

Landscapes of Energy

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Energy as a Spatial Project

Energy needs space. It exploits space as a resource, a site of production, a transportation channel, an environment for consumption, and a place for capital accumulation. Whether oil pipelines, dams, solar panels, nuclear plants, or wind parks, 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. Popular taxonomies of energy have tended, however, to blur distinctions between different modes and instead emphasize a renewable/nonrenewable binary that dismisses continuities between the conventional and its alternatives in an anticipation of a future beyond oil. Although essential to the production of energy, space has played a role in the myth of ecologically benign economic growth, because the creation of value in energy regimes has long internalized benefits and accrued them to the urban center while “externalizing” costs –sliding them to the periphery, out of sight.

Amid the rush to abandon oil and endorse alternatives, we propose to reflect on the spatial conditions of oil and seek disciplinary linkages to position design’s agency amid contemporary concerns for energy infrastructure, ecology, and globalization. Volume 2 of *New Geographies* addresses the relations of space and energy across scales, technologies, and actors. The issue’s premise is to historicize the dialectical relation between energy and society and identify its material, political, and representational geographies. As Ivan Illich and Jean Robert have articulated in their decades-long collaboration, “energy” belongs to a class of words that share the characteristics of being strong in connotation and weak in denotation. Originating in physics, the concept of energy has been appropriated by economics as the ability “to make nature do work” and the subsequent

43 production of exchangeable values. Gavin Bridge reasserts that, at the intersection of the human and the nonhuman, a resource necessarily “becomes” rather than “is,” as it requires a large technical system of exploration, production, distribution, and financial exchange. Along with material geographies, representations are foundational to the development of the relation of space and energy. Historicizing the relation of energy and landscape, John May articulates that the “becoming-energetic of landscape” is tied as well to parallel developments instruments of measurement and representation technologies in the twentieth century.

The multiscalar process of production of oil is suggested in the structure of this volume. The quest for the high-calorie liquid fuel has expanded to the ends and depths of the earth, developing into a global network of actors and governance structures.

33 In her historical and geographical overview, Carola Hein traces some milestones of the industry. Subsequent essays follow the geographies of oil from extraction sites along transport routes to urban centers. Taking into account the millions of oil wells that puncture the earth’s surface, Bridge constructs a sectional geography of extractive geographies, their large-scale terraforming, and their economic valuation. The development of such geological territories have shaped large regions of the earth, such as the Arctic Circle, Amazonia, and the Sahara, from the initial conquering of “wilderness” to the subsequent reconfiguration of trade flows, property rights, ecological environments, and regional transport links across the territory. Extensive in their connectivity, these spatial networks are unevenly visible in their operations. While the Center for Land Use Interpretation

75 traces geographies along the Trans-Alaska Pipeline, Andrew
67 Barry, through his research on the Baku-Tbilisi-Ceyhan Pipeline, states that much oil company effort, reflected in long reports and glossy brochures, is expended to render most of its operations invisible and outside of political controversy. Thus, in spite of the predominance of the large-scale in the energy industry, its production in the distant and the underground has contributed to keeping it out of sight and in further severing the process of urbanization from that of transformation of nature that supports it. Addressing the water and energy infrastructures through the case study of Houston, Martin Melosi materializes the energy metropolis as a landscape of costs, whereby the city and its relation to other natural resources, such as water, are significantly influenced by the oil industry.

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To the extent that energy is produced through socio-ecological processes, Landscapes of Energy pays attention to the political processes through which particular socio-environmental systems, such as the Sahara, are imagined and remade. Throughout the twentieth century, the oil and gas fields of North Africa have supplied European markets. Reflecting on the Algerian condition, Abdellatif Benachenhou, as interviewed by El Hadi Jazairy, notes the repercussions on the space of the nation of the region’s energy demands. Plans for large solar fields are under way to capitalize on the endless Saharan sun, echoing earlier colonial imaginaries, such as Atlantropa, conceived by German architect and engineer Herman Sörgel in the 1920s. That project’s 35-kilometer-long hydroelectric dam across

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the Strait of Gibraltar envisioned the Mediterranean South as a huge power plant that would ensure energy and economic security for an enlarged Europe, as a counterweight to rising American and Asian powers. Challenging the violence of oil blocks, Santiago del Hierro and Gary Leggett map concessions in Amazonia and present practices of representation as both central to and necessary for nature's material transformation. They visualize the sectional landscape of Amazonia and reassert the geo-graphic, the writing of the earth, as a possible tool to render visible the territorialities of oil. Along with constructing geography as its object, discourses of energy have permeated our conceptions of time and visions of alternative futures. Kazys Varnelis and Robert Sumrell elaborate how the oil industry, through the strategy of scenario planning, reinforced its hold over imaginaries and its presence in a future beyond fossil fuels.

The development of green energies is increasingly being heralded as the guarantor of growth, independence, and an intrinsically more just world. The euphoric tone of contemporary energy studies is noteworthy for its historical consistency with a nearly unbroken attitude of wonderment, extending from the advent of steam power through the spread of fossil fuels, punctuated only by the occasional "crisis." In the post-war period, such narratives of progress favored oil as a mode of energy that could replace coal and advance democracy. Design responded to such promises and built the territory of fuel. In times of prosperity, it nurtured oil's desire for energy-intensive urban environments and petrodollar developments. In moments of crisis, it sustained development by curtailing consumption and rendering it more efficient. Now design faces a new challenge with respect to the geographies of oil. Whether to meet geographical shifts in production and consumption or to embrace other modes of energy, infrastructures of the age of oil are being abandoned, demolished, and adapted to the reconfiguration of the energy market. Historicizing dams as large-scale engineering projects, Maria Kaika traces a conceptual framework for infrastructure's cycles of creative destruction from an initial reluctant accommodation to the eventual abandonment of emancipatory promises and the explosion of material artifacts. Projecting the future of post-oil infrastructures, Geoff Manaugh adapts abandoned oil rigs as possible ecological sites, and Geoffrey Thün and Kathy Velikov, in their visions of a postcarbon highway, reassert the megaregion as the appropriate scale to think of the relation of energy, economy, and transport.

Echoing the promises of equality and universal accessibility associated with oil in the aftermath of World War II, alternative energy futures often present themselves as radically breaking away from a conventional system of production. The timeline by Pierre Bélanger serves in this respect to chart the historical overlaps in the development of fossil fuels and other modes of energy, and the convergence of ecology, economy, and energy from the fifteenth to the twenty-first century. Accelerated by the 1970s crisis, the development of energy technologies has benefited from the increase in the price of oil and has rarely reconsidered the exponentially growing energy demands of

133 our contemporary consumer society. As Jean Robert suggests
in his dialogue with Illich, earlier characterizations of energy
are perpetuated as long as nature is interpreted as a domain
governed by the assumption of scarcity and human beings
are defined as nature's ever needy clients. Reflecting on the
increased interest in energy alternatives over the last decades,
139 Mirko Zardini cautions that the transition to a renewable energy
regime, if unaccompanied by reflection on the "needs" upon
which the current regime thrives, may usher in few social ben-
efits and little if any political and economic transformation, and
merely pay lip service to the sustainability discourse in archi-
tecture: "Zero-energy building would fit neatly between coffee
without caffeine and war without warfare."

As in the 1970s energy crisis, the triad of energy, economy,
and environment is at the forefront of design concerns. In the
name of conservation, we build efficient building skins, low-
carbon systems, islands of self-sufficiency, and positive-energy
machines. On the one hand, Masdar, Dongtan, and other zero-
energy islands have perpetuated the myth of "self-sufficient"
entities, at best concealing their footprints. On the other, entire
regions are conceptualized to operate as large-scale power
plants; from the machine in the garden, energy technologies
aspire to recast the totality of the space within a productive
urbanism. Replete with national aspirations ("our corn fields")
and regional ideologies ("our North Sea") some alternative
developments recall visions of Atlantropa and require a careful
examination of the role of the spatial disciplines in the produc-
tion of such conversion systems and the potential perpetuation
of uneven geographies of power in the sunbelts, fields, and
wind corridors of the world.

The deployment of energy's production and consumption
geographies makes the most important question not "What is
the absolute biophysical limit to energy?" but rather, "What are
the social, political, and spatial implications of the next mode
of energy, and how can design practices partake in shaping
a more just urbanization?" Making visible the infrastructure,
Landscapes of Energy is an invitation to articulate a geographic
future of energy through the designer's tools and strategies.



Geology expert displays two varieties of sand from an oil drilling district. The hand on the left holds dry, oil-less sand, while the one on the right holds sand rich and dark with oil. Office of War Information Photograph Collection, 1944, Library of Congress.

