

Energy, Equity, and Social Struggle in the Transition to a Post-Petrol World

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Abstract: *Notions such as sustainability, green growth, and the post-carbon city have become increasingly popular ways of envisioning solutions to climate change and fossil fuel dependency. These multi-scalar reevaluations and critiques of industrial society's relationship to energy have produced important insights into the un-sustainability of current politico-economic relations. However, these ideas, such as sustainability, remain contested with multiple and competing claims as to what processes will produce a sustainable future. This paper surveys some of the key tensions between various critiques of the energy/society relationship, and highlights the importance of equity, labour and livelihood in relation to discussions of an alternative energy future. Furthermore, this paper explores whether a shift to 'alternative' energy requires an accompanying new mode of production and social relationship to capitalism.*

The relationships between energy and society are multifaceted and highly complex. Energy issues –be they intra/international conflicts, peak oil, or the viability of renewable energy– are central not only to geopolitics of empire and climate change, but also to the most banal reproduction of everyday life. International awareness of the challenges faced by climate change and fossil-fuel dependency has given impetus to a widespread reevaluation and critique of industrial society's relationship to energy. This paper surveys some of the key tensions between various critiques of the energy/society relationship, and highlights the importance of equity, labour, and livelihood in relation to discussions of

energy futures. Furthermore, this paper explores whether a shift to 'alternative' energy requires an accompanying new mode of production and social relationship to capitalism.

I would like to begin by echoing David Harvey's insight that every ecological project is a social project, and every social project is ecological (*Spaces of Hope* 235). Harvey views society and their environment(s) as mutually constitutive, continually in flux, and rarely stable. Out of this daily churning up of nature and culture comes the production of various socio-economic forms, such as the city, and processes like industrialization and urbanization. Such a dialectic-materialist viewpoint would enable us to see the world's ubiquitous city skylines as "technologically, economically, and philosophically the 'inverted mines' of the city's massive hinterland" (Bridge 45). Thus, the incredible pace of urbanization in recent years has been in tandem with increased strains on the allocation of resources such as oil, water, food, and other raw materials. To address the challenges faced by biophysical and social limits to growth of this kind, the concept of "sustainability" has gained increasing prevalence in urban planning, local community development initiatives, and at global climate summits. Efforts to overcome the metabolic rift between urban populations and their demands on external resources have propelled policy discussions and material practices into the task of capitalizing on the environmental efficiency gains inherent to compact cities. Examples include investment in local renewable energy production, urban agriculture, smart-energy grids, and public transit.

Sustainability: Semantics Struggles

With the challenges of climate change and declining oil supplies in mind, the notion of the post-carbon city has become a widely discussed topic. One thing is clear, there is no single transition process waiting to unfold. As James O'Conner notes, "there is a worldwide struggle to determine how sustainable development will be defined and used in the discourse on the wealth of nations" (238). Because this struggle is over the much larger idea of an appropriate or ideal relationship between humanity and nature, different moral, political, and economic perspectives greatly influence one's definition of sustainability. The influential Brundtland Report of 1987 defines sustainable development as development

that “meets the needs of current generations without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development 23). What remains vague and elusive is that which constitutes “needs”, as it is a concept culturally constituted and increasingly blurred with the realm of desire(s) manufactured by marketing and advertising. The ambiguity, flexibility, and adaptability of the term ‘sustainability’ have made it highly attractive to various businesses and institutions. Some argue that ‘sustainability’ has been co-opted by both corporations and governments as they practice “cosmetic environmentalism” (Robinson 374) while others worry that the attractiveness of sustainability as a slogan falsely suggests the possibility of a “conflict-free consensus on policies” that encourages the “sustaining of the unjust status quo” (Marcuse 104).

In light of the politics of climate-change, the semantic content of “sustainability” has arguably been rendered to the status of a slogan, which rationalizes the continuation of the infinite growth paradigm of global capitalism. The dominant discourse on the appropriate climate-change mitigation process has been aptly described by Matthew Paterson as “global governance for sustainable capitalism” in its insistence on technological innovation fostered first and foremost by the private sector in a competitive global economic marketplace (110). Reductions in GHG emissions in the post-Kyoto settlement have been narrowly confined by the mechanisms of market environmentalism, which “assumes that the best way to protect the environment is to price nature’s services, assign property rights, and trade those services within a global market” (Bumpus and Liverpool 132). Advocates of market environmentalism argue that commercialization, marketization, and privatization would lead to more rational and efficient resource management. These assumptions are tied to the *ecological modernization* discourse, whereby environmental and development policies are “premised on the notion that economic growth and environmental deterioration can be decoupled by pursuing greener growth rather than by slowing growth” (Eckersley 72). Green growth in this instance refers to economic growth that, as a result of technological innovation, is less energetically and materially intensive and requires less waste per unit of GDP (ibid 73). This concept of greener growth has proved fertile ground for the restless entrepreneur, as a multitude of tech-fixes and geo-

engineering schemes have been proposed as feasible solutions to the twin challenges of climate change and oil-dependency.

Counter-Narratives: Questioning Growth

Other perspectives have sought to destabilize the prevailing discussion on 'green growth', 'sustainable capitalism', and 'market environmentalism' by locating the problems of climate change and environmental destruction as part and parcel of the structure of global capitalism. James O'Conner posits that there are internal contradictions of capitalism that drive it to crisis and environmental destruction. The first contradiction, called the 'demand crisis' or 'overproduction crisis', is the practice of increasing labour productivity and putting downward pressure on wages in order to defend profits, which has the side-effect of reducing final demand (O'Conner 240). The second contradiction is capitalism's externalization of the costs of social and environmental degradation; "neglecting work conditions raises the health bill, degrading soils decreases the productivity of land, neglecting decaying urban infrastructures increases congestion and policing costs" (ibid 240). 'Sustainability' for green-minded entrepreneurs becomes a design problem where nature is remade in ways compatible with sustainable profitability; "enter a world in which capital does not merely appropriate nature, then turn it into commodities that function as elements of constant and variable capital, but rather a world in which capital remakes nature and its products biologically and physically (and politically and ideologically) in its own image" (ibid 238). O'Conner references genetically modified crops and monoculture forests as the most obvious examples of the capitalist remaking of nature. Such strategies are not about the preservation of nature, but rather, strive to preserve a particular mode of production and social order.

Advocates of a 'steady-state economy' build on this critique of capitalism's internal contradictions and expansionary drive. Rather than propose industrial methods to remake nature in the image of capital, reformists like Herman Daly, Tim Jackson, and Peter Victor propose policies to remake capital in ways consistent with the sustainability of nature. Contrary to the Brundtland Report's call for a five-to-ten-fold increase in global economic

product for 'sustainable development' to be achieved (Robinson 373), advocates of a steady-state economy challenge the very premise of continued economic growth (Daly 3). As Harvey argues, "scapegoating natural limits rather than the internal contradictions of capitalism is a well-tried tactic ... the rhetoric of growth that respects natural limits diverts attention from entrenched class and imperialist privilege in its hesitancy to raise living standards worldwide" ("Justice" 381). The rhetoric of sustainable growth thus avoids the taboo for mainstream economists and politicians, that "without growth, the only way to cure poverty is by sharing" (Daly 3).

Although the Brundtland Report recognizes that environmental and development issues are tightly intertwined, that "ecological sustainability cannot be achieved if the problem of poverty is not successfully addressed around the world" (Robinson 372), can poverty reduction be left to the development (growth) of world industrial activity? The Center for a Steady State Economy estimates that under existing politico-economic conditions, a \$1 reduction in poverty requires a \$166 increase in global production and consumption (O'Neil et al. 30). Accordingly, extremes of privilege are thus conveniently maintained within the ecological modernization rubric through the unspoken assumption that "a rising tide lifts all boats." Perhaps it is impossible to meet environmental targets if 90 percent of the world's population has access to only 10 percent of its resources, for the conditions of poverty and resource scarcity place strains on natural and social environment(s) to the point of deforestation, erosion, mass migration, and even war (Whitelegg 102). Without discussion and action regarding the deep structural issues having to do with power, control, and unequal access to resources, the concept of 'sustainable development' discards its most transformative potentials.

Between the competing concepts of 'sustainable capitalism', steady-state economics and other alternatives lay differences in how the problem, and thus the solution, is socially produced. As Harvey notes, "how we construct the problem discursively also has its crucial moment in the sun as constituting the imaginative moment through which alternative visions can be constructed" (*Spaces of Hope* 218). Will technological innovations and more "sustainable" forms of growth be privileged as the solution? Or is there a need for a wider social transformation of capitalist relations with equity concerns at the forefront? For

example, responses from geographers, urban planners, architects, and policy makers to Hurricane Katrina's devastation of New Orleans reveal multiple tensions in the context of this debate. One response from Joan Busquets, architect and expert in urban development, situates the origins of the disaster in an "exorbitant faith in the power of modern hydrological infrastructure to keep at bay the implacable givens of a deltaic landscape" (Payne 78). Busquets called for a regional sustainability plan to intervene in the mismatch between the ecological surroundings and the technological infrastructure. This insistence on sustainability as a technical issue, argues Andrew Payne, neglects the "complex interlacing of natural and cultural history that the Katrina event implies, with the result that any architectural response to the racialized diaspora that has occurred in the aftermath of that event is effectively effaced" (ibid 78). Furthermore, Payne argues that the "priority of the natural system over its social and political correlatives can have the effect of precipitously foreclosing the question of how these various regimes interact with one another" (ibid 78). If we are to abstain from privileging certain perspectives, I find it apt to echo John Robinson's statement that "sustainability is itself the emergent property of a conversation about what kind of world we collectively want to live in now and in the future" (382). With this recognition that 'sustainability' is more a political act than a scientific concept, I would like to turn towards the issue of energy.

Energy, Labour, and Social Movements

In light of the debates surrounding sustainability, the energy question looms large. Given global capitalism's overwhelming reliance on cheap fossil fuels, it is clear that the use of this finite energy resource will soon be transformed at a far-reaching scale. But rather than conceptualize this transition as technological, whereby renewable energy replaces fossil fuels in the engines of global capitalist growth, I would like to emphasize the importance of understanding social relationships to energy. This perspective builds on the insights of Jean Robert, who argues that the discourse of 'energy' too heavily relies on the ideology of efficiency, which purports 'energy' to be a natural and universal metric of "nature's ability to do work" (138). Discourse in this sense is the "moment of communicative persuasion of [a] discussion between persons regarding certain lines of

action and belief which internalizes itself as a form of power ... a mode of social relating, a material practice" (Harvey "Justice" 83). Discursively, Robert states that the popular usage of the term 'energy' "functions as a fog that blurs the distinction between nature and machines, living organisms and persons, mechanical work and human action while feeding fantasies that organize society and reshape individuals into efficient and productive processes" (Roberts 138). While a new class of workers seek to optimize the 'energy efficiency' of the current mode of production, Roberts views our current energy policies as "blind to the truth that neither cars nor cities can act politically" (138).

To arrive at a more useful (political) category, it may be necessary to conceive of 'energy' not as an entity or resource unto itself, but as a "social relation enmeshed in dense networks of power and socio-ecological change" (Huber 106). Within these networks, 'energy' occupies incalculable and often contradictory functions that exist simultaneously. In the context of the global marketplace, energy is a highly profitable commodity and essential raw material in producing and circulating goods. In the daily social reproduction of life, energy is vital for subsistence (Abramsky 10). It is worth elaborating on the tensions between these two particular functions of 'energy' in an historical perspective.

Fossil fuels have played a critical role in the spread of capitalist social relations in history since the Industrial Revolution. Fossil fuels, particularly oil, are an extremely concentrated and a geographically mobile source of energy. These flexible properties forever changed capitalism's productive forces, and its means of circulating commodities. Huber notes that prior to the industrial revolution, roughly 85 percent of all mechanical energy came from animal and human muscle power, the rest coming from wind and water (107). The industrial revolution freed production from numerous physical (land/bodies) and temporal constraints. The intensity with which fossil fuels could be used did not change through the progression of the day, or the passing of the seasons. Steamboats, railcars and later, automobiles circumvented the barriers to markets that long-distance travel represented, thereby increasing the sphere of commodity relations to a world scale.

For the first time ever, the core energetic base of the production process was no longer human power, but rather an inanimate resource Gavin Bridge termed "geological

subsidies to the present day, a transfer of geological space and time that has underpinned the compression of time and space in modernity” (48). Most importantly for this discussion, the social relationship to capitalism was transformed, as workers became more and more like a “living appendage of the machine” (Huber 109). The ‘machine’ adds a new vulnerability to the worker. To defend profits, capitalists generally employ the tactics of “increasing labor productivity, speeding up work, cutting wages, and turning to other time-honored ways of getting more production from fewer workers” (O’Conner 240). As energy-intensive machines increasingly began to substitute and enhance human labour, tendencies towards working-class self-organization and resistance were disarmed. Huber states, “the whole notion of workers divorced from the means of production began to make social sense only in the context where the worker is no longer a prime physical force of production” (109). Furthermore, the cheap consumer goods enabled by cheap oil prices and mechanized labor lowered the costs of reproducing the workforce, thereby buffering demands for increased wages. Thus, inexpensive energy, along with the expansion of the credit market, continues to maintain social peace in countries like the United States, where the minimum wage has not risen in inflation-adjusted dollars since 1974 (Knox and McCarthy 330).

With these social relations in mind, a shift to alternative energy has widespread implications for global class struggle. Looking at the history of past energy shifts, it is clear that social movements have been highly influential in affecting energy policies. Bruce Pobobnik argues that labour militancy in coalmines from the 1880s onwards accelerated the transition to emerging oil industries as the security of access to coal was continually disrupted (74). During the 1960s and early 1970s, strikes by oil workers, nationalization of oil reserves abroad, and the geopolitical instability of the 1973 oil embargo led the United States to drastically increase funding for renewables and initiated many command and control regulations (ibid 75). More recently, Harvey argues that the British Government’s success in meeting emission reduction targets set at the 1994 Rio Conference in the run-up to Kyoto was indebted to the “Conservative Party’s determination to crush the power of labor anchored in the Miners’ Union by freeing the British energy industry from its dependency on coal” (*Spaces of Hope* 217). These interactions between

class struggle and energy geographies reveal important dimensions of the emerging “alternative energy” economy. Expansion of the renewables is not without conflict. Mega-dams have a long and continuing history of struggles for social justice (Leslie 2005). Farmers in Oaxaca, Mexico are currently fighting the enclosure of the ‘wind commons’ as private energy companies seek to gain control over strategic sites for renewable energy production (Oceransky 506). In 2006, over a dozen villagers were killed by police during protests in the Guangdong province of China over the lack of compensation for land lost to a wind power plant (Reuters 524). The continued expansion of the industrial agro-fuel economy has been tied to the displacement of indigenous peoples, loss of biodiversity, and human rights abuses in places like Brazil’s sugar cane ethanol industry (Collazos 2010). Under existing politico-economic condition, the emerging boom in alternative energy in these cases can be seen as new round of ‘accumulation by dispossession’.

To promote the concept of a ‘just transition’, groups such as the *Energy Justice Network* and *Rising Tide North America* have advocated the need for decentralized, non-commercial, publicly owned, energy systems. Community autonomy is a central component in order to avoid the commodification and monopolization of energy. An industry maintains a radical monopoly, argues Ivan Illich, not only when “it produces scarce products, or by driving competing industries off the market”, but ultimately when it has acquired the ability to “create and shape the need which it alone can satisfy” (14). Such a vision of energy autonomy stands in opposition to many of the accumulation strategies based on private control over the energetic means of production and cheap fossil fuels that serve as its subsidy. That task, as Illich states, is to envision the preservation of the world for all peoples in a just, democratic way, rather than to merely ask, “how reservations necessary for the survival of people can be established on an earth that has been reshaped for the sake of industrial outputs” (15).

When considering whether ‘sustainable growth’ and ‘alternative energy’ will offer new possibilities for emancipation from a crisis-prone system, it is crucial to keep in mind the possibility that renewable energy may only perpetuate, perhaps even strengthen, forms of hierarchy and domination in the sunbelts and wind-corridors of the world. There is no *a priori* reason why renewable energy should be based on progressive social and

environmental terms. Thinking beyond the renewable/nonrenewable binary, “all industrial energy systems deploy space, capital, and technology to construct their geographies of power and inscribe their technological order as a mode of organization of social, economic, and political relations” (Ghosn 7). It is important not to overlook the deep structural continuities between conventional and alternative energy in regards to issues of power, control, and unequal access to resources. The attractiveness of ‘renewable energy’ as a panacea for social and environmental ills, independent of a wider social transformation of capitalism, risks foreclosing serious political questions about alternative socio-environmental trajectories.

George Rahi is an international student from the United States. He enjoys Geography because it allows him to incorporate experiences from cities, the outdoors and travels abroad, into an active and exciting learning experience. He is particularly interested in the politics of public space, planning for sustainable cities, and alter-globalization strategies.

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