

Imre Szeman and Darin Barney

Introduction: From Solar to Solarity

Solar energy is a promise. It has come to be seen as a solution to the present—perhaps the ultimate one, the only one. It names a future that we are already (all too slowly) creeping into, one which seems to have none of the problems that trouble or worry the present. In the face of the apparently intractable, unsolvable challenge of global warming, solar stands ready to ride to the rescue, shattering the tragic link between energy (fossil fuels) and CO₂ production. Thanks to solar, energy use will no longer be accompanied by doubt and anxieties about global footprints or melting Arctic ice. Solar energy announces the end of one historical cycle and the opening up of another. Against the looming eschatology announced by virtually every report about the juggernaut of global warming, solar reignites progress and offers it to the people and places left behind by fossil-fueled modernity. If that wasn't enough, there is at least the hint that solar might also solve all manner of political and social divisions, creating a world awash in energy, justice, and life.

As this chain of promises might suggest, solar energy is also emerging as one of the sharpest and most powerful of ideologies, blurring concept, fantasy, and infrastructure together in a

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manner that makes it difficult to disentangle solar fiction from solar reality. The career of solar as a powerful ideological form has an extended history. Two decades ago, one of the chief proponents of solar, Hermann Scheer, spoke repeatedly of its use as the obvious rational choice for human energy needs, which is why it puzzled him that politics simply didn't choose to immediately make the switch. "Although technology is normally thought capable of anything," Scheer writes, "it remains for most people inconceivable that it might achieve the relatively simple task of meeting energy needs from the sun" (1999 [2002]: 63). Even earlier, scenario planner and futurist Herman Kahn (1976: 83) noted that because of solar "the world need not worry about energy shortages or costs in the future. And energy abundance is probably the world's best insurance that the entire human population (even fifteen to twenty billion) can be well cared for, at least physically, during many centuries to come." Today, once again, repeated confirmation of solar's possibility—its growing efficiencies and falling costs—is imagined as being enough to bring about its reality.¹ The message that solar is waiting in the wings to save us is a powerful message that cuts across social and class divisions, the public and the private, and traverses political and national borders alike. The belief that the sun can meet our energy needs *and* take care of humanity, and can accomplish both via technology alone, is at the heart of the promise of solar. It is a belief that foregrounds the sun's abundance and the human ingenuity required to harness it, while relegating to the shadows the very real challenges of producing energy transition on a global scale. As Nicole Starosielski observes in her essay included here, in turning toward the sun we tend to turn away from the ground and the body, where the actual work of energy transition gets done.

This is not to say that the promise of solar is entirely a fiction. Among the real-world facts about solar is that people in many locations have seized upon it as a means to generate energy prosperity and autonomy where before there was poverty and dependency. The vision statement of Soulardarity, a community organization in Highland Park, Michigan, testifies to this:

The neighborhoods long afflicted by blight and neglect are coming back. Vacant lots are now parks, gardens, new affordable housing, and solar farms that generate power for the city and its surrounding communities. The solar-powered streetlights installed in 2017 continue to shine. The recent integration of wifi has allowed every resident of Highland Park to access affordable internet service. Civic participation is at record heights and climbing. (Soulardarity)

This is no idle boast. As Shane Brennan (2017: 179) reports, Soulardarity's *Let There Be Light* campaign to replace infrastructure repossessed by the local power authority with a network of neighborhood-owned, democratically-controlled, solar-powered streetlights goes beyond illuminating the streets: "The Soulardarity streetlights are a way to begin [a] larger conversation about how to move toward infrastructural self-determination at the community level, and thereby upend dominant racial and economic power structures that have placed many residents in the precarious position of not being able to access or afford essential utilities." And Soulardarity is not alone, as affordable, roof-top domestic solar, under a variety of infrastructural and economic models, is surging in racialized and low-income neighborhoods across the United States (see Jackson 2017). In Canada, the transition to community-owned and operated solar-powered electricity generation is being led by Indigenous and remote communities for whom these projects represent concrete steps in the direction of energy decolonization (Kinder, this issue; Rezaei and Dowlatabadi 2016). As for rapid transition to large-scale solar power as a coordinated response to pollution, climate change and energy poverty, it is the Global South—in particular, India—that is leading the way (Buckley 2019). It would be a cruel—and equally ideological—response to the promise of solar to dismiss the transformative material and political potential of these developments.

This special issue of *SAQ* on "Solarity" interrogates the current ways in which solar is understood and the multiple uses to which it is being put in a period of energy interregnum. The essays collected here range widely in theme and theoretical approach, in part because they constitute some of the first articulations of solar within critical theory and cultural studies, broadly understood.² These essays do more than deflate or uncover the premises and fantasies contained within the complicated concept-object named "solar." They also build upon the social and political openings that the transition to solar—and to renewable energy more generally—will inevitably generate. One of the premises of this exploration of the emergent politics of solar is that energy plays a foundational role in the constitution of cultural, social, and political possibilities. This claim should not be taken as akin to an energy determinism. Rather, it constitutes an important and essential corrective to the failure (until recently) to account for the impact of energy on the organization of everything from lived experience to geopolitical decision-making. This insistence on the foundational significance of energy is one of the guiding principles of research in the energy humanities (Szeman and Petrocultures 2016). But the strong claim for energy goes well beyond

this field and is now an accepted principle of virtually all forms of energy studies. In their reflections on the first five years of the journal *Energy Research and Social Science*, the editors assert this principle strongly and without qualification. “We cannot fully account for any aspect of socio-political organization without understanding the crucial role played by energy on a substantive level,” they write, “specifically, the shift from coal to oil as the most globally influential fuel, and latterly from oil to what emerges from our current energy transition” (Van Veelen 2019: 2).³ With the insights that have been generated through the study of the first transition, “Solarity” begins an investigation of this second transition, which has yet to be adequately explored and critiqued.

The future of energy has in many respects already been conceded to renewables, with solar leading the charge. What remains to be understood about solar is not the amount of energy it can produce, or whether it is truly an adequate replacement for fossil fuels, but the conditions of social and political possibility solar might generate, and the relationships, strategies and conflicts that will attend this latest and perhaps last energy transition. In his essay included here, Dominic Boyer points out solar is, or ought to be, agnostic as to the social forms it takes. The concept of solarity developed here refers to a social condition, not an energy source. The point of thinking about solarity is to consider the transition to renewables as a process involving political and economic structures and relationships, as well as social and cultural upheaval. The transition to solar might well constitute a momentous opportunity for left politics—a genuine opening produced by a transition away from a fossil fuel-powered modernity, including the form of liberal democratic capitalism that has imagined itself to be synonymous with freedom, but which in fact has been predicated on extraction, environmental destitution, inequality, exclusion and violence against the human and non-human inhabitants of this planet. But it also might simply reproduce a variant of the same system with a new form of energy that would confirm the ideologies of progress and techno-utopianism so important to liberal capitalism. Solar might avert the end of the world. But a solar future might well come into being in ways that strengthen the present’s grip on the end of history.

Scheer and others imagine that the advent of solar will undo existing geopolitics in a flash, producing a sequence of distinct localities, each of which can produce their own energy and determine their own needs and desires.⁴ The missing piece of the puzzle—a big piece—is the struggle, already emerging, over who controls solar, makes decisions about it, and to what ends. Whether it is treated as evidence of the environmental legitimacy

of capitalism, or produces political openings onto new forms and modes of solidarity, the transition to solar is unlikely to be smooth, untroubled by the weight of history or by extant geopolitics. From the perspective of those who invest solar with the hope of a substantially *different* future, it is not clear that a *smooth* transition is desirable. Energy transition has the potential to disrupt existing sites of power and influence within industry and politics that have developed in conjunction with fossil fuels; those companies and governments whose ambitions have been fueled by coal and oil are unlikely to give up their positions of power easily or at all (Goldthau et al. 2019). Even as some states within the US (and indeed, the US military) have initiated renewable energy projects in order to shift away from fossil fuels, the US federal government offers a prime example of a fossil fuel regime desperately trying to hold onto its current configuration of power at a moment when the US is once again the world's largest producer of oil.⁵ In Canada, transition has been figured differently, but to the same effect, with a proposal to use a proportion of revenues from continued oil extraction to fund renewable energy projects, thus satisfying both those who want extraction to continue and those who don't. In the wake of the coronavirus crisis, these plans seem to have dropped away, with the federal government renewing its commitment to the Canadian oil industry via an enormous new infusion of financial resources (Fife, Graney, and Cryderman 2021).

The inevitable push back of oil regimes will constitute a key site of political struggle in relation to solar, but it would be a mistake to think this wholly defines the political horizon, as if all we have to do is convince large-scale state and commercial actors that energy transition is in their long-term interest. Achieving this would not guarantee power shifts of the political sort, nor the outcomes we associate with social and environmental justice. As mentioned above, India is a world leader in large-scale transition to solar; its current government (whose image and fortunes have been bolstered by its audacious solar infrastructure program) is also among the world's most regressive (see articles in the Against the Day section of this issue). Critics of the proposed US Green New Deal (variants of which exist in other countries) have pointed out that a solar transition might actually save existing modes and formations of power rather than imperiling them. Thea Riofrancos has argued that the policy framework currently contained in the US Green New Deal

will amount to a corporate welfare windfall of investment opportunities lubricated with tax breaks and subsidies; public-private partnerships; infrastructure outlays that will stimulate real estate development; and, a jobs

guarantee that will stimulate consumption—a win-win for the state and capital, but, by leaving the underlying, growth-addicted, model of accumulation untouched a loss for the planet and the communities most vulnerable to climate crisis and eco-apartheid (2019: n.p.).

As Jamie Cross's essay in this issue on solar initiatives in West Africa shows, although there are some states and some industries that want to keep things the way they are, there are others who see an advantage in supporting the creation of a new sector—renewable energy—that promises an enormous return on investment to those who can get there first (see Hirst 2020). For clean tech investors, the environmental benefits of solar constitute a wonderful marketing tool. As organic is to food, solar is to energy—a virtuous substitute that dispels fears and anxieties about who is doing what with solar and why.

These are the stakes of solar, and they are what make energy transition a political, not just a technical, field. There are and will be attempts to limit or slow down a transition on the part of those committed to fossil fuels. There are and will be other attempts to take political and economic advantage of energy transition. And there are and will be still others that recognize this moment of transition as one in which possibilities outside of the vicious practices of capital and the neoliberal state might both be awakened and sustained at the site of energy and infrastructures. Timothy Mitchell's (2011) influential account of "carbon democracy" has established that energy materials and infrastructures are important media of political organization and contestation. This is doubly so under conditions of environmental duress and energy transition.

The transition from oil to solar that is already underway, in conjunction with the imperatives of climate change, has reawakened attention to the consequences of energy extraction and transportation for in-line communities and the environment. The attempt to expand oil infrastructures across borders, through communities, and into Indigenous territories in Canada, the United States, and elsewhere on the globe has generated some of today's most powerful examples of active resistance against the presumptions of extractive capitalism and environment destitution (see Estes 2019). Infrastructures of renewable energy, too, have been sites of political formation and contestation (Barney 2019; Howe and Boyer 2019; Swyngedouw 2015). The same will undoubtedly be true of solar energy infrastructures, across a spectrum ranging from opposition to innovation: solar infrastructures will be media for preventing social, political and material change, and media for accomplishing it.

If these varied sites of contestation sound like they might generate an impasse, it is with good reason. “Impasse is a situation of radical indeterminacy where existing assumptions and material relations can no longer hold or sustain us,” the Petrocultures Research Group writes in *After Oil* (2016: 16). Interestingly, the uncertain terrain of energy transition overlays an institutional terrain in which established forms of political representation and legitimacy also appear to be exhausting themselves, leading in many parts of the world to the resurgence of anti-democratic populisms premised on nativism. Yet, as Simpson and Szeman argue in their essay in this issue, it is possible this compounding impasse also provides conditions for other forms of politics to emerge in tandem with an infrastructural transition whose implications are not yet fully mapped. Solarity insists on an understanding of energy as more than the fuel that powers the engine of society, but also as a force in the destitution and constitution of social and political forms.

The solarity we envision is committed to the core impulse guiding left politics, which is the struggle for equality and social justice against the rapacious force of extractive capitalism. The realities of environmental racism and the implication of energy extraction in ongoing colonial histories mean that any concept of solidarity worth the name must begin from the experiences of those whose bodies and relations have been made expendable through the brutality of extraction, and who stand to suffer most greatly from the accelerating climate and environmental effects of fossil fuels (Yusoff 2019). This means that solarity begins in solidarity with Black and Indigenous people in the Americas and elsewhere, with racialized and impoverished communities in the so-called Global South, with women, with care-workers, with those who have been disabled by their environments, and with the non-human others previously relegated to the exploitable domains of mere objecthood (Cross 2019b; Ray 2017; Wilson 2018; Whyte 2017). The first imperative of solidarity in relation to these will be to stand aside and accept their leadership in the struggle against the global fossil fuel regime, and in the development of radically alternative practices, relations, and infrastructures of solarity. This might include putting our (in *our* case: white, male, affluent) bodies and our accustomed ways of living on the line, as others have done for so long with theirs. As Nandita Badami argues in her provocative essay in this issue, we may need to turn from Eurocentric ideas about the sun and “enlightenment” to a solarity of endarkenment. The second imperative is to think and work together to develop political and economic forms that facilitate, nurture, and manage egalitarian solarities, as an energetic base for even more widespread social transformation. A solarity

animated by solidarity will require humility, patience, and courage, especially on the part of those for whom petrocapi-talism has delivered mostly comfort, convenience and impunity. This, and not just our fuel source, has to change. What we understand as solar-ity has been voiced by our colleague, Warren Cariou. His call for an “indigenized philosophy of energy” shaped in relation to an ethics of “kinship, respect, and responsibility” (2017: 18–19) speaks to how we imagine the solidarity of solar-ity.

The coming age of solar has the potential to redefine many of the limits of the present. Christophe Bonneuil and Jean-Baptiste Fressoz note that “the suburbanization and motorization of Western societies are certainly the most massive example of a technological and civilizational choice that is profoundly suboptimal and harmful” (2016: 113). Fossil fuels were key to the fracturing of social life over the course of the twentieth century, due to their role in making it possible to abstract experience from space; in the process, this form of energy made social subjects into private individuals, a shift at once structural and phenomenological, and an important development for the political project of neoliberalism, as both ideology and reality. Solar energy may well play an essential role in undoing the harmful “civilization choice” that has placed the planet into a climate crisis that it can only hope to adapt to and mitigate.

The new communities of experience made possible by solar have been imagined in multiple ways, from off-grid, individualized energy pods occupied by libertarians to solar anarchism shaped around a radical collectivism (animated, perhaps, by Peter Kropotkin’s conception of “mutual aid” (1902 [1972])), and from localized nodes of same-old, same-old capitalism to fully-fledged global communism, with solar playing the role of those technologies Karl Marx saw as important for true collective freedom. All these visions of post-solar societies forget what the philosophers Teré Vaden and Antti Salminen have pointed out in their work. “De-fossilized subjects do not see themselves independent from larger natural and social wholes,” they write, “up to the point that the term ‘subject’ may not apply to them, at least from a modern perspective” (2018: 46–47). If struggles against liberal capitalism and colonial extraction are successful in producing a real transition, a genuine shift to solar, they will re-constitute the subject of modernity in a fundamental way. As several of the essays included here suggest—particularly those by Joel Auerbach, Amanda Boetzkes, and Eva-Lynn Jagoe—we do not yet have the language through which to understand the solarities to come. The interventions collected here are an attempt to learn a new language for a community that will only start speaking it when fossil fuels are abandoned or the oil wells run dry.

Notes

Several of the authors included here took part in the event *Solarity: After Oil School II*, held in May 2019 at the Canadian Centre for Architecture in Montréal, Québec, which was organized by the Petrocultures Research Group with the support of the Social Sciences and Humanities Research Council of Canada. We are grateful to participants in this event for discussions that shaped these essays. We are also grateful to Kristi Kouchakji for editorial assistance in preparing this special issue.

- 1 The examples are legion, but see Mark Z. Jacobson and Mark A. Delucchi (2011). The Leap Manifesto (2015), a document intended to rally Canadians to the cause of energy transition, cites the work of Jacobson and Delucchi as its primary source of evidence for the possibility of solar to fuel the world, and to do so effortlessly.
- 2 The critical investigation of solar has benefited from the work of a number of the contributors to this issue, including Daniel Barber, Amanda Boetzkes, Jamie Cross, and Gökçe Gunel. See Barber 2016; Boetzkes 2017; Cross 2019a, 2019b; and Gunel 2019. See also Cross, Mulvaney, and Brown 2020; and Mulvaney 2018.
- 3 Speaking with respect to the specific import of Timothy Mitchell's *Carbon Democracy* (2011) to energy theory, the editors write: "we cannot fully account for the production and consumption of oil without reckoning with the strategic, political, economic and social forces implicated by, and implicated in, the transition from coal to oil" (Van Veelen 2019: 2). Mitchell offers a rich and influential account of the previous energy transition. An examination of solar demands that we look forward to the next transition with the same points in mind: the ranges of forces implicated by, and implicated in, the transition from oil to solar.
- 4 Dominic Boyer (2018: 182) largely affirms Scheer's views in "Revolutionary Infrastructure," pointing to Scheer's views as one of the potential "effective antidotes to the paralytic agents of carbon epistemics" and as a prototype for "revolutionary trajectories that are not predicated on the growth and motor ideologies of the fossil fuel era." Andreas Malm (2016: 374), however, remains unconvinced. "If Scheer is correct about the ramifications of a transition to the flow, it stands in antagonistic contradiction to the logic of global capital, for *the means of production would have to be shackled to communities formed around energy nuclei*. The formula that once brought steam to ascendancy would have to be inverted. Capital would need to carry the people to the power, rather than placing the power amongst the people as it has been doing for the past two centuries, and never with greater vigour than in the current stage of abstract space."
- 5 A report by the Global Gas and Oil Network (2019) indicates that over the next five years (2020–24), oil and gas companies are planning to invest \$1.4 trillion USD in new extraction projects. Eighty-five percent of this money will be spent by North American companies (primarily Canada and the US). This planned infrastructural spending has been upended by the coronavirus crisis, at least for the time being.

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