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A climate policy revolution: what the science of complexity reveals about saving our planet

by Roland Kupers. Cambridge, MA: Harvard University Press, 2020. $29.95/£23.95/€27.00 (hardback). ISBN 9780674972124.

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BOOK REVIEW

A climate policy revolution: what the science of complexity reveals about saving our planet by Roland Kupers. Cambridge, MA: Harvard University Press, 2020. $29.95/£23.95/€27.00 (hardback). ISBN 9780674972124.

Transformational change of human-made systems is the only way forward if we are to confront the climate crisis head on. To date, economists, governments, industry, and intergovernmental organizations have used approaches that are largely top-down (for example, ordering coal plant closures) or market-based (such as energy subsides or carbon pricing). However, we can no longer rely solely on such incremental approaches to curb warming to within 1.5 degrees. There is no gradual, evolutionary pathway left to curb emissions in time. What is required is nothing short of what author Roland Kupers terms a climate policy revolution. Kupers' book explains why our best hope lies in taking a complexity approach that shifts the nature of the energy system itself so that new, more desirable, patterns emerge.

Going beyond *the what* of climate change, Kupers' book addresses *the how* by exploring climate policy through a complexity science lens; that is, by studying the braided and interconnected systems of climate change. He argues that the complexity framing expands existing policy tools and enables us to address the path dependencies and social norms underpinning climate issues. Kupers shows how this lens can uncover subtleties between incremental changes in parts of the global energy system as well as connections between behavioral patterns and the agents, and networks, across the entire system. To transcend incrementalism, Kupers advocates for 'purposefully disruptive' policy (p.48), which is designed to provide both enabling infrastructure (such as public support for income equality, social norms change, and green research and development) and supporting networks (such as cross-sector influencing nodes and knowledge creation) for agents in the system to organize around. This in turn will enable collective behavioral shifts that revolutionize the societal system itself.

In short, rather than focusing on introducing more green technologies, which essentially just amounts to tweaking the status quo, Kupers argues that the transformative solutions needed are only discoverable at the interconnection of systems (societal, technical, and economic) and found through concerted experimentation and innovation. He shows that such solutions are not environmental, or at least primarily environmental, but require eco-structure redesign (p.43). This is policy shaped by purposeful reflection on firstly, what new institutions will act as 'eco-centric structures', generating new emergent consumer norms and behaviors; and, secondly, what possible mechanisms exist (or can be created) to directly change consumer behavior. The book addresses questions important

to policymakers, scholars, and changemakers alike, such as: how does nonlinear (or exponential) change that sparks societal systems revolution happen? What does system-level change look like, and what are the tools and practical approaches to make it happen?

In much the same way as epidemiologists tackle containing an epidemic, Kupers suggests that a network-based (or systemic) approach can be used to spread or catalyze the adoption of renewable technologies, plant-based diets, and other planet-friendly actions. He explains that network literacy – that is, an understanding of both the underlying structure of networks, such as how many and what kind of people interact and where high-potential nodes exist, and how context-specific norms favorable to the rate, form, and spread of adoption – holds great promise for effective climate policy.

Kupers also reminds us that a climate-friendly future cannot happen under today's social norms. Because the current global economic system is locked into path dependencies based on a societal addiction to overconsumption, Kupers warns that policy relying on the evolution of current market forces to create change, rather than breaking those norms keeping the system in place, are doomed to produce only gradual change or guide policy in the wrong direction.

Giving up cars, coal, or meat overnight would upend industries and entire ways of life. To help policymakers rise to these challenges and seemingly impossible tradeoffs, *A Climate Policy Revolution* outlines a policy approach characterized not just by understanding and balancing the relationship between top-down government action and bottom-up market dynamics, but fundamentally reconsidering the place of government in fostering innovation, and by extension, revolution. He argues government support is needed to enable change pathways, specifically to support accelerating the learning-by-doing phase of solutions facilitating both societal and technological change. Beyond energy subsidies or credits, Kupers encourages policymakers to think of such support as learning curve investments to scale up climate-friendly technologies and drive changes in social norms, with spillovers into other areas. Using practical examples, from solar panels in Germany to the shift from coal to gas in the US, Kupers demonstrates how social norms can be harnessed as contagion mechanisms (for example by making solar panel adoption more contagious, like a 'good pandemic') for systemic change by investing in a model that captures apparent quirks in human behavior. Small, localized, behavior tweaks can collectively lead to exponential change.

In sum, Roland Kupers's book is an important contribution to understanding the limitations of current top-down and market-based approaches. It shows reveals how the different and more precise complexity framing can unearth climate policy measures and interventions for rapid, systemic change. He shows that by advancing the knowledge, learning, and adaptive capacity of networks, as well as employing a shared language of change based on complexity and network literacy, we can harness the full capacity of social systems to create the change required to address climate change. He gives academics, policymakers, economists, and climate governance specialists alike an additional tool with which to spark the climate revolution we desperately need. In doing so,

Kupers injects a healthy dose of optimism into the debate, arguing that we can indeed develop the skills, thinking, and vision, to realize an interconnected, eco-centric world.

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