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*Renewable Energy Law: An International Assessment*, by Penelope Crossley  
Cambridge University Press, 2019, 270 pp, £85 hb, \$88 ebk  
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Penelope Crossley's timely book, *Renewable Energy Law: An International Assessment*, should be of interest to any scholar and policymaker interested in understanding the objectives and designs of renewable energy laws around the globe. While most existing scholarship regarding renewable energy law has focused on 'the relative efficiency and efficacy of the different regulatory models available' in a handful of developed countries and China (p. 5),<sup>1</sup> Crossley's book undertakes a more ambitious task, which is 'the first academic study of the primary renewable energy law in each of the 113 countries that ha[ve] a national renewable energy law' (p. 11). Crossley's assessment shines light on where national renewable energy laws converge and deviate. This comparative study reveals that, although most countries agree about the types of resource that should qualify as renewable, they have widely divergent motivations for and approaches to renewable energy policy design. Understanding these differences could help policymakers in developing effective strategies to accelerate renewable energy deployment – a task that has become increasingly urgent in light of the United Nations' recent report calling for rapid replacement of fossil fuels with renewable resources to prevent catastrophic global warming.<sup>2</sup>

The structure of the book is straightforward and cohesive, as it seeks to test a primary hypothesis laid out in Chapter 1: that 'renewable energy laws (around the world) will come under pressure to harmonize to facilitate trade, improve information sharing and ease administration, as different techniques for generating renewable energy become commercialized and the manufacturing of renewable technologies

<sup>1</sup> See, e.g., M.B. Gerrard (ed.), *The Law of Clean Energy: Efficiency and Renewables* (American Bar Association, 2012); R.L. Ottinger & A.J. Bradbrook (eds), *UNEP Handbook for Drafting Laws on Energy Efficiency and Renewable Energy Resources* (UNEP/Earth Print Ltd, 2007); M. Ellingson et al., 'Compendium of Best Practices: Sharing Local and State Successes in Energy Efficiency and Renewable Energy from the United States' Renewable Energy and Energy Efficiency Partnership (REEEP), Alliance to Save Energy & American Council on Renewable Energy (ACORE), Apr. 2010, available at: <https://www.recep.org/sites/default/files/Compendium%20of%20US%20Best%20Practices.pdf>. G. Resch et al., 'Coordination or Harmonisation? Feasible Pathways for a European RES Strategy Beyond 2020' (2013) 24(1–2) *Energy and Environment*, pp. 147–69; C. Huang et al., 'Government Funded Renewable Energy Innovation in China' (2012) 51(C) *Energy Policy*, pp. 121–7; R. Haas et al., 'Promoting Electricity from Renewable Energy Sources: Lessons Learned from the EU, U.S., and Japan', in F.P. Siosanshi (ed.), *Competitive Electricity Markets: Design, Implementation, Performance* (Elsevier, 2008), pp. 419–68.

<sup>2</sup> Stockholm Environmental Institute, International Institute for Sustainable Development, Overseas Development Institute, E3G & United Nations Environment Programme (UNEP), 'The Production Gap: The Discrepancy between Countries' Planned Fossil Fuel Production and Global Production Levels Consistent with Limiting Warming to 1.5° or 2°C', 2020', available at: [http://productiongap.org/wp-content/uploads/2020/12/PGR2020\\_FullRprt\\_web.pdf](http://productiongap.org/wp-content/uploads/2020/12/PGR2020_FullRprt_web.pdf).

becomes more concentrated in particular countries' (p. 7). The rest of the book attempts to assess if this convergence has actually occurred by considering three elements of renewable energy laws: (i) the definition of renewable energy (Chapter 2); (ii) the regulatory objectives of renewable energy laws (Chapters 3 and 4); and (iii) the regulatory support mechanisms to achieve the objectives (Chapters 5 and 6). The book concludes in Chapter 7 with the observation that, contrary to the initial hypothesis, there is no evidence of any concerted efforts to harmonize the national renewable energy laws of any countries outside the European Union (EU).

Chapter 1 presents Crossley's overarching hypothesis that renewable energy laws should converge over time and become harmonized as renewable energy becomes a more commercial and global resource. Although Crossley does not elaborate on the theory behind the hypothesis in this chapter, she explains throughout the book that the benefits of legal harmonization include lower transaction costs, greater competition, lower prices for the ultimate consumer, and easier entry for international market participants. Chapter 1 also introduces the research methodology of the book and its limitations. Crossley admits that identifying and locating the national renewable energy laws of 113 states was the most difficult aspect of the research. To understand fully the 'contextual' factors of those national laws, Crossley drew upon secondary legal, political, economic, and historical sources of those laws. As she acknowledges, the research focus on the current state of national laws limits the ability to consider changes in the law over time and the potential layering impact of regional, provincial, state, or local government laws. A language barrier could also be a hurdle to understanding the laws fully. Despite these limitations, Crossley successfully produces a clear map of the renewable energy laws in effect at a point in time.

In Chapter 2, Crossley's assessment shows that there is 'a surprising degree of consensus' regarding the major energy sources that qualify as renewable under the laws of each country (p. 60). At least 80 of the 113 countries with national renewable energy laws include wind, solar, biomass, landfill gas, sewage treatment gas and biogas, small-scale hydropower, and geothermal energy as renewable. This consensus may enable international harmonization or legislative convergence in years to come. Surprisingly perhaps, ocean energy sources, such as wave, hydrothermal, and osmotic energy, receive less acceptance in renewable energy laws, probably because ocean energy has a lower level of commercialization, especially among developing countries, or perhaps because many countries are land-locked. At the other end of the spectrum, several countries define obviously non-renewable energy sources, such as peat, nuclear, and charcoal, as renewable. The inclusion of these resources illustrates the political nature of the process of defining renewable energy – and the likely hurdles to international harmonization of domestic renewable energy policies.

The second part of the book (Chapters 3 and 4) discusses the economic justifications for regulating renewable energy and the legislative objectives underlying the renewable energy laws of different countries. Based on economic theory, Crossley first suggests that market failure could be a major reason for government intervention in the electricity market to support renewable energy. If this is the case, then one might assume that different countries have similar objectives underlying their renewable energy laws. In

reality, however, the book identifies a broad range of legislative objectives. It identifies 28 categories of objective in national laws, most of which are given different priorities, based on the countries' varying fossil fuel and renewable resources endowments, the level of economic development, and the level of environmental awareness of their citizens. Interestingly, more countries address the issue of environmental protection (55 countries) than energy security (49 countries) in their legislative objectives. However, environmental protection is on average assigned a lesser priority than other goals; in fact, the two objectives of 'environmental protection' and 'reduction of greenhouse gas and climate change' tend to be mentioned towards the end of the list of reasons given by countries for supporting renewable energy (when they are mentioned at all). Crossley suggests that 'many countries may simply be tacking what are arguably important objectives on the end of their legislative objectives section as a means of capturing the diversity of political opinion in the community' (p. 111). Whatever the reasons may be for ranking various objectives, the different motivations that underlie countries' renewable energy laws suggest that renewable energy law will not head towards convergence or harmonization in the near future. Crossley also cautions that the fact that countries are seeking to achieve a very broad range of legislative objectives through their renewable energy laws may impede implementation and even create conflicts between countries.

The third part (Chapters 5 and 6) of the book examines the regulatory support mechanisms in national renewable energy laws. These regulatory support mechanisms include feed-in tariffs, feed-in premiums, renewable portfolio standards (RPS) and quota obligations, green certificate trading and renewable energy credits, competitive tendering (auction bidding), net metering, subsidies, loans, rebates, investment tax credit, production tax credit, green power schemes, grants, research and development support, and other indirect mechanisms. After briefly going over the key features of each scheme, Crossley admits the difficulties in comparing support mechanisms from country to country, because even similar-seeming mechanisms are designed and implemented differently in each country. This is because no one mechanism or combination of mechanisms will meet the needs of every country, each of which has distinctive natural resources, legal traditions, governmental and socio-economic structures, customs and norms. Crossley highlights this by pointing to the EU, where the Member States explicitly inserted into the Treaty on the Functioning of the EU<sup>3</sup> a reservation that will ensure each Member's ability to control its own energy mix and support systems going forward. Similarly, countries frequently choose policy approaches to benefit their own business and technology; for example, the Chinese wind turbine manufacturing industry experienced substantial growth under both preferential subsidies and a local content requirement. It therefore comes as little surprise that considerable variation exists between the regulatory support mechanisms contained within the national renewable energy laws of different countries. Crossley rightly points out that this regulatory complexity will make it difficult to administer renewable energy laws and will increase

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<sup>3</sup> Lisbon (Portugal), 13 Dec. 2007, in force 1 Dec. 2009 [2010] OJ C 83/47, available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:326:FULL:EN:PDF>.

transaction costs and barriers to entry for market participants in both domestic and international markets.

The book concludes that, despite the increasing convergence around the technologies and sources used to generate renewable electricity, there has not been the same degree of convergence in the national legislative approaches to governing or promoting accelerated deployment of renewable energy. Considering the various motivations underlying domestic renewable energy policy – which include job creation, local pollution abatement, economic and technological growth – these findings are not particularly surprising. Rather, they call into question the book's overarching hypothesis of convergence, which posits that interests in international trade will displace local interests, as they did during the free trade era of the 1990s. If anything, the politics of the past few years signal the opposite.

Instead of focusing on convergence and harmonization, therefore, it may make more sense to consider how countries can adapt policies transferred from other places and identify the underlying conditions that make certain policies more or less successful. The specific policy may be less important than the local circumstances, as experiences in South Korea and Japan arguably show. Since the 1990s, South Korea has pursued various regulatory interventions in the renewable energy sector following the regulatory experiences of other leading countries. For example, it adopted a feed-in tariff in the 1990s following Germany's example, only to change to an RPS in the 2000s to follow the United States. During the same period, Japan switched to a feed-in tariff from an RPS. Both countries in the early 2000s experienced very low penetration rates of renewable energy and hoped for a new boost by changing the regulatory scheme. Whether these policy changes will yield on-the-ground changes remains to be seen, but the examples suggest that policy convergence is not likely to be a panacea. Rather, in the era of climate crisis and as countries pursue the critical goal of limiting global temperature increases to 1.5°C, countries should try to find whatever works for them to expand renewable energy. Whether this will lead to convergence or divergence is not quite clear – and, arguably, not that important.

Although Crossley's emphasis on convergence is somewhat unpersuasive, her book is nonetheless a useful and insightful investigation of renewable energy law for anyone who is interested in understanding the global state of renewable energy policy during 2018. Crossley's book provides one of the most complete and thorough assessments of renewable energy laws around the globe. Her ideas are clearly conveyed and well structured, and the data she gathered could spur far more useful analysis. *Renewable Energy Law: An International Assessment* is a very worthwhile read.

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