

Reader's Corner

Joseph M. Kiesecker and David E. Naugle (ed.), *Energy Sprawl Solutions: Balancing Global Development and Conservation*,

(Washington: Island Press, 2017).

Reviewed by Ian Urquhart

This book is an important addition to the literatures on biodiversity and energy. It adds to those literatures by marrying them. Through the conservation concept of “development by design” the authors in this edited collection investigate how we can meet two pressing needs – increasing energy production and protecting biodiversity.

Peter Kareiva's foreword reminds us of the one ongoing global imperative that inspired this collection of 11 chapters – the need to deliver electricity to the over one billion people who don't have access to it today in ways that contribute to the climate change campaign and protect habitat and wildlife. The premise of development by design is that we use our knowledge to identify open zones for energy development as well as areas where energy projects will be prohibited in order to enhance biodiversity.

The focus of the collection is multinational. Part One of the book makes the case for why this is a challenging global imperative. Part Two presents seven case studies that speak to the need to reduce energy sprawl while supplying future energy demands. Part Three tackles the vexing problem of how we make best practices, common practices.

The enormity of the challenge is underlined early in Part One. The first chapter examines the geographical distribution of risks to natural lands from increased energy production. Its mapping of cumulative development threats and natural lands at risk provides a very good overview of why and where planning to mitigate the effects of energy development is most urgent. This urgency is underlined by the fact that only five percent of

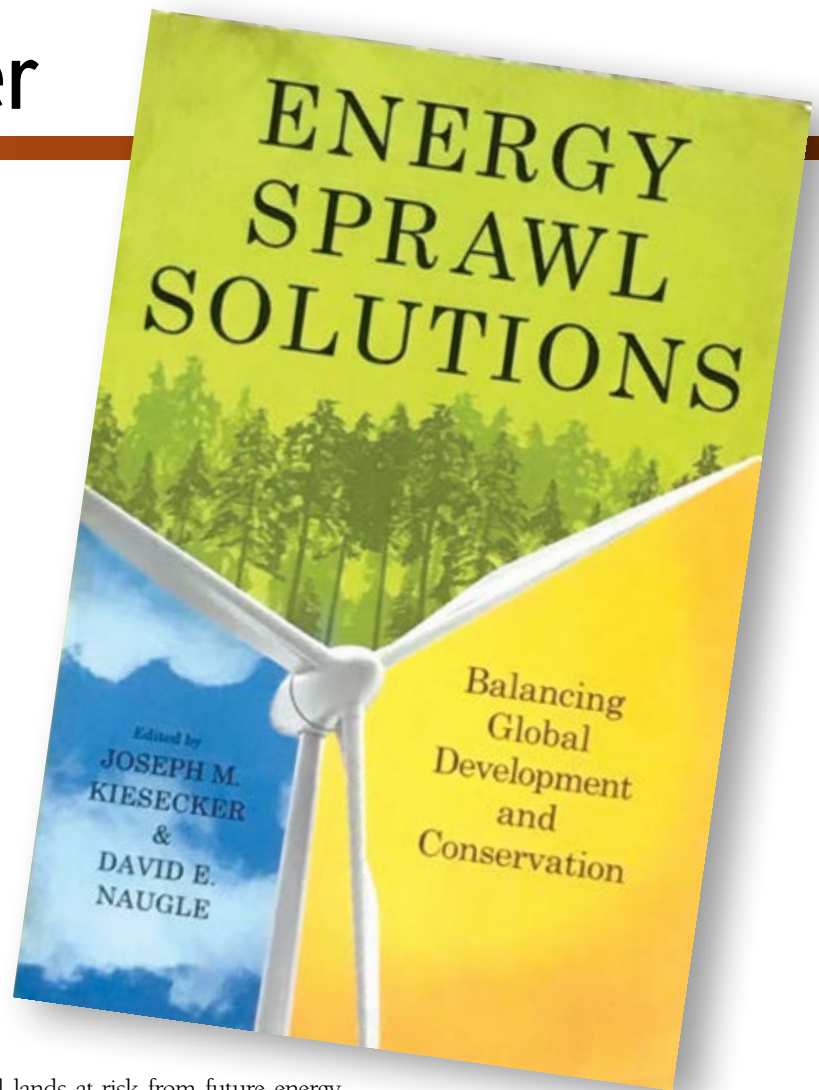
the natural lands at-risk from future energy production enjoy some measure of legal protection today. That is compounded in turn by the projection that 20 percent of the earth's remaining natural lands will be affected by future energy development. It ambitiously calls for shifting regulatory and mitigation efforts upwards, to a regional level.

Chapter Two's importance rests, in part, in the uncomfortable reminder that a tremendous amount of land is going to be needed to decarbonize energy production. The spatial footprint of a renewable energy system is exponentially larger than that of one based on fossil fuels. We may be asked to face the inevitability of a scenario where, in order to mitigate the impact of climate change, we industrialize the landscape via the vast spatial claim utility-scale renewable energy will make.

Part Two's seven case studies touch on challenges around the globe; Canada (petroleum), the United States (wind, petroleum, solar, and dams), Venezuela (offshore petroleum),

Colombia (mining), Peru (energy infrastructure), Brazil (bio-fuels and dams), Mexico (dams) and China (dams) all are featured.

All merit commentary but this review only discusses three of those chapters – those that touch on Canada and wind/petroleum/solar in the United States. Mark Hebblewhite looks at the intersection between energy sprawl and wildlife conservation in northern Alberta and the western U.S. He focuses his attention on woodland caribou in Alberta and greater sage-grouse in the western U.S. For woodland caribou, he details what might appear as the impossibility of protecting and restoring woodland caribou. This possibility that this task is an impossible one arises first from the fact that the *Species at Risk Act* demands a “save it all” regulatory approach; each and every caribou population in Alberta must be addressed by the recovery plan. And the economic costs of this path are far too high.



Hebblewhite may be right to say that the law is mistaken in demanding that a recovery strategy/action plan address all the provincial populations of woodland caribou. But, it also should be noted that caribou are in dire straits because successive governments had a “develop it all” mindset when it came to the tar sands and the boreal forest. This mindset was captured notoriously in how the term “sterilization” was used by Alberta’s energy regulator – it referred to any decision, such as establishing protected areas, that would keep a barrel of commercially-exploitable bitumen in the ground. To protect the landscape from development was to sterilize the petroleum resource; it was a heresy to suggest the brake should be applied to petroleum development in order to avoid sterilizing other objectives such as biodiversity.

Hebblewhite’s second case, greater sage-grouse, is one that members of the AWA conservation community should wish could become the norm in Alberta and Canada. In the western U.S., the “develop it all” mindset was not allowed to govern policy making. Instead, a proactive planning approach that prioritized some, but not all, areas of the sage-grouse range was implemented successfully. The outcome seems to be good for sage-grouse and acceptable to petroleum and other commercial interests (not least because this outcome has succeeded in avoiding listing the greater sage-grouse under the *Endangered Species Act*).

Chapters Four and Five look at wind power development and solar development in the U.S. respectively. The chapter by Kiesecker, Evans, Sochi, Fargione, Naugle, and Doherty, like Hebblewhite’s discussion of greater sage-grouse, offers sound advice on how biodiversity goals may be balanced with energy development. One of their recommendations is to site wind farms on previously disturbed sites. They write: “It makes sense to put new wind facilities on converted land areas that are low-quality habitats and already altered to such an extent that they can no longer viably support natural communities.” And, as in Part One, the message here is that environmental assessments of these projects need to consider the cumulative effects.

The chapter on the development of utility-scale solar in the U.S. examines regional/conservation planning in California’s Mojave Desert ecoregion. One of the constraints on developing solar in the region “was the lack of a landscape-level vision to balance energy development, resource protection, and other land uses.” The Nature Conservancy’s 2010 Mojave Desert ecoregional assessment built on important federal and California planning and assessment initiatives. The Nature Conservancy assessment’s conservation value was strengthened by its focus on the entire, 33 million-acre, ecoregion. The desert lands were placed on a continuum ranging from Ecologically Core to Highly Converted. The conservation assessment was complemented by a regional analysis incorporating factors important to the solar industry. This approach determined that seven times the energy needed to meet California’s 2020 renewable energy target could be produced on Moderately Degraded or Highly Converted Lands. Ecologically Core and Ecologically Intact lands could be spared from development if decision-makers adopted this approach.

Part Three advocates comprehensive energy planning and asks what interested parties need to do in order for sustainability to have an important place in the world’s energy future. Balance and compromise are called for. Environmental groups, for example, could meet renewable energy developers halfway by prioritizing conservation lands, by identifying areas where they would accept the massive spatial footprint and areas where that footprint couldn’t be tolerated.

The last chapter, written by the editors, outlines six themes that are seen as important to realizing a better balance between global energy development and conservation. They are: increase society’s sense of urgency about the need to act, accept conservation trade-offs from renewables, reduce the time it takes to incorporate more renewables into the energy mix, facilitate master/landscape-level planning, catalogue policies and conditions that enable sustainable energy change, and prepare more case studies illustrating the social and economic benefits developing countries may garner from the sustainability approach-

es outlined in the collection.

The breadth of this collection is welcome. However, there are some notable geographical gaps. Readers interested in how African countries or those in the Indian subcontinent are addressing the challenge of sustainably producing the energy so many people in those regions need so desperately may be disappointed. No case studies from those regions are found in this collection.

I also would have liked to see more attention paid to examining the obstacles that prevent the widespread adoption of what the collection regards as “best practices.” For example, to what extent do countries have the institutional or administrative capacity to embrace the approaches recommended here. The chapter on Colombia and Peru raises this issue. As attractive and appealing as Colombia’s minister of environment found the maps of ecosystem services he saw, he frankly didn’t think his government had the administrative capacity needed to use them well. Capacity at the planning level then will affect the ability to bring good ideas to life; so will administrative capacity at the local level where implementation will take place. Cultural and economic contexts also need to figure more prominently in our thinking about generalizing “best practices” from one case to other countries.

Finally, there is an unspoken tension between the factors needed to better balance global energy development and conservation. Urgency, accepting conservation trade-offs, and increasing rapidly the percentage of renewables in the grid can conflict with what I felt a crucial message of this volume was, the need to plan for conservation well at the landscape/regional level. Alberta’s recent history underlines well that this type of tension is not confined to developing nations that may not have the financial and educational resources needed to build planning capacity. The commitment to that planning has not been a strong suit in Alberta – the type of ecosystem assessment conducted in the Mojave Desert, for example, remains just a hope in Alberta as government and industry rush ahead to build wind and solar farms in southern Alberta.