

BOOK REVIEWS

Generating Electricity in a Carbon-Constrained World, edited by FERREIDON P. SIOSHANSI (Burlington, MA: Academic Press, 2010) 664 pages ISBN: 978-1-85617-655-2, hardback, \$135.

This book consists of 19 contributed chapters on various aspects of greenhouse gas (GHG or “carbon”) policy for electricity. The book itself is broken into three broad headings. The first consists of five chapters on the dimensions of “The Carbon Challenge,” including emissions data and markets for allowances and offsets. The second section, entitled “Solutions,” contains chapters on the abatement potentials of various generating technologies, as well as efficiency improvements. Part 3 includes seven diverse chapters on “Case Studies” of utilities and regions, followed by an editor’s epilogue.

Chapter 1 of Part 1 is a summary of data on global emissions by Alan Moran of Australia’s Institute of Public Affairs. Upon reading it, one might wonder why the rest of the book exists at all. Moran, in essence, says that reductions of the magnitude deemed necessary by the Stern Report and the U.N. Intergovernmental Panel on Climate Change will be economically disastrous and politically unthinkable, particularly if they must be global in scope. Perhaps because they are only concerned with electricity, the authors of the other chapters in Part 1 never return to questions of feasibility and effectiveness. This part of the book contains another useful chapter, a well-written summary by Reiner Musier and Parviz Adib on the theory and emerging practices of cap-and-trade markets, with an informative section on the likely complexities of market operation and the verification and tracking of permits to emit. (A similarly informative chapter in Part 3 by Udi Helman et al. surveys the difficulties of integrating climate policy with the emerging U.S. regime of regional transmission operators and energy markets.)

The other three chapters in this section are from the bottom of a mixed bag. Benjamin Sovacool and Marilyn Brown present a few generalities comparing local to global carbon policies, concluding with vague allusions to possible synergies. A simulation by Emile J.L. Chappin and coauthors unsurprisingly finds that, even with tight caps, the long lifespans of powerplants and delays in investment mean that significant carbon reductions will not materialize for several decades. Unfortunately for the reader, there are no usable comparisons with the assumptions and findings of other models. Last is a speculative chapter by Tina Fawcett and her colleagues, who propose a program to issue all members of society identical (and exchangeable) carbon allowances for their individual emissions, and somehow enforce them. She likes the redistributive consequences and sees good in the program’s educational value and its potential to cause major

lifestyle changes, which she expects the population will gladly accept. The simulations cover two countries (UK and Denmark), with no discussion of leakages that can only be stopped if the program is made worldwide.

The chapters in Part 2 on “Solutions” are problematic, often the case in collections of this type. Each is written by an expert on a particular technology. Whether by intent or coincidence, each chapter is largely about the feasibility and abatement potentials of the generators its authors support. The exception is a useful background chapter by Klaus Lackner and his colleagues on emerging technologies for carbon capture and sequestration from coal-fired generators. Where comparisons are made at all, the alternative is almost invariably coal. Wind, geothermal, solar and other technologies compete in markets, but for unknown reasons the authors avoid making comparisons among renewables.

The solution in almost every chapter of Part 2 is invariably renewables, at times accompanied by familiar claims that small engineering advances, larger subsidies, or favorable regulations are all that is needed to make a particular technology commercially viable. Since all these incentives already exist for most renewables, one wonders why viability is always in the near future.

At least three of the authors endorse renewable-portfolio standards, which would not be necessary if renewables actually were viable, and for which there are few if any valid economic rationales. One “solution” conspicuous by its absence is natural gas, which gets no chapter of its own and hardly a mention in the chapters on renewables. As a practical matter, gas-fired generation is far more greenhouse-friendly than coal, and one that will be needed in substantial quantities if intermittent renewables become a larger percentage of the nation’s generation mix. Reserves of “unconventional” gas are growing rapidly, and extraction technologies are available at competitive costs. This most practical transition fuel gets zero pages, while solar (modestly entitled “the largest energy resource”) gets thirty. This book appears to be more about the hopes of its authors than about real solutions.

The alternative of efficiency investments takes up a wide-ranging chapter by William Prindle and his colleagues, who summarize the now-conventional wisdom. Much of that wisdom comes in the form of estimates of massive efficiency-related savings that will materialize as soon as people wise up and stoop down to grab the dollar bills languishing on their sidewalks. Some of the economics is outrightly incorrect. Prindle believes that most homes are inefficient because “builders typically act as agents for homeowners” and “[tend] to seek minimum capital costs for the building . . . because [builders do] not pay the ultimate energy bill.” (pp. 218–219); if they are the homeowners’ agents, why do the homeowners tolerate unnecessarily high energy bills? In any case, even conservationists generally agree that efficiency improvements are capitalized into home values. In this chapter, “market failures” are everywhere, but a philosopher-king could legislate and regulate them away. The possibility that government could do things inefficiently or make them worse does not seem to cross Prindle’s mind. Few people who read the 2009 energy legislation that passed the U.S.

House (but as of this writing, not the Senate) are likely to conclude that its Congressional drafters meet minimal standards for philosopher-kings.

Suspensions about policy are intensified by the case studies of Part Three. Most of these either tell us little of relevance, or they tell us that ambitious policy plans are not working. Geoffrey Bertram and Doug Clover's chapter on achieving hydro-rich New Zealand's goal of 90 percent renewables with wind and biomass generation is about a singular nation. Representativeness questions also come up in the chapter by Jean-Paul Bouttes and coauthors on integrating heavily nuclear Electricité de France with the emerging EU Emission Trading Scheme. Two other accounts are about obstacles encountered in the United Kingdom and Ontario. According to Nigel Cornwall, the UK has repeatedly failed to meet targets in renewables and combined heat and power (CHP) plants, while the political climate favors retention of coal plants and investment in gas. Roy Hrab and Peter Fraser describe how the regulatory goal of retiring all of Ontario's coal-fired generation (25 percent of capacity) by 2007 has been moved up to 2014 as financial issues have slowed the growth of non-coal generation and reliable interconnections. (They also note that the bulk of the province's coal-fired pollution will still come from transborder flows with the eastern U.S.) The chapter on China by Joanna Lewis and her colleagues is written in a tone of optimism about renewables, particularly wind and hydro, but there is no hiding the facts that China's coal-fired generation will continue to grow and that its government will not imperil economic development for the sake of climate policy.

Part 3 of the book brings us full circle. Having previously encountered the daunting figures on emissions that must be abated and the politically unbearable costs of doing so, we come to actual policies. Where the policies are effective at all, they are failing to produce the reductions that allegedly will be necessary, with no sign that they are likely to do so in the future. Still, more governments are instituting their own GHG policies. Frank Harris and Gary Stern, employees of Southern California Edison – a large regulated California utility, put the best possible face on their company and the state's upcoming greenhouse regulation, including a good summary of the difficulties in accounting for power imported from unregulated areas. Whether California's cap-and-trade system will ever begin operation is becoming less certain as candidates for statewide office promise to put a moratorium on the policy and a ballot initiative seeks to void the enabling legislation. However one views the status of climate science and an alleged scientific consensus, events beginning in late 2009 have put the issues in a very different light, as critiques of hitherto-accepted findings multiply and the integrity of their advocates comes into question. This may be the last book simply to assume for the sake of realism that aggressive climate policies will proliferate. If the politics continues in its new direction, the really interesting book will be the one about how efficiently to undo climate policies that are already in place.

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Electricity Reform in Europe: Towards a Single Energy Market?, edited by JEAN-MICHEL GLACHANT and FRANÇOIS LÉVÊQUE (Cheltenham and Northampton: Edward Elgar) 352 pages, ISBN 978-1-84720-973-3, hardback.

This volume of edited papers results from a research project under the Co-ordinating Energy Security in Supply Activities (CESSA) funded by the European Commission in 2004–2005. Continuation funding under a similar heading was provided for 2007–2009, and earlier outcomes from the 2004–05 scheme were published as a 2005 special issue of this journal on European Electricity Liberalization. As an outcome of a series of meetings, the book is unusually integrated, with extensive cross-referral among the chapters, and forms part of an ongoing discussion about integration of energy markets in Europe (and indeed elsewhere, as the foreword by Paul Joskow makes clear).

The book, therefore, provides an extensive and authoritative overview of the technical issues in European energy markets, with the foremost researchers in the area (who were engaged in the project) authoring the various chapters. However, its very scholarly attributes, and to some extent the timing of its writing and publication, may detract from its ability to confront the basic challenges of working towards a European electricity market, challenges which have intensified with the financial crises of 2008–09 and the accompanying concern about both liberalised markets and the ability of regulators to control markets and market power.

The theme of the book is a single European electricity market, and the authors take different attitudes about the success of this project – with some portraying the glass as half full and some as half empty. Progress towards a single market – or perhaps more realistically a series of regional markets – has clearly been made, but there are still serious barriers to its accomplishment. Many of these are identified clearly in the book, for example, the continuing arguments for national champions, the corresponding persistence of state aid, the paucity of instruments to address market power where merger policy is effectively the only tool (and this has not always been wisely exercised), and the importance of transmission constraints in bestowing market power. Some receive less attention, such as the issue of the distributional effects (and corresponding political resistance) and the role of the consumers, both residential and industrial, in contributing to the success of reform.

The book is structured into three main sections, with a foreword and a ‘postface’ (perhaps ‘afterword’ would have been a clearer title). It provides an excellent overview of the concerns of the industry and the politicians in the middle of the first decade of the twenty-first century. Joskow’s foreword provides a valuable comparison with the US, particularly in the different uses of federal and state power in each jurisdiction. Of course, the EC is not a federation in the same sense as the US, but the comparison is helpful to identify how the political differences

affect the markets, and how significant the different nation states are in the European debate. In particular, Joskow points out the important role of the Federal Energy Regulatory Commission in the US, a role whose absence in the EC seriously hampers co-ordinated progress. Indeed, difficulty in creating such a role despite its obvious advantages illustrates clearly the effect of nation states' reluctance to yield discretion in such a politically delicate area.

The first main section of the book consists of a chapter written by the editors and the leaders of the project, Jean-Michel Glachant and François Lévêque, on the main question of the book "The electricity internal market in the European Union: what to do next?". The chapter is helpfully structured into five main areas for improvement, with recommendations for priority and secondary action under each, which are summarised at the end of the chapter. The main areas for improvement considered were the market design within Member States, the EU internal-market design, the transmission and transmission system operators' governance, and the governance of the regulators and regulatory process. The fifth area, EU industry structures, was titled 'coping with' rather than improving, acknowledging the weakness of instruments in this area. The editors raise a number of interesting issues, including the relationship between the first two categories – design within nation states and across the EU.

These themes are developed in the six chapters of part 2 of the book, which assesses core issues in making a European market. Lars Bergman takes up the issue of market power and the appropriate role of merger policy (and, if possible, other instruments). David Newbery discusses issues of market design, drawing on the country experience of the project participants to identify the issues that have arisen in different places and stages of the industry. Einar Hope and Balbir Singh argue for harmonisation and standardisation within the industry, from measurement to contract arrangements, and also address the thorny problem of harmonisation across sector specific regulation and general competition policy. Christian von Hirschhausen and Georg Zachmann address the more serious problems of integrating the new member states. Ignacio Pérez-Arragio and Juliá Barquin outline the challenges of designing a market to attract sufficient investment for sustainability, and the increasing recognition of the importance of vertical integration between retail and generation stages. Richard Green, Arturo Lorenzoni, Yannick Pérez and Michael Pollitt then discuss different measures for comparing and encouraging progress.

The third part of the book explores three issues in more depth – Yves Smeers on measuring market power, Georg Zachmann on measures to assess the degree of integration of the electricity systems of the new member states, and Pantelis Capros and Leonidas Mantzos on scenarios for European planning.

The postface is perhaps the most poignant part of the book, written by Jorge Vasconcelos, formerly Portugal's regulator and chair of the Council of European Energy Regulators, which has acted as a 'voluntary' trans-European regulator, with all the benefits and frustrations of such an arrangement. He takes the reader through the historical stages of European policy as if it were a play, with

different acts and scenes, and demonstrates that more progress is needed, calling for “innovation at all levels: technological, institutional and entrepreneurial.” As Vasconcelos says, it does not seem likely that the big players currently in the market will themselves eagerly pave the way for further innovation in this market, so the ideas of new entrants are sorely needed. However, the greatest challenge must surely be institutional innovation, which requires political will for member states to yield power on this issue to Brussels. A successful internal electricity market (or markets) can be created only when the political trade offs involved in the three main challenges of security, sustainability, and affordability are addressed directly by the EC and its member states both at national and transnational level. At that time, the technical guidance and expertise in this book will be a valuable resource, and provide guidance for the appropriate direction for detailed policy. However, the immediate challenge is political rather than technical. The loss of confidence in markets and their regulators at the end of the first decade of the twenty-first century makes its successful resolution a matter both more difficult and more urgent. In their continuing work, this interaction with the political reality may pose even bigger questions for the CESSA team than those outlined in this volume.

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