BOOK REVIEWS

America's Energy Gamble: People, Economy, and Planet. by Shanti Gamper-Rabindran. (Cambridge University Press, 2022). 526 pages, ISBN: 978-1-00-901801-2 paperback.

Shanti Gamper-Rabindran frames "America's Energy Gamble" in the opening pages as "blatant moves to help the oil and gas industry [that] will…entrench expanded extraction and deregulation for generations to come. The implications…are only exacerbated by the urgency with which the United States needs to transition away from fossil fuels." (p3) Irrespective of the validity of the conclusion from the predicate, the reader who agrees with the statement and perspective it takes is likely to agree with most or much of what follows. A reader seeking a deeper explanation of tradeoffs in energy policy or a broader perspective is likely to be disappointed.

The book focuses, at times quite shrilly, on domestic energy proposals and policies of the Trump Administration. In this sense a more descriptive title would have been "Trump's Energy Gamble." U.S. policy shifted sharply with the inauguration of Joe Biden, questioning the degree to which previous policies entrenched. Federal policy may well shift again with future executive changes. It is hardly surprising that the United States is a leading oil and gas producer—it has been for decades. It had also been the world's leading natural gas producer for a number of years before Donald Trump entered politics, and during his presidency broke a close race with Saudi Arabia and Russia to emerge as the top petroleum and liquids producer as well.

The book focuses on a characterized choice between oil and gas and green renewables, almost entirely avoiding issues around coal, nuclear, and hydropower. Its perspective on policy is uncomplicated treating every proposal or declaration equally regardless of how and where it started. It takes an outsider's view—Gamper-Rabindran seems to have no particular insight into the Trump Administration or federal policymaking.[1] These three characteristics make the book a very detailed repudiation of oil and gas boosterism of the Trump years but constrain insight and applicability beyond that historical period. The most descriptive possible title might be "Why Trump Oil and Gas Policies Were Misguided."

Rather than engaging with deeper issues or providing original analysis, the book spends 500+ pages castigating almost everything and anything the Trump Administration did or tried to do in the domestic oil and gas space. But there is no exploration of motives or objectives from the Administration's side, which contributes to the failure to yield policy insight. Approached differently, careful examination of the policies and proposals of the Trump years could be an important contribution to debate about energy policy, but this volume lacks insight into deeper motivations and falls short as a result.

Presented in five parts, the narrative moves from a description of "America's Energy" to background on federal and federally-regulated lands and minerals, then a section dedicated to federal waters, a fourth part on regulation and regulatory processes, and a final section addressing global climate challenges.

Part I has two chapters that establish baseline facts about energy production and consumption. The first examines oil and gas, tracing the policy arc back through three administrations to illustrate the roots of oil and gas preference while paying lip service to the massive technological pivot to unconventional resources. The chapter then hopscotches through the Trump years, from the "shale bust" that predated Trump's candidacy to the pandemic aid packages that helped the oil and gas industry in the closing months. A particularly weak discussion relates to mineral rights, which have little bearing on current policy. Rather than even a passing mention of the economic reasons

1. This reviewer was detailed to the White House Council of Economic Advisers in 2017-18 and as a result observed in close detail many of the issues discussed throughout the book.

for allowing minerals and surface to be owned separately, mineral severance is presumed to reflect political bias favoring oil and gas.

The subsequent chapter introduces renewable electricity generation but is weakened by a shallow and peripatetic survey of the area. Too much ground is covered and the reader suffers the result. State renewable policies are followed by discussion of relief for coal-dependent communities, which are then followed by discussion of community-owned solar projects. The economics of renewables are given broad and inadequately thin treatment. While we all applaud positive supply shocks that increase economic welfare, there is a striking contrast between the emphasis on external costs of oil and gas without a matching perspective on systemic issues arising with greater renewables penetration. More problematically, the broad claims about lower electricity prices and savings from renewables are qualified with "can," "could, and "might," and hard references for these claims are not presented clearly to the reader. Closer attention to existing empirical evidence would help the case and curtail the speculative tone.

The second part addresses "America's Lands." The first chapter takes up issues of public and private lands, but immediately stumbles with a confusion and conflation of public and federal lands (omitting state and local lands), and also of surface and minerals. The following chapter addresses issues of Native American lands without recognizing that some sovereign tribes support oil and gas production. Regardless of differences in how tribes view extraction, the aegis of Native American rights does not extend to issues of overall pipeline permitting and export approval across the country. Gamper-Rabindran forces broader permitting issues into the contrived Native American policy lens, which is confusing and unnecessary. Furthermore, there are some substantive oversights that reflect a shallow appreciation for the industry or policy or both. In discussing pipelines, the distinction is made between transmission lines, which carry products to markets, and distribution lines, which distribute natural gas to final consumers. No mention at all is made of gathering lines, which, along with distribution lines, are an important concern for the methane rule. These and similar oversights render the treatment wooden and mechanistic rather than deep and nuanced.

The third part tackles "America's Seas," meaning the use of the outer continental shelf for oil and gas production. Although the title lends a focused definition, the two chapters here suffer from the butterfly chasing seen elsewhere in the volume. The first considers expanding offshore drilling but confusingly conflates onshore development in the Alaska coastal plain to offshore development. The intricate issues of state and federal cooperation on the North Slope are separable from offshore or "sea" issues. When the discussion does tackle federal offshore issues, the tradeoff that is presented is drilling versus not drilling rather than an alternative use such as offshore wind or commercial fishing. Given the alternative of renewable electricity generation elsewhere in the book, some acknowledgment of this tradeoff would have been welcome and interesting. The sixth chapter does provide a detailed documentation of state efforts to encourage or deter federal efforts to expand offshore oil and gas production that might prove useful to a researcher examining issues of energy federalism.

The seventh chapter—the most focused and best of the entire volume—explores issues of oil spill risk from expanded offshore drilling. The focus is on proposals to weaken more stringent offshore regulations that were imposed after the BP oil spill in 2010. The narrative unambiguously endorses the more stringent standards in both scope and scale.

The fourth part of the book nominally addresses federal regulatory issues. This part may be the biggest miss of the volume. Gamper-Rabindran breaks out three chapters on science, economics, and law but the entire part lacks focus and connection to the theme of the gamble, is repetitive, and strays off into tangential topics. The economics chapter is welcome for this audience, but the overall impression is of trying to force critiques into a contrived outline. There is a stunning amount of redundancy—the Administrative Procedure Act is introduced three different times—and the organization along these three axes of science, economics, and law ultimately fails to deliver a coherent and compelling narrative. Explaining individual policy submissions along each of the three axes would

have been much easier for the reader to digest. Permitting issues from the second part would be more coherently discussed in the context of federal regulation rather than Native American sovereignty.

The final part presents a chapter on global climate and adds a concluding chapter. The climate chapter could appear earlier, as it presents a coherent motivating thread for the entire treatment of oil and gas. The coverage is shallow, as exemplified by its silence on the issues of whether the Paris Agreement was a treaty that should have been subject to Congressional approval rather than just executive action. That viewpoint dominated contemporaneous debate about the withdrawal in 2017; even if there is disagreement about the legal validity, it at least deserves a mention.

Other omissions are noticeable, as events of 2022 remind the reader. There is no discussion of international energy policy, national security, or geopolitical positioning. There is no mention of the intersection between foreign and energy policy. One example that would be interesting is the forward-leaning posture that Trump officials took with Germany and other EU member states about the strategic vulnerability of relying on Russian natural gas delivered via the Nord Stream 2 pipeline. That position continued long-standing U.S. concerns about European energy geopolitics, but added a new commercial interest created by new liquefied natural gas export capacity. The renewed salience of affordability and the role of energy prices in driving broad-based inflation are likewise not considered. The narrow perspective is a serious shortcoming—500 pages is plenty of room to at least pay lip service to the trade-offs policymakers consider. The political compromise of the Inflation Reduction Act that endorsed at least short-term oil and gas development offers credence to this view.

A complete discussion of America's energy policy would take some of these other issues into account. In that context, the premise of the book is narrower than advertised and disappoints as a result. In some ways, choosing reliance on proven sources of energy seems like less of a gamble than launching an immediate and comprehensive switch in energy usage, even if that means accepting some of the costs of climate change. But that tradeoff could be discussed more directly and more completely. Four years is surprisingly short, and, given the sharp redirection of energy policy in the past two years, it is not clear what the permanent impact of policies and proposals described in this book will be. That sort of objective consideration is missing.

This book is heavy on footnoted references. It lacks a consolidated reference list, but an interested reader will have minimal trouble finding cited work. It is common for a sentence to include multiple claims but the citation supports only one of them. While economics research is cited throughout the sections, a greater share of references points to press releases by environmental organizations, popular press articles, and—running a slow third—government publications. Even the government publications are typically second-hand analyses rather than referring back to original government actions. Reliance on secondary sources rather than primary documents or discussions with involved principals limits the durability of the contribution. Overall, this is a rare miss by Cambridge University Press, which typically emphasizes academic rigor over policy and political advocacy. Those who want to debate and learn from the choices of 2017-2021 will have to wait for a future analysis.

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Handbook on Electricity Markets edited by Jean-Michel Glachant, Paul Joskow, and Michael G. Pollitt. (Edward Elgar Publishing, 2021), 672 pages, Print ISBN 978-1-78897-994-8, Online ISBN 978-1-78897-995-5

In the *Handbook on Electricity Markets*, editors Jean-Michel Glachant, Paul Joskow, and Michael G. Pollitt have a assembled a who's who cast of characters to cover a wide range of topics related to electricity markets. From traditional vertically-integrated market systems, to the wave of

restructuring that has taken place over the past 30 years, to where electricity markets are headed and the challenges (and opportunities) that present themselves, this book has it covered.

The *Handbook* will be a valuable text, rightly taking its place on the bookshelves and desks of experts in the field, while also useful to those outside the field looking to better understand electricity markets and their pressing issues going forward. While it is a collection of individual papers, the editors do an excellent job at weaving them together into a cohesive narrative, resulting in a well-organized book. At 672 pages, this organization proves essential to make the book easily digestible.

The *Handbook* is divided into two parts, with the dividing line being roughly the present. The first part starts with the evolution from traditional monopolies to partial competition in electricity markets ("restructuring"), principles of these restructured electricity markets, and case studies of individual regions. This last contribution will prove a valuable resource for those simply wanting to understand the nuances of the UK electricity market, as compared to Australia's, or Texas's, for example.

In the second part, the *Handbook* takes us to where electricity markets are headed in terms of the issues electricity markets are grappling with as we move forward. They face decarbonization and energy transition more broadly—from the changing way in which electricity will be produced and used, to the interaction between climate policy and electricity markets. They consider whether current electricity markets are ready for the task ahead with increasing shares of intermittent renewable generation. This second part of the book also covers important issues related to electricity in the developing world, critically important due to their scope and magnitude.

In what follows, I offer a brief synopsis of the *Handbook's* contents, followed by a discussion of its strengths and weaknesses.

Summary

The book starts with a summary by the editors. This useful chapter gives the reader a strong sense of its contents, allowing them to pick and choose their topics from the 672 page tome. Chapter 2 may as well have been the introduction. Richard Schmalensee provides a thorough and clear overview of the process of restructuring electricity markets from traditional vertically-integrated monopolies into the mix of competitive and regulated sectors we have today in many parts of the world. This chapter also nicely foreshadows the second part of the *Handbook*, namely in raising some of the challenges restructured markets are facing as electricity systems shift from largely dispatchable thermal supply to increasing intermittent generation with storage.

Chapters 3 through 5 cover the fundamentals of electricity markets and market design, from the wholesale to retail level.

- Chapters 3 and 4 cover restructured wholesale energy market designs by none other than paragons of the discipline: Paul Joskow, Thomas-Olivier Léautier, and Frank Wolak. These chapters are foundational, covering the theory that underpins the economic motivation for restructuring and forming the basis of competitive wholesale market designs.
- Chapter 5, by Stephen Littlechild, moves us from generation to the retail sector. He discusses the motivations, successes, and failures of this aspect of restructuring. He recaps the history of retail markets in various locations, from the UK, the US, the Nordic countries, Australia, and others, to illustrate their experiences before moving on to more recent developments. He nicely weaves in other parts of the *Handbook*, including Schmalensee's overview (Ch.2), Sioshansi's discussion of future technologies on the demand side (Ch. 13), and Glachant's chapter on future business models (Ch. 17), when discussing the future possibilities for retail markets. This coordinated writing is a repeated feature of the *Handbook*, again turning what would otherwise be a collection of papers into a cohesive and intertwined text.

- Chapters 6 through 11 offer regional case studies of individual electricity markets. They showcase the breadth of market models that have evolved, branching off from the standard market design principles discussed in Chapters 3 and 4.
- In Chapter 6, none other than David Newbery discusses the strengths and weaknesses of the British market model, one of the first regions to restructure their electricity market. This chapter will no doubt serve as a go-to reference for all things UK-market: from its inception, to its evolution, to present-day challenges.
- In Chapter 7, William Hogan covers the PJM market in the Northeast US, the largest US power market in terms of load. He highlights PJM as a major innovator in market design, with the original implementation of the "bid-based-security-constrained-economic-dispatch-with-locational-marginal-prices" model, a challenging mouthful he refers to as "BBSCEDLMP". This model is central to marrying the complex physical engineering realities with an economic market model overlay. Interestingly, despite the attention they receive with market watchers and participants, capacity markets are given relatively short shrift in this chapter, instead the focus tends towards the evolution of efficient signals for dispatch.
- Chapters 8 and 9 take us to two of the purest examples of "energy-only" markets in the world, namely ERCOT (Texas) and Australia's National Electricity Market. Both chapters provide a thorough overview for anyone seeking to understand how these markets ended up with the models they have, which differ significantly from many other restructured markets, especially those in the US. Given the *Handbook* was published in 2021, these chapters were undoubtedly submitted before recent events rocked these markets. These include the severe storm Uri that took down large parts of the Texas grid for several days in February 2021 and the temporary suspension of the Australian market following a surge in prices, leading to administrative override. It would be interesting to learn how these recent experiences, and the concerns over reliability and market design that have respectively ensued, affect the discussion on both ERCOT and Australia's market models. What is clear is that these are markets in a state of flux—harbingers of what's to come, perhaps—where changes to electricity systems are testing market models in real-time.
- Chapters 10 and 11 take us back to Europe, where we learn about the Nordic market model followed by the evolution of the European model for electricity markets. Both offer lessons for federations of connected but independent regions in how to collaborate in terms of market design to ensure robust and beneficial trade.

At this point we move to Part 2 of the *Handbook*, which rather than historical summaries, looks forward to the path ahead. The focus here is on new technologies, largely related to energy transition and decarbonization, and how markets will need to adapt to them.

- Chapters 12 and 13 kick us off with discussions of new technologies on the supply and demand side, respectively. With so much change happening at a rapid pace, these summaries will almost surely find themselves out of date in short order, but nevertheless they do an excellent job of showcasing all the possibilities in the road ahead. Chapter 12, by Nils May and Karsten Neuhoff, provides some optimism, highlighting the dramatically falling costs of renewable energy. It also foreshadows the requisite discussion (covered later in the *Handbook*) on changes required to markets to effectively integrate these intermittent resources. Chapter 13, by Fereidoon Sioshansi, starts with the acknowledgement that developments on the demand side differ greatly based on the maturity of different regions' electricity systems. In some places, demand-side discussions are focused on access (as covered in the final chapters of the *Handbook* on developing world markets), whereas in mature markets the focus is on new technologies to aggregate and manage

the integration of large new and flexible loads, such as EV charging. The potential here, married with increased intermittency on the supply side, is very exciting and a topic well worth pursuing for researchers and practitioners in the years to come.

- Chapter 14 is devoted exclusively to climate policies in the electricity sector, written by experts on this topic: Kathryne Cleary, Carolyn Fischer, and Karen Palmer. It's a succinct overview of the various policies being implemented (or considered) around the world to actively decarbonize the electricity sector. From market-based policies, such as carbon pricing and tradable performance standards, to more directed policies, such as technology-specific subsidies on both the supply and demand side. As I write this, the US Senate has just passed landmark climate legislation (the "Inflation Reduction Act"), perhaps a nod to the latter's practical ability to overcome political hurdles despite the former's nod from economists in terms of their efficiency benefits. A strong reminder that policy making is the art of the possible, not just the ideal, and that the role of economists may be to illustrate trade-offs in various approaches. With a myriad of new policies and regulations now in force, the chapter's coverage of policy interactions will no doubt be made increasingly relevant, and an area of focus for researchers and policy makers in the years ahead.

Chapters 15 through 17 are all related to the shifting economics and business models of electricity markets as they evolve to include greater shares of variable energy renewables. Chapters 18 and 19 extend this discussion, focusing on new demands on the electric systems as a result of electrification.

- Richard Green starts us off in Chapter 15 with a useful overview of the economics of electricity markets, including screening curves and supply-demand charts that will be familiar to most readers, and importantly, how the economics are affected by an increase in renewable energy supply. He notes that conventional markets should be up to the challenge, though the dynamics required in the evolution of the supply mix may be painful to some (namely, where capacity needs to exit the market). He closes with a segue to Chapter 16 by noting challenges that go beyond energy balancing, to matters of frequency regulation and voltage control, that may well require fundamental changes to future electricity markets.
- Michael Pollitt, in Chapter 16, offers a vision of two contrasting ways in which constraints might be managed: through flexible price-based signals or non-price rationing, i.e. using smart-meters and control technology at the device level. As this technology improves, and especially as flexible loads such as EVs grow in magnitude, this will be an increasingly interesting area to watch in terms of market models.
- Jean-Michel Glachant builds on some of Pollitt's hypothesizing about future market models to discuss future business models in Chapter 17. He discusses the various business models for renewable capacity investment, from feed-in-tariffs to bilateral corporate power purchase agreements, and how these have evolved. On the demand side, he covers a myriad of opportunities for the retail sector, from increased involvement in wholesale markets, to greater autonomy in the form of micro-grids.
- Chapters 18 and 19 discuss impacts that electrification of various sectors will have on the electricity sector, namely transportation (Ch. 18) and buildings (Ch. 19). Both share common features in that while electrification will clearly place additional demands on electric grids and electric supply, they also offer opportunities as newly connected, large, and somewhat flexible loads. These chapters highlight the importance of ensuring that flexibility of load is suitably incentivized and effectively harnessed.

Chapters 20 through 22 wrap up the *Handbook* with a focus on electricity in the developing world.

- In Ch. 20, Ignacio Perez-Arriaga, Divyam Nagpal, Grégoire Jacquot and Robert Stoner offer a pathway to achieving universal access to electricity, something most of the developed world takes for granted but is sorely lacking in much of the developing world.
- Chapter 21 is a deep dive into China's fast-growing and immense electricity market. What happens in China has obviously enormous implications, both in terms of global greenhouse gas emissions and climate change, as well as technological change and ensuing cost improvements. This chapter offers insights into the institutional structures, reform plans, and seeming contradictions that constitute electricity system development in China.
- And finally, Chapter 22 provides an overview of electricity issues in Africa, where lack of access and low per capita demand remain ubiquitous. The authors discuss the possibility of "leapfrogging" some of the legacy infrastructure in mature systems, moving directly to distributed and renewable systems, with parallels to the evolution of telephone infrastructure in the continent.

Discussion

Hopefully the summary above conveys the breadth and depth of the contents of the *Handbook on Electricity Markets*. In my view, if there's a critique to be made of the *Handbook* it is on its near exclusive focus on restructured (or competitive) markets, with very little coverage of traditional (vertically-integrated monopolistic) markets. To be clear, this isn't an error of omission—in Chapter 2, Schmalensee notes explicitly that this text deals almost exclusively with the former. And while I understand the desire and need to limit scope of this already-expansive text, traditional markets remain the norm in large parts of the world, including large swaths of the United States and most of Canada. A handbook on electricity markets should still include a hefty focus on this still-common traditional setting. This is especially important for Part 2, where the *Handbook* discusses the path forward to navigate energy transitions. The path may be very different in restructured vs traditional markets, or at a minimum require different tools and policies, hence my disappointment at the limited coverage of traditional markets in this regard.

Nevertheless, the *Handbook on Electricity Markets* will no doubt prove to be a mainstay resource for those active in this field and a useful introduction to the topic for those outside. Instructors of courses on electricity markets should look to this *Handbook* as a resource for their students. Currently, there are limited choices of textbooks for courses on electricity markets; this book presents an option, with instructors having the ability to pick and choose among the chapters to deliver fulsome and wide-ranging content covering the breadth of issues in electricity markets. I know that for my courses in the area, I will be reaching to this text often, and appreciative that it exists.

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Power Shift. The Global Political Economy of Energy Transitions, by Peter Newell (Cambridge University Press, 2021). 283 pages, ISBN: 9781108832854 (hardback), ISBN: 9781108965828 (paperback), ISBN: 9781108966184 (ebook).

The need to address global climate change is urgent. Radical action is needed now. Current strategies are both inadequate to address the challenge and deeply unjust. A new approach is needed that combines top-down and bottom-up mechanisms. Thus, could a three-line summary of Peter Newell's new book be sketched. Such a summary might imply that nothing new was on offer. Such a deduction would be wrong. For Newell, as is to be expected, has given us a deeply thoughtful

account of where we are failing and how we can do better by drawing on multiple strands of theory and practice.

To quote from the book's Preface "By introducing neglected global, political, historical and ecological dimensions, the book provides a richer account of the necessary enabling conditions and political processes required…." At the heart of his argument lies the need to recognise that top-down actions by governments, corporations and international organisations is necessary but not sufficient. Democratisation of energy are needed both to accelerate the low-carbon energy transition and to ensure distributional and procedural justice. The analysis draws on literatures from socio-technical transitions, historical economics, political economy and political ecology, and combines them with empirical evidence to argue that the low-carbon transition requires a revolutionary transformation of politics and economics across the world.

Chapter 2 draws on these different fields of theory to provide the framework for the rest of the book. The subsequent three chapters identify the factors that constrain the low-carbon energy transition and lock-in the contemporary energy systems. In Chapter 3, Newell reminds us that debates around the low-carbon energy transition tend to be focused on the production of energy—how to produce cleaner energy or remove the emissions from dirty energy sources. Insufficient attention is paid to energy efficiency or energy conservation, let alone to the logic of why energy is produced and for whom. The current structures of energy production give power to the producers of energy, whether corporations or states. It is the reluctance of these actors to give up their power and rents that is a key obstacle to the transition.

Democratisation and decentralisation of energy systems are needed to break this stranglehold. An important strand of logic emphasises the importance of ecological limits and sustainability. All forms of energy have complex supply chains, so full-life cycle analysis is required to reveal the true cost of energy production. This includes taking into account the nexus between energy and other primary resources such as water, energy and land. Economic growth and material consumption cannot continue to grow indefinitely. Localization and circularity would be key components of a decentralised economy based on sufficiency.

All discussions of the low-carbon transition in the end revert to finance. This is the topic of Chapter 4. That there is no absolute shortage of capital to finance the transition is well recognised. However, as Newell argues, the values of the traditional sources of energy financing are generally inconsistent with the requirements of the transition. Economies based on producing and consuming less may not yield generous short-term returns. Further, it is not sufficient to increase funding for clean energy and energy efficiency. Support for fossil fuels, whether through direct financing or subsidies, must be reduced. The decades old paradigm of energy market liberalisation has weakened the levers of control that national governments have over the sector, and increased dependence of private sources of finance. This has resulted in the fragmentation and poor coordination of energy financing at national and global scales and helps to embed existing interest groups and practices.

The consequences of energy market liberalisation are pursued further in Chapter 5 on governing energy transitions. Liberalization has not removed the state from the governance of energy, for energy plays a central role in supporting economic growth, itself a central policy plank of most national governments. Newell argues that the state has a key role to play in driving the low-carbon energy transition, through mandates, finance, exhortation and other means. However, the willingness and capacity of governments to do so effectively varies greatly. Moreover, the manner in which such strategies are designed and pursued will depend on the nature of the policy in general as well as on political economy of energy in a particular country. The international coordination of efforts to reduce carbon emissions is hampered by the fragmented nature of the global governance institutions for energy and the strategic and economic importance of energy to each nation state. Overall, the diversification and multiplication of actors, public and private, in the energy sector continue to constrain the low-carbon energy transition.

It is in Chapter 6 that Newell provides his solution, which is through the involvement of civil society. Drawing on the ideas of Polanyi and Gramsci, among others, he argues that social movements such as Extinction Rebellion can weaken existing power structures and cause changes of values and behaviors. History abounds with social movements that have stimulated sharp policy changes for the better. In the energy industry, such movements were generally focused on environmental or safety issues—the UK's Clean Air Act of 1952 and the anti-nuclear movement in Europe, for example. More recently, activists have directed their attention to corporations involved in the production of energy and to the institutions that finance them. However, citizens should not be relegated to fighting against entrenched interests. Rather, they should be embraced and drawn into the decision-making process.

The involvement of communities and civil society groups should and does yield policy solutions that are more beneficial for the environment, the economy and justice. Further, active resistance to specific policies and projects has been on the rise, with significant success, and legal action against companies and governments is on the rise. This greater involvement of citizens is consistent with the progressive decentralisation of energy supply. Yet, these efforts by themselves will not accelerate the energy transition to the degree required. Only a wider transformation of social values, norms and behaviors will yield the desired outcomes. In other words, a cultural change is needed on the part of the consumers of energy—individual citizens. This can be encouraged by the collaborative involvement of state, market and civil society. Newell draws on past crises to illustrate what can be achieved, at least in the short-term.

Peter Newell has provided us with a thoughtful, rigorous and provocative account of the need to address the climate crisis by disrupting the existing structures of power in the energy sector. The arguments are well crafted and firmly based on theoretical insights and empirical evidence from today and the past. The book is valuable reading for scholars and policy analysts of the energy transition due to its combination of breadth and depth. My one question is whether Newell has adequately addressed the challenge he set himself early in the book when he stated that most current accounts may successfully explain the constraints to reducing carbon emissions but fail to provide adequate policy solutions, if any at all.

What worries me is that most, though by no means all, of the examples come from countries that are more or less democratic. Further, many of these countries already have flat or declining levels of emissions. Emissions growth today is concentrated in countries where democratic processes and/or state capacity are weak, or where the state actively suppresses any sign of civil society action. Whilst Newell does acknowledge the high degree of variability between nations in both political economy and development needs, how his solution of social mobilisation applies to many regions of current and future emissions growth is far from clear. That is an agenda for future research.

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