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David Buchan, Malcolm Keay. *Europe's Long Energy Journey: Towards an Energy Union?.* Oxford: Oxford University Press, 2016. 256 pp. $40.00, cloth, ISBN 978-0-19-875330-8.

Reviewed by Lauren McKee

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The central research question in David Buchan and Malcolm Keay's work *Europe's Long Energy Journey: Towards an Energy Union?* is a simple one: is the European Union capable of implementing comprehensive, cohesive, and functioning energy policy, thus creating an Energy Union that increases Europe's overall energy security? The question itself seems straightforward enough, yet the answer is complex, as these authors present in their succinct yet detailed eleven chapters. For the EU, attaining some level of energy security is perhaps more multidimensional than for any other country or region; while some actors focus primarily on continuity of energy supply at reasonable prices, the EU also must take into consideration a deep transformation of its electricity sector, possible disruptions of fossil fuel imports on which it still heavily relies, and its role as a global leader in combating climate change by promoting the use of renewable energy sources. Buchan and Keay's work on using energy as a cooperative mechanism among EU countries has probably never been more needed than it is now, as the social and political challenges to integration in Europe have never seemed more immediate.

Each chapter offers a necessary component of an entire key to understanding the current energy situation in the EU. Chapter 2 is a quick summary of EU energy policy until 2009; it is brief because, as the authors point out, "there never was, at the outset of the EU, a golden age of energy policy-making for today's EU to return to. This is why the Energy Union project breaks new ground" (p. 7). This chapter also introduces some of the central issues to studying energy security and policy that will surface regardless of the region one is studying: a state's need to weigh national security with environmental sustainability, state intervention in private markets, problems with collective action, and cost bearing and sharing, to name a few. Chapter 3 delves into the 2009 reforms that attempted to reform electricity and gas networks and grids, set emissions reduction targets for 2020, and overhaul the Emissions Trading System (ETS). The authors conclude that these reforms

have been inefficient in achieving their goals mainly because the underlying assumptions on which they were based were faulty: the process of market liberalization has not been as beneficial as was hoped, the cost of cutting emissions was higher than imagined, and external factors (such as the Fukushima disaster in 2011 and the collapse of the price of oil in 2014) changed the context for EU policy.

Chapter 4 focuses on the tension in the EU between liberalization and intervention specifically in terms of electricity generation. The division of electricity generation into the categories of "hardware" and "software" clearly distinguishes the separate issues of dealing with, for example, cross-border infrastructure and market coupling, respectively. The costs and benefits of feed-in-tariffs are mentioned as one of the more popular subsidies states have implemented, leading to a discussion of capacity markets and the still questioned need for capacity support. This detailed and clearly argued chapter could be used in any global political economy course as a case study demonstrating tensions between markets, corporations, and states and the complexity of negotiating the limits of state intervention in a liberalizing market.

Chapters 5 through 8 demonstrate the need for fundamental redesign of the electricity market, beginning with the role of technology in helping the EU reach its climate change goals. The authors point out that while the European Commission would like to pursue a more harmonized approach to the use of low-carbon sources, the problem of "picking winners and trusting markets" persists (p. 64). Here, Buchan and Keay argue that interventionary measures could be most beneficial in the sector of research and development (R&D), which has been historically tilted in favor of nuclear energy, though nuclear has since fallen largely out of favor in Europe, thus resulting in a shift to non-nuclear research. The risk here is of "picking winners," that is, investing heavily in a politically attractive option that may not have long-term viability in the market. Ultimately, "little progress has been made with technology, based on previous expectations," though the authors also point out that it is not enough to develop new technologies without also being able to deploy them on the ground, a challenge to which is the reality that technology preferences differ among member states (p. 69).

Chapter 6 begins by positing that, for various reasons, the European electricity sector will play the largest role in a low-carbon economy and will be the most intensely and rapidly affected sector in the Energy Union's transition. Over time, the whole structure of the industry will change, and this chapter's strength is its depiction of how the overall effect of such an industry shift would change the economic and operating characteristics of the industry in fundamental ways, for example, by actually reducing energy source diversity, which is usually recognized as being imperative to energy security. The conclusions to this chapter focus on the European Commission's unfortunate unwillingness or inability to deliver the reforms needed to redesign electricity markets to be consistent with environmental goals.

Chapter 7 promotes a much-needed demand-side strategy to energy security, pointing out that the actual meaning of the term "energy efficiency" is often vague in that it does not seem to implicitly include a consideration of cost effectiveness nor the rebound effects of increased efficiency. The authors further argue that if our current definition of energy security is based solely on reliable supply at a reasonable price, then this supply-side rationale is outdated and efficiency should no longer be the primary focus of the demand side. Rather, the authors argue, reforms should promote a more active role for consumers that goes beyond meters and appliances and reaches into public engagement and community energy projects. The strength of this chapter and the book in general, really, is that the authors not

only describe the problems with current energy policy but also describe what possible solutions may look like given a relatively predictable set of challenges. There is also included an annex within the book that further justifies why focusing on a more fully developed demand response strategy is key to transitioning to a low-carbon economy. Because of these insights, their work is useful for students of public policy as well as for policymakers themselves.

If an R&D technology push and increased focus on energy efficiency both seem insufficient cornerstones of the EU's approach to energy security, the authors offer what they call a "more market-friendly" approach, such as the European ETS (p. 127). While the authors consider other market approaches, such as a carbon tax or carbon intensity targets, they admit that these have historically failed to gain traction in the EU. Even though ETS has had modest success, it is also unlikely it will replace other decarbonization measures, though it can continue to run in tandem with other measures. If more intervention is not the answer, then, as this chapter shows, it is also difficult to rely solely on markets. As soon as one interventionary problem, such as winner picking, is mitigated, another takes its place, like unpredictable price outcomes. What this section of chapters demonstrates above all is that there is no perfect policy solution the European Commission could or should be pursuing to promote a more perfect Energy Union. The balance between markets and intervention must be precise, even as new technologies must be considered and the demand side of energy security must be rethought. In a number of areas, however, the authors note that the commission seems to lack the will and vision to coordinate a cohesive Europe-wide approach to implementing these initiatives.

The final chapters, 9 to 11, expand the focus of the book beyond the EU to consider the EU's global position. Chapter 9 examines the consequences of comparatively high European energy prices, such as carbon leakage, and discusses how to potentially provide cost relief for energy intensive companies that may consider shifting production out of Europe to countries with more carbon-intensive economies. Chapter 10 points out that some of the biggest challenges to the Energy Union are, first, the gap between frustrated Eastern European EU members' expectations of energy security and the security bloc membership actually provided; and second, complaints about Russian discrimination and overcharging. The authors argue that the EU should deal with their "Russia problem" by engaging partner countries in international institutions and continuing to integrate its members' national energy markets to protect against external shocks. Plan A: diplomacy. Plan B: absorb shock of supply cut. This absorption could be aided by a diversification of origin of supply, something the EU has long sought by trying to extend its supplies into central Asia through observer member Turkey. The authors here mention the United States as an ally in Europe's quest for diversification, but also point out that the United States' influence in central Asia has always been minimal and is waning in places like Turkey. What the authors do not discuss is the United States' potential as an alternative source for natural gas supplies. In April 2016, the first tanker loaded with liquefied natural gas (LNG) left Louisiana's ports bound for Portugal, though the infrastructure to be able to export American LNG has been in the works on both the Atlantic and Pacific coasts for the past few years. The American gas boom could mean lower gas prices for Europe and a new competitor for Russia, though either scenario is likely some time away. The United States may ultimately pose a more hospitable trading partner for Europe than Russia, given the two are already involved in numerous international institutions. However, the authors are correct that rather than "wooing the goodwill of external producers," a better long-term strategy for the EU is to take energy security

into its own hands by strengthening its resilience (p. 188).

The final chapter returns to the original research question this book poses as to whether a European Energy Union is realistic or just rhetoric. The stumbling block is that the Energy Union is currently undefined, so the authors claim that we cannot actually know if and when it is achieved: "it is even more open-ended than the internal energy market integration that is one of its key components" (p. 182). There are, however, milestones that we can look for along the way to a fully integrated Energy Union, such as joint renewable subsidy schemes, a better coordination of national R&D, and the restoration of some central control to enforce policy, among others outlined in the chapter. The answer seems to be that an Energy Union is within the realm of possibility if the correct challenges are addressed; otherwise, Europe's energy solution will fall short of its ill-defined problem.

Though I have tried to summarize most of the main points and strengths of Buchan and Keay's work here, it is impossible to do justice to the detail of research the book offers. In terms of scholarship, the book is likely most beneficial to those interested in energy systems integration, integration policy, or electricity (as that is the sector on which much of the book focuses). This is also a must-read for scholars of the European Union or anyone interested in energy as a source of conflict or cooperation. As an educator, I see much potential for using the text in a graduate class or individual chapters in undergraduate courses. As the study of energy security engages so many different fields, so does this work lend itself to offering examples that could be applicable to many different types of courses. As I was reading, I made notes where various sections could be used to illustrate a prisoner's dilemma, the tragedy of the commons, free-riding, tensions between states and markets, and even IR liberal theory on institutional cooperation and economic integration.

My final thoughts would be to wonder what, if anything, may have changed since the British vote to exit the European Union. Though the United Kingdom could negotiate an appropriate relationship with the EU and comply with the rules of the Energy Union, it likely would not have a say in the formulation and interpretation of the rules. The United Kingdom would also lose EU funding for energy infrastructure and it may be more difficult for multinationals to work in the North Sea area. Of course, we cannot know for sure as the British exit is in the earliest stages of unfolding, but it will be interesting to follow developments in the energy sector.

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