is understood is also central. (E.g., are these outsiders helicoptering in from far away with no concern for local landscapes, are they locally connected and speaking and listening in regional vernaculars, etc?) For instance, we argue below that the aesthetic and political self-consciousness of infrastructural landscape design during the heyday of the New Deal facilitated much of that era's energy transition.

Landscape design alone is of course not sufficient to steer the politics of an energy transition in one way or another. Design is but one element of a broader landscape politics, albeit an element that has received too little attention; it is also an element that must be understood in a broader relational context of financial mechanisms, political mobilization, the state(s)'s relationship to capital, and so on. Still, it remains the case that increasingly, the fields of technological innovation and economic planning are increasingly entwined with the field of design. Design's role is growing. The visual (superficial? suspiciously charismatic?) character of really existing design practices, and the increasing prominence of designers in participatory processes and (more often) merely consultative political exercises, has made it easy for left intellectuals to mock design as a superficial field that merely provides capital with a distracting fig leaf. In contrast, we are here arguing that design and landscape more broadly are strategic terrains of conflict where the demarcations of us and them, are some of the central trenches of an epochal change in our built environment (see also White 2018). As Sijmons and van Dorst (2013: 46) put it, "space and its socio-political arena will be the battlefield where the energy

transition will be won or lost."[6] And indeed—it will not just be the energy transition that will be won or lost, but countless further battles about *how* that transition will feed or stymie a whole range of connected social and political projects.

A final word on the Gramscian framework. Gramsci famously distinguished between wars of maneuver and wars of position. In this paper, our interest is in better understanding the possibilities for successfully waging the former battle: reformist projects that build broad popular coalitions to secure a rapid energy transition. Does such reformism impede a more revolutionary and wholesale change? We do not think so. Given the urgency and enormity of the effort needed to decarbonize the economy to avert catastrophic climate change, we are interested in political projects that can build alliances, attack inequality, and slash carbon emissions at the same time. That is already a tall enough order. We also believe that some victories along those lines are the best foundation for even more transformative politics—hopefully sooner rather than later.

3. Uneven impacts: rural, urban, & suburban energy landscapes:

The renewable energy transition proceeds unevenly across the larger landscape, disproportionately impacting certain places more than others, and generating uneven economic benefits (Bridge et al. 2013: 337). In the United States as elsewhere, a fundamental issue is the disparity between predominantly rural sites of energy production, and the predominantly urban sites of energy consumption. This results from a) the geographic distribution of wind and (utility-scale) solar resources, which are most prevalent in remote areas far from cities and industry, and b) the lack of power density of renewable energy, compared for instance to natural gas or nuclear plants, which take up far less space. To date, the minor social consequences of the transition reflect the renewable sector's relatively recent emergence and still-small scale. As state-imposed renewable energy targets (such as Renewable Portfolio Standards for utilities) jumpstarted the first wave of large-scale renewable energy infrastructure projects beginning in the mid-1980s, renewable development took advantage of the easiest sites to develop first—those having high energy potential, were already close to existing transmission lines, and were far from populous communities (Rand and Hoen 2017: 135). Increasingly, further renewables construction will

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[6] On thinking about spatial politics as a "strategic terrain" for competing coalitional politics, we draw more broadly on Jessop 2008; Jessop 2005.

have to happen in places where more people live, and where power transmission capacity is absent or inadeuqate.

This disjuncture between production and consumption yields a range of social tensions around the energy transition, with fault lines between rural and urban residents, as well as their values vis-à-vis productive vs. scenic landscapes. As Sovacool (2009: 4510) writes,

> Rural residents … often resent urban developers who wish to build wind farms in their midst. … In other cases, rural residents want renewable power projects for their own use, as a vehicle for economic development, and resent what seems like meddling by urban residents intent on preserving the countryside for its scenic and recreational value.

And as Phadke (2011: 773) finds, for instance, in the case of the Searchlight wind farm in rural Nevada, "local residents argue that power generated by the new wind farm will feed Las Vegas' over-the-top conspicuous energy consumption at the expense of the rural character they love." These splits expose larger personal and philosophical differences over the role and value of specific dearly-held landscapes.

As progressive city-based institutions (including municipal governments), corporations, and universities have sought to lower their carbon emissions to comply with various sustainability goals using so-called power purchase agreements, and as state-level mandates for renewable energy have intensified, the momentum of the renewable energy sector has grown.[7]

How should we understand the range of concerns in rural areas when it comes to clean energy deployment? Is this merely a new instance, to paraphrase Gramsci, of a deep-seated cultural hostility between city and country? When we break down and investigate sources of opposition, and look to cases in Europe where there is broader support for non-urban renewable energy construction, can we identify potential strategies for constructing new kinds of broad popular coalitions across place?

4. NIMBYism? Or specific, economically structured landscape concerns?

To delineate the trenches where battles over clean energy will be fought, we start with emerging research on the attitudes of rural residents in places where new renewable energy infrastructure has been built or proposed.

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[7] This demand for carbon-free energy has thus far excluded nuclear power, due to lingering opposition to nuclear energy among environmental groups, putting the onus for new carbon-free energy capacity squarely on renewable resources.

Americans continue to be broadly supportive of renewable energy by large margins, with more than twice as many saying they prefer to see a priority on alternative energy sources like solar and wind as the country's priority, rather than expanded production of fossil fuels like coal and gas (Pew Research Center 2017). Yet local opposition to renewable energy has also been on the rise over the last two decades; there are now over 200 individual anti-wind organizations in the U.S. (Phadke 2011: 761). So far, most studies of community acceptance or opposition have focused on wind. There are presently just a handful of large utility-scale solar or geothermal energy projects built in the U.S., although such developments have the potential to make impacts similar to wind farms—highly visible large infrastructural facilities interfering with a community's cherished landscape values or uses (Smardon and Pasqualetti 2017: 131). Community acceptance of both the energy facilities and their associated electrical transmission lines is now seen by the industries in question—predominantly wind—as a significant potential barrier to deployment (Lantz and Flowers 2011).

Such local concerns, more widespread in the U.S., Canada, and the UK than in early adopter countries of Denmark and Germany, have long been derided as NIMBYism—there is support for wind in general, but not near one's own home. But social scientists have generally concluded that NIMBYism as an explanation for opposition, aside from being pejorative, is also inaccurate (Wolsink 2006; Wüstenhagen et al. 2007). Devine-Wright (2005: 134, 136) has suggested that large wind farms' impacts to "place attachment" and "place identity" might be more accurate in explaining local opposition. The opposition is not against nearby wind farms in general, but against particular kinds of wind farms and wind farm politics, in specific places that have particular values for people. Local concerns are not monolithic, nor are the local populations. Parsing the component parts is helpful.

When there is opposition to renewables development—and for the most part, this still concerns wind turbines—it is usually framed in terms of three distinct issues: collateral environmental damage, aesthetic despoliation, or economic injustice. But are economic questions ever really absent?

Fears of ecological harm concern a wide range of feared direct and indirect effects: habitat fragmentation due to required access roads and the energy facilities themselves; negative impacts to ecosystem hydrology (most prevalent in water-constrained situations such as concentrating solar plants in desert environments); or direct harm to wildlife, such as the

occasional killing of birds or bats by wind and solar projects. For example, in 2016 the Soda Mountain Solar photovoltaic project was approved by the Bureau of Land Management on public land in the Mojave Desert, with the idea of selling its electricity to the city of Los Angeles. But the project was derailed by opposition from environmental groups and prominent conservation biologists concerned about disruptions to bighorn sheep migration routes and desert tortoise habitat (Maloney 2016). These so-called "green vs. green" disagreements pit traditional conservationist constituencies that prioritize local environmental protection against more carbon-oriented climate activists (and entrepreneurs who privilege decarbonization over local environmental objectives) (on utility scale solar and landscape conflicts, see also Mulvaney 2019: 114-164).

Even more prominent as an issue of public concern about renewable energy deployment, and wind especially, is the fear that wind turbines will destroy landscapes' scenic beauty (Rand and Hoen 2017: 141). Specific projects have been challenged by local opponents, often on aesthetic grounds. Aesthetic concerns range from a sense of intrusion by technology and energy systems into daily view; to perceived interruptions of pastoral or untrammeled scenes; to impacts to long-familiar views and landscapes (i.e., a kind of place attachment); to the revulsion at messiness and clutter when infrastructures are placed ad-hoc across the landscape. Many of these attitudes are exacerbated when the viewers approach the landscape in question from an Arcadian sensibility, where technology is foreign, a "monster" that can never belong in pastoral or bucolic nature (Sijmons and van Dorst 2013: 46). Research on this in both Europe and North America has found that such attitudes are most pronounced among urban visitors, vacationers, and retirees in search of recreation and escape in the countryside, and have led to concepts in some places such as the Netherlands' "horizon pollution." (Sijmons and van Dorst 2014: 407)

By contrast, there is evidence that aesthetic landscape concerns are less pronounced when residents of an area understand its landscape as a productive or working landscape. This is how many working farmers think about their agricultural landscapes. In such cases, renewable energy installations are often understood as an extension of the "production" that already occurs on their farm, especially when the energy infrastructure can generate substantial income for rural landowners through royalty payments on private land, while having a relatively small physical footprint on the total arable land area. Sovacool (2009: 4510) finds that rural residents who welcome renewable energy as an extension of this productive approach resent the desire of urban

outsiders (or recently arrived residents) who bring with them an Arcadian sensibility, as an imposition on rural residents' ability to productively develop their land (note, also: farmers may earn significant income from leasing their land to wind developers). Phadke (2011: 761) has analyzed this phenomenon in both the rural American West and the affluent enclave of Cape Cod,[8] and notes that "opposition to wind development is often strongest in areas of exurban migration [i.e., affluent urbanites moving out of the city]. In-migrants act to protect their financial and emotional investment by opposing developments that threaten the perceived rusticity of their new homes." Working rural areas with few urban in-migrants are more likely to accept "Big Wind" as an extension of their working landscapes, whereas exurban areas are more likely to organize to prevent their construction to preserve their privileged views, or in the words of geographer Michael Woods, their "aspirational ruralism." (Woods 2003: 318)

Finally, opposition to renewable energy construction often stems from concerns about simple, direct economic harm, such as the anticipated decline of home values as a result of new energy infrastructure nearby, or the anticipated loss of tourism revenue. Concern that projects may predominantly employ non-local workers, while straining local infrastructure, also falls into this economic category. Moreover, while most Americans probably do not know about the community benefits that local wind co-operatives in Germany have achieved, we can impute a passive cause for opposition against (or lack of enthusiasm for) wind development: the absence of major local economic benefits and local control. Whether under the aegis of the New Deal legacy of rural energy co-operatives or other institutional settings, growing the culture of local energy co-operatives would surely facilitate local economic development and a more left-populist understanding of ordinary lives' relationship to clean energy.

Another distinct economic issue involves labor and wages. Despite the hype about green jobs, wages in clean energy tend to be lower in comparable fossil fuel energy work, in large part because in the latter sector, unionization rates are far lower. (Overlapping with the clean energy sector, Tesla's brutal treatment of its workers is notorious.) Even as total employment in clean energy begins to eclipse the dwindling fossil energy sector, there remains deep ambivalence in transitioning energy landscapes like Appalachia about a shift from steay, high-paying work to a more uncertain, lower-paying labor prospects (Cardwell 2017). (One rarely sees urban

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[8] Cape Cod is the site of the Cape Wind project, which was intended to be the first American offshore wind project before succumbing to opposition notoriously led by members of the famous Kennedy family.

champions of low-carbon energy, like New York mayor Bill de Blasio, walking picket lines or supporting unionization drives among clean energy workers beyond city limits.)

In short, while there is a wide range of reasons why locals oppose the construction of clean energy landscapes, the notion of a widespread resentment against the city's new energy priorities must be broken down into finer parts. Explicit economic concerns will depend on particulars; it is possible to set up projects that prioritize local workers or local ownership. Moreover, apparently aesthetic or environmental concerns also turn out to have economic dimensions. Building clean energy that is more sensitive to local ecosystems may cost more. This implicates the purchasing power of city-dwellers, but does not rule out these modifications. For instance, Germany has pledged to spend USD $9 billion to bury power lines carrying wind power from North to South to assuage resistance to massive new transmission pylons. (Clean energy infrastructure is rarely confined, physically or political-economically, to one place.) Meanwhile, aesthetic concerns at least in part reflect the class position of residents (quite literally, in terms of their relationship to the means of energy production). Because infrastructural construction must always involve decisions and trade-offs, and questions of control, they are intrinsically political and economic.

But it would be a mistake to move directly to the question of political economy, for clean energy infrastructure also concerns big things. Their deployment involves a whole network of professionals, what Gramsci has also called intellectuals. What mediating role might design practice have in how clean energy infrastructure is developed and experienced?

5. The role of design

Questions of the relationship between nature and culture, of views and land use, have historically been the central concerns of the field of landscape architecture and spatial planning. And yet, these design disciplines are rarely found in the U.S. energy conversation. Landscape architects have operated on cultural landscapes by weaving together environmental and socio-technical systems, attempting to be mindful of local attitudes and perceptions, yet seeking to forge new narratives through their designs. As part of their design practice, landscape architects work with the various elements of parks, roads, blocks of urban development, forests, fields, water systems, and occasionally larger infrastructural elements. Such practices bear directly on the core tensions—political economic and symbolic—of the clean energy transition.

In countries with long relationships with renewable energy, like Denmark, design considerations have long infused both the arrangement of wind turbines across the landscape, and the design of the "technological object" of wind turbines themselves. Design can of course be bad as well as good. But in Scandinavian countries with mixed economies and strong state support for public planning, design has flourished, both in aesthetic and social terms, from architectural and industrial design to landscape and territorial design, such as the famed Norwegian Tourist Routes.[9] Over the long wind energy ramp-up period of the last four decades, the Danes have prioritized a certain degree of refinement in the form and scale for their renewable energy deployments, which may offer some lessons to places without as much experience in the energy transition.

In the Danish countryside, engineers and designers have typically installed wind turbines in small regularly spaced groupings that use simple geometric arrangements to accentuate elements of the existing landscape without visually dominating them. Municipalities are responsible for designating areas that are suitable for wind development, through a municipal planning process that "gives full consideration to neighboring residences, nature, the landscape, culture-historical values etc., and of course the possibility of harvesting the wind resource" (Danish Energy Agency 2015: 16) The Danish Nature Agency under the Ministry of Environment coordinates the Wind Turbines and Planning Task Force, and hires landscape architecture firms as consultants to review the proposed siting of turbines in the rural landscape.

The landscape consultants begin by offering a description of the landscape to be affected by a wind turbine array, and then describe the landscape consequences of the proposed installation. The landscape architecture report identifies the major existing landscape elements and their characteristics, and then suggests the ideal placement and height of turbines in order to accentuate the most significant landscape elements, avoid awkward interactions, or enable turbines to be perceived as well-defined clusters or grouping. For example, the landscape consultants might note that a large, wide-open landscape can accommodate a larger array without creating visual dominance in the landscape, that a harbor or industrial area can easily accept a row of turbines and thus enhance the already technological character of the landscape, or that a

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[9] In terms of architectural design, government support for architecture in countries such as Denmark, through policies, education, and public commissions, which have resulted in the cultivation of highly successful young firms that have found worldwide success. See (The Danish Government 2014). For Norwegian Tourist Routes, see (Norwegian Public Road Administration n.d.)

given cluster of turbines should be somewhat taller to avoid visually conflicting with a nearby landform or wire (Danish Ministry of Environment and Food 2007.)

Usually, land-based Danish turbine groupings range from small clusters of 4-5 at a time to larger installations of 20-50 turbines. The turbines are commonly arrayed in simple straight lines along an existing road or hedgerow, or in simple grids across larger agricultural fields. Occasionally, a gentle arc is used, if it follows a long curving road or dyke. These wind installations are designed to respond to the local geography, enhancing culturally significant locations in the landscape without overwhelming them; designers want to be sure that the turbines do not appear haphazard or cluttered. The designers and engineers responsible for selecting turbine placement strive for a regular rhythm and spacing, not too close together or far apart; they consider the perspective from the road, the alignment, the view at close range, and the distant view. Visual disorder is avoided at all costs, such as might result from competition with other existing vertical objects, or from mismatched turbines of various heights. The result is visual order and a coherent, well-planned landscape effect. (Nielsen 2002: 119) The turbines have become a characteristic and dominant element of the Danish landscape — in well-photographed installations such as the Middelgrunden harbor wind farm near Copenhagen for example, composed of 20 turbines, the array is plainly visible from the old city core and from popular tourist destinations such as Amager beach. Its neat uniform design, as well as its ownership by investors from within the city of Copenhagen (Bayar 2012), creates civic pride in this local energy installation.

In contrast, large-scale American wind turbine arrays, such as Tehachapi Pass and Altamount Pass in California—two of the windiest locations in the state, and thus two of its first big wind farms—are characterized by thousands of turbines each, cacophonously arranged at various heights and elevations, composed of numerous turbine makes and models, and spinning at different speeds. With the sites open to dozens of private companies, there is very little design at work. Wind developers in the U.S. have given little thought to the kind of design considerations so prominent in Denmark, resulting in numerous examples of seemingly haphazard turbine placement and frequent visual clutter. The sheer number and size of turbines when deployed at scale have come to dominate some farming communities, who may perceive their rural culture and way of life as under attack. The kind of aesthetic resistance to wind turbines we mentioned briefly above, net of social class, can also be understood in terms of

political economy—the difference between slapdash and elegant landscape intervention, itself reflecting the difference between site-indifferent market logics and careful, deliberate, public-oriented design.

On both sides of the Atlantic, more recent wind installations have tended to be larger, both in the number of turbines and the size of the individual machines themselves. As turbines continue to grow thanks to technological innovation, it is more difficult to meld them to the landscape or avoid their becoming a dominant and overwhelming presence. For this reason, in Denmark such large installations have been placed offshore, while in the U.S., massive land-based wind farms are a common sight from Texas to Iowa.

6. The problem of scale

As turbines get taller, wider, more numerous, and capable to generating more energy, there arise new questions about governance and political economy. This growing scale favors huge energy companies like Samsung and General Electric—"Big Clean". The vast majority of utility-scale wind and solar projects in the U.S. are built by large commercial energy companies or utilities, who answer primarily to investors in distant urban areas. This is quite different from the community-based model of energy ownership, pioneered in Denmark and Germany, where local residents and local investors come together to develop smaller but nonetheless substantial utility-scale projects. In Germany in the 2010s, close to half the country's clean energy was generated by community energy co-operatives (Morris and Jungjohann 2016).

The speed and scale at which large projects get built, however, also means greater landscape disruption, less attention to local landscape specificity, less accommodation for site-specific farming practices, less responsiveness to local concerns about construction and maintenance, and potentially a need to rely on an out-of-state workforce, at least in the short term. A model of energy production focused on economies of scale and mass replication has a harder time incorporating local concerns; expediency gets privileged over exactitude.

The overwhelming resources of large utilities and large wind energy companies can also result in the residents of places undergoing such rapid transformations feeling powerless and oppressed during the legal process of arranging land leases. As one Iowa farmer described his experience in dealing with MidAmerican Energy, the large wind developer in Iowa:

"It's not just an easement for your access road and this little bit here around these wind towers. It's the whole farm they've got easement to. So now there's a clause in there that says we can't plant a tree, build a building anywhere on that farm they've got easement to, because it might affect the wind" (Mensching 2017).

Still, so far concentration of resistance groups has not been correlated to the places with the highest deployed wind capacity, but rather has been heavily clustered in the Northeast, and to a lesser degree the Midwest (Phadke 2011). In Canada, the province of Ontario is known for its top-down, sped-up corporate-government partnerships building out turbines and transmission lines; the region has probably seen the highest concentration of resistance groups, with names like "Mothers Against Wind Turbines", which are increasingly coordinating and sharing resources.

Germany provides a counter-example, where small energy cooperatives have broken into the utility market after initial opposition; these cooperatives would go on to define energy politics. Utilities have historically tried to stifle small-scale and cooperative energy initiatives because they are seen as a threat, or a nuisance, and this is true in Germany as well. German utilities in the 1980s and '90s tried to block small individual and community-owned energy projects by charging exorbitant rates for the privilege of being allowed a grid connection, as well as excessive red tape for permitting. There, much of the anti-utility organizing originated in opposition to planned nuclear power plants in the early 1970s, but grew to include alternative distributed renewable energy advocacy. Today, however, the wind producers' lobby primarily represents the interests of small community-owned companies, resulting in policies such as mandatory "feed-in tariffs" that mandate an equitable interconnection rate even for small energy producers, and preventing the kind of massed "wind wall" turbine arrays that characterize early American experimental wind power landscapes such as Tehachapi Pass. Crucially, the lock-in of Germany's feed-in tariffs was passed by a federal red-green coalition in the early 2000s under heavy pressure from below (Morris and Jungjohann 2016).

In the U.S., by contrast, the power of utilities never faced the same kind of political defeat that it did in Northern Europe. The U.S. wind producers' lobby primarily represents large energy companies, resulting in a policy focus on tax incentives. Such tax breaks disproportionately help large companies, while providing very little assistance to small producers.

Does community ownership increase local support? By all indicators, it does, in several ways. People who own shares in a project are significantly more positive about it than those that do not, and more open to seeing further wind development nearby. Even knowing someone who is a share owner increases the acceptance of wind development, as does being personally involved in a public participatory process that offers some sense of control (Devine-Wright 2005: 132-134).

To return to our theme of the political economic underpinnings of rural resentment against clean energy construction, we can see the emergence of rural protest movements in defense of the "rural" against outside threats (be it the rural economy, rural landscape, or rural "way of life) are at the same time a protest against globalization, free trade, and the influence of global capital on local land use decisions (Woods 2003); the scale and outsider status of large energy developers, which in the case of North America very often indeed are owned by international corporations, perfectly exemplifies the perception that these global forces operate for the primary benefit of distant outsiders and massive, inhuman corporations. And a range of investigations suggest that movements against Big Clean are themselves funded (albeit not entirely explained) by wealthy interests tied to the fossil fuel industries, most notably the Koch brothers—who, ironically, are also funders of some of the country's most "urbane" institutions, like a ballet theater and a wing of Natural History Museum in New York (Greenpeace, n.d.; "Checks and Balances Project Documents: Accelerated Attacks on Clean Energy by Koch Bros" 2018; Anderson 2017; Goldenberg 2013). While we do not believe that outside funding is the best explanation for resistance to clean energy (and have thus devoted hardly any space to it), it certainly resonates with the Gramscian view that there is no political innocence to the regional rivalries that seem to pit ostensibly congealed rural and urban interests.

Indeed, from this perspective, and for political-economic reasons, Big Clean energy might slide easily into the semiotic camp of a so-called "globalist" "them"; if a rural "we" of (racialized white) outsiders to these economic forces stands to gain little—or even lose much—from the encounter with the energy transition. Our concern, beyond the issue of carbon, is the prospect of politically squandering the great potential for most rural residents to support clean energy, since it would extend the productive potential of their landscapes and yield real economic and political returns.

Of course, it is neither realistic nor strategic to presume that the U.S. can rely exclusively

on small-scale and community-owned energy producers to reach its renewable energy goals. But Big Clean cannot be trusted to act on its own, nor should it be given free reign to set the ground rules. Large energy projects will still be necessary, and there is an opportunity for urban consumers and investors to shape the way these large projects are developed. If enough political strength is mobilized, the basic economic model of clean energy could be transformed.

7. Looking back to the New Deal

The New Deal era programs of rural electrification and dam construction are an example of energy development that was a national priority to be achieved through public infrastructure, with the benefits shared broadly in vast tracts of the rural United States. Looking back to the New Deal may help us think through today's energy landscape politics, including the role of the government's earnest teams of architects, engineers, landscape architects, and land planners of the Tennessee Valley Authority (TVA) to persuade locals—and visitors—of the democratic intentions of huge infrastructure projects, which might have been perceived by locals as yet another wave of wealthy urban outsiders coming in with designs on their land, as had been the case repeatedly in Appalachia (Stoll 2017: 235). A careful look back to the New Deal is especially warranted in the context of growing calls for a Green New Deal.

With the Tennessee Valley Authority (TVA), the federal government aimed to bring economic development to an enormous seven-state region characterized by extreme poverty, severe soil erosion, and very low rates of electrification. Hydroelectric power was seen as only one part of the "multipurpose system of dams," other components of which were improved navigation, flood protection, new roads, new industries, and the kernels of future urban areas. The introduction of improved agriculture and forestry practices was seen as an extension of the infrastructural improvements in the region and promoted as having immediate benefit for the struggling farmers of the region. TVA planners faced significant pushback from some local residents who objected to being evacuated from the site of new projected reservoirs, and who were being forced to sell their land and relocate, but the TVA saw its mission as being responsible to a larger public (Creese 1990: 95-97). In order to provide the maximum public benefit to the new resource it had created, the TVA initially sought to retain at least a ¼-mile buffer around the new reservoir lakes, to dedicate to recreational public access and wilderness. At least as initially planned, TVA lakes were to be fringed by scenic publicly owned forests and

picnic areas, provided with public boat launches, and managed for free public recreation, such as hiking, hunting, and fishing (Creese 1990: 268).[10] The public was encouraged to experience and interact with the facilities, which were simultaneously managed for recreation, education, and of course energy generation.

The New Deal dams leveraged design to seek to convince the Tennessee Valley public of the benevolent progressive agenda of the federal government, despite the scattered local opposition. Bold modern architectural forms of dams and powerhouses emphatically proclaimed a modern and urbane sensibility in contrast to the rustic and shabby vernacular architecture of the region, suggesting the beginning of new possibilities after the pessimism of the Great Depression. Innumerable signs emblazoned on massive turbine halls and visitors' centers proclaimed, in all caps, BUILT FOR THE PEOPLE OF THE UNITED STATES. Perhaps most importantly, the visitor's experience of the dams was meticulously choreographed to evoke wonderment, optimism, and pride: from the carefully crafted approach road, from distant first glimpse to the view from up close, to the dramatic geometry and sheer scale, to the interpretive material and signage, each aspect of arrival was designed to overwhelm the visitor with what David Nye has called the "technological sublime." Rather than relying on arguments of efficiency and functionality, these infrastructures were examples of the power of civic persuasion (Nye 1994: 140; Wolff 2007: 56-57).

Not all TVA projects were equivalent in their attention to design and detail; the full arsenal of design moves was most actively deployed on the early TVA dams such as Norris Dam and Hiwassee Dam, before WWII resource shortfalls and shifts in support from Congress started to result in more fragmented, austere, or awkward outcomes. And with the shift in the TVA to the inclusion of coal and nuclear power plants in the 1950s, design dropped away almost entirely. Around the same time, social opposition to the continued growth of the TVA became grew. Many factors explained this; still, New Deal projects were most successful when pursuing a site-specific, landscape-sensitive model of infrastructure.

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[10] The cost of maintaining so much public leisure infrastructure, the budget constraints of WWII, and a push to divest as much excess property as possible among some TVA administrators so as to better focus on its core mission of navigation, flood control, and power generation, drove the TVA to abandon its most ambitious shoreline plans by the mid-1940s. Subsequent shorelines feature many fewer public facilities, and some have private development right on the water (Creese 1990: 268-269).

Such precedents are important today not only because they point to the potential of design to disarm some critics on recreational or aesthetic grounds, but because they demonstrate how visionary regional planning can help craft holistic narratives about regional identity and tradeoffs. Today's energy transition will entail an enormous amount of new infrastructure at the regional scale, beyond the individual wind turbines and solar power plants, and getting buy-in for some of these regional infrastructures will entail questioning some values on the left. The most important of these is a robust network of new high voltage interstate electrical transmission lines, which are a key enabling feature in any realistic assessment of a renewable-heavy electric grid, such as the 80% renewable energy model by MacDonald et al (2016: 526-527) which envisions a nationwide high-voltage direct-current (HVDC) transmission system. Such dramatic expansions in high-voltage transmission are necessary in order to supply more consumers with more renewable energy, and to balance out the intermittent nature of both wind and solar across a larger geographic area. Yet it has become increasingly difficult for utilities or energy companies in the U.S. to build long-distance high-voltage transmission projects (Caperton 2010).

Transmission line battles, such at the 2017-2018 conflict over the planed Northern Pass project highlight the tension between traditional conservationist attitudes about nature — which see transmission lines as equally harmful to recreational and scenic values in natural areas as, say, fossil fuel pipelines—and climate-centric environmentalist attitudes who understand the necessity of new transmission lines for accelerating decarbonization. Northern Pass was intended to bring almost 9.5 terawatts of carbon-neutral Canadian hydropower to Massachusetts to help the state fulfill its renewable energy quota.[11] The Massachusetts Sierra Club came out against the Northern Pass transmission line citing local ecological concerns (Yale's graduate worker union, Unite Here Local 33, also opposed the project, in which Yale was indirectly invested). The transmission line plan was ultimately killed by New Hampshire regulators, even though portions were rerouted and 52 miles of the line were redesigned to traverse the While Mountain National Forest underground, to minimize disturbance to the Appalachian Trail and its scenic landscapes.

Part of the issue is that the transmission line as an energy typology is still predominantly seen as a scar on wild nature, or a tragic low-carbon necessity, rather than a compelling public

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[11] Massachusetts had put this quota into law in its 2016 Global Warming Solutions Act, and with the Northern Pass project canceled will now need to look for alternate low-carbon sources of electricity.

site for recreation. What if, in imagining enormous transformations of American landscapes, one saw opportunity to innovate with new, public-spirited, decommodified pleasure landscapes?

Public trails within TVA transmission easements (i.e., the strips of land within which the energy company has secured the right to run wires) point to an alternative approach; so do the mountain biking trails that local residents have developed under TVA power lines on the side of the Raccoon Mountain Pumped Storage facility in Chattanooga, Tennessee. Such adaptations are not trying to bury or otherwise alter the design of the transmission lines themselves, but do introduce new uses, and perhaps new users. A holistic approach to infrastructural design would look for opportunities to develop such regional recreational infrastructures from the start, along with beautiful and ecologically beneficial landscape interventions within the public right-of-way, and then use persuasion and design detail to promote an optimistic, productive regional landscape vision rather than simply attempting to minimize harms. These infrastructures would of course still need to be responsive to local concerns, but could inspire a larger constituency of recreational users that might bring tourism dollars.

How might city residents, or city-based political organizers, help to shape this debate? In the broadest sense, rebalancing social forces to insist on more holistic, public-oriented, and locally responsive infrastructure construction will require greater involvement from urban progressives. This can come in the form of direct intervention; but perhaps the lesson of the New Deal is that indirect involvement is also central, through the intermediary of a political coalition that ties together a number of interests around a broad popular narrative where us and them map onto categories like the "people" vs "elites" rather than urban vs. rural, educated vs. uneducated, smart vs. ignorant.

In the context of the current energy transition, urban residents and organizers, cognizant of the rural landscapes where their no-carbon energy aspirations hit the ground, would support unionized clean energy work, more inspiring landscape design, and a shift away from large corporations as the sole (or even primary?) protagonist of large-scale clean energy; all this entails a series of political engagements. It also entails higher energy costs, paired with the need to drive urban energy consumption downward even further.

And the New Deal is not the only precedent. In Europe, architects Rem Koolhaas and Reinier de Graaf of the Dutch architecture firm OMA envisioned European energy production on a continental scale in their "Roadmap 2050: a practical guide to a prosperous, low-carbon

Europe" (OMA 2010). Maarten Hajer & Dirk Sijmons, of the Dutch landscape architecture firm H+N+S Landscape Architects took OMA's basic idea and developed it into a more detailed and comprehensive cartographic video narrative, which was displayed at the 2016 International Architecture Biennale Rotterdam. This project brought together government agencies, industry representatives, and designers—participants included the Ministry of Economic Affairs, Van Oord, Shell, TenneT, Zeeland Seaports, the European Climate Foundation, RWE, Nature and Environment, the Port of Rotterdam, and the Amsterdam Port Authority—as part of the visioning exercise, in order to collectively imagine a narrative of large-scale renewable energy development, coastal manufacturing, transmission line construction, energy storage, and even CO_2 sequestration between now and 2050 (H+N+S Landschapsarchitecten 2016). These projects remain on the drawing board, but they indicate the scale and ambition of a new tendency in design thinking, an intellectual arena in which the left must play if it wants to shape the future. By thinking across landscape systems, speculative infrastructural visions can begin to make a case for new kinds of infrastructural couplings and co-location (Pevzner 2015), and potentially point towards new coalitions in the process. Which is crucial, for to implement such designs, political power will be necessary.

8. Broad popular coalitions?

Who can bring about a massive energy transition that's rooted in the dreams and interests of a broad popular majority? In keeping with the discussion above, two scales of action are apposite here. One is the macro-policy framework, where political mobilization can seek to specify through legislation and regulations passed by governments, how resources can be mustered, how investment should be directed, what the targets would be, and according to which principles actual infrastructural choice would be made. A smaller scale example concerns site-specific specific energy landscape interventions, of the type discussed at length above. For the latter to succeed does not depend on the former; but a broad state framework is doubtless essential to broad-based adoption of attractive concrete interventions, at both small and large scale. In each case, we're interested in a politics that is both materially and symbolically sophisticated.

Starting with policy advocacy, we are seeing in some states an increasing effort by the progressive wing of the climate movement to articulate a basic framework for pricing carbon, devoting some of those revenues to direct rebates to consumers, and the rest to investment in

resilience and clean energy. At the federal level, there is increasing interest in massive investment in clean energy—financed by a carbon tax, by taxes on the wealthy, or simply from existing general revenues. But more detailed and interesting action is presently at the state level.

In California, progressive legislators and climate justice groups and their allies, many organized into the California Climate Equity Coalition, pressed for a bill called SB-775 that would have greatly increased carbon pricing and investments into disadvantaged communities. Even though the visionary bill failed, those same actors had already succeeded in passing earlier legislation that commited the state to spend 35% of the revenues from its cap-and-trade program directly in racialized, poor, and polluted communities. As of 2016, the state had already spent $419 million in such programs, from assisting car trade-ins to funding home retrofits to investing in transit (cf California Climate Investments 2017; Aguilar 2018; Wang 2018).

But perhaps the best example of how in-city, progressive forces have sought to translate an urban climate agenda into a regional one comes from New York. New York City's climate politics were first developed by Mayor Michael Bloomberg in PlaNYC, a document that sought to merge economic development with decarbonization, the latter mainly through policies linked to densification, including congestion pricing. When this initiative failed, and when the mayor was unable to secure the most ambitious version of his building retrofit policies, the city's climate policymaking languished. It did not help that with exception of some green policy elites and affluent voters' interest groups, Bloomberg had not built a substantial social base in support his climate agenda. After Hurricane Sandy climate policy bounced back, but this time focused principally on adaptation, with cuts to carbon emissions an afterthought (Cohen 2016c). The major turning point was not the storm, but the People's Climate March that was organized by an often-tense coalition between 350.org and Avaaz on the one hand, and the climate justice community on the other. Moreover, because the storm had so badly affected tenants, people of color, and residents of vulnerable areas, a number of housing and social justice oriented groups had begun to devote more energy to environmental politics, most prominently Align, a once-labor dominated group that anchored a coalition of labor and community groups to lobby around climate justice after the storm, and New York Communities for Change, the rebranded New York branch of Acorn (Cohen 2016b; Superstorm Research Lab 2013).

After the march, many of these groups felt that a broader approach was needed, as I learned from speaking with a key organizer involved with this effort. Eddie Bautista, the

executive director of the New York City Environmental Justice Alliance; Matt Ryan, (then) executive director of Align; and, Marc Weiss of the Sierra Club Foundation, set out together to do approximately 50 one-on-one interviews with environmental, labor, and community activists all around New York State, in many cases with the three of them driving out of the city together. The outcome of this broader regional process was the identification of four priorities shared by initial interviewees that would anchor the project. That initiative emerged in 2016 under the name New York Renews; the coalition now comprises over 120 constituent organizations. The four initial principles were: 1) that fossil fuels should be phased out in favor of 100% renewable energy; 2) that fossil energy should be priced; 3) that at least 40% of those revenues should be invested directly in environmental justice communities (that is, racialized communities that have born an unequal brunt of environmental harms); and 4) stringent labor standards favoring unions and local workers should be applied whenever investments were made under the aegis of this policy framework.

From these sets of principles, New York Renews in 2016 developed and proposed the Community Climate Protection Act for adoption at the state level, a policy framework that would price carbon and invest revenues on the basis of the coalition's basic principles. The act has so far been passed the Democrat-dominated New York State Assembly, but not by the Senate. At present, New York Renews has focused its pressure on winning support for the Act from Governor Cuomo.

To be sure, nothing in this framework specifically focuses on the design issues laid out above. But in keeping with our discussion above, we should expect a more favorable atmosphere for public-oriented design in a political context of empowered grassroots movements, major public investment, and the priority of public socio-ecological goals over private profits.]What is more, the coalitional framework, initiated by city-based progressives who recognized the need for a regional coalition with a wide array of organizations, and who set one up on the basis of travel and dialogue, represents a hopeful first step: mobilizing for strong state action based on principles widely agreed. These principles would, if put into action, offer a possibility of consolidating a bloc of urban, suburban, and rural popular sectors around a clean energy transition that attacked inequalities immediately and directly. An indication of the scale here is that, according to a recent New York Renews proposal to levy an upstream carbon tax to fund this investment, one could generate $7 billion in revenue a year for the state, each year for ten

years. New York Renews proposes that 30% be spent on direct money rebates to the bottom 2/3 of residents, in terms of income; 30% would be invested in "multi-region projects" around energy efficiency, public transit, and other infrastructural priorities; 33% would prioritize climate investments directly in disadvantage communities; and 7% would go into a worker and community assistance fund, focused on retraining and associated support for former fossil fuel industry workers.

We note that, in the context of the discussion above, New York Renews unfortunately has had little to say about financial governance, and in particular the structure of New York State's new Green Bank, recently set up by Governor Cuomo. While it is reasonable for a macro policy framework not to focus on site-specific landscape design, it would be ideal for policy efforts to directly engage the financial institutions who will, case by case, influence the social and technical detail of particular projects.[12]

Meanwhile, also as a result of organizing drives undertaken in the wake of Occupy Sandy, we want to highlight the work of the Sierra Club in seeking to organize around an offshore wind energy project off the shores of Long Island. As is typical with offshore wind, the developer would not be a community co-operative; in this case, it is Statoil, Norway's state oil company (Solnik 2016). A key part of the Sierra Club's organizing work is connecting with local unions, including construction unions that have typically not joined "blue-green" coalitions.[13] (Indeed, many of these unions have supported the construction of the Keystone XL pipeline, paralyzing and embarrassing the AFL-CIO, and leading to widespread news coverage of a split in the house of labor around fossil fuels and climate policy.) While it is easier to bring building trade unions along in cities, where energy-efficiency building retrofits, engaging such groups in

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[12] Although it appears that public worker (eg teacher) pension funds in California, Ontario, and Scandinavia are investing heavily in green bonds, which offer modestly lower returns to guarantee investment in clean energy initiatives (and sometimes adaptation projects). But while interesting, this does not portend any kind of serious organized efforts by progressive forces, especially in North America, to intervene in the financial institutional structure that shapes the clean energy sector. In the long term this could fatally undermine efforts to make socially transformative the energy transition. Yet proliferating green banks and the prospects of increased state (or other forms of public) ownership already suggest avenues for struggle.

[13] Of course, there is also resistance to this project, in this case seemingly encouraged by clearly conservative interests (Bryce 2017); how successful it will be is unclear.

coalition work with environmental groups like the Sierra Club is more difficult in geographies where more traditional fossil fuel energy work is more common.[14]

9. Conclusion

We have argued that replacing fossil fuels with a largely renewables-based energy system—as will be necessary to avert catastrophic climate change—will entail massive changes to the built environment all across the territories the people inhabit. In the United States, we worry that the exacerbation of rural-urban tensions would both slow the energy transition and dim the chances that the left could use such a transition to attack inequalities and democratize the economy. Politics will decide. But not politics alone, at least as conventionally understood. Design has a crucial role to play here—not outside of politics, but as part of them. In order to make sense of these emerging political dynamics, and of the role of design as a kind of symbolic-cum-material intellectual practice, we have turned to the spatially sensitive, coalition-oriented political thought of Antonio Gramsci for inspiration. Gramsci's framework helps think through the joint operation of symbol systems and political economy; and it provides a helpful foundation for understanding the various ways in which "us" vs "them" dichotomies could harden—depending on the success of political organizing projects.

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[14] [Note: this section is based on informal conversations with a project lead; Daniel has not managed to conduct a more formal interview, reach out to further contacts, etc, that would enable a more fleshed out account of this mini-case.]

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