

ter 7, pp. 126–148); (2) investigating the land use system of Rapa Nui (an eastern Pacific Ocean island); and (3) subsistence systems in the tropical rain forests of Sarawak, Malaysia (Barton and Paz, chapter 4, pp. 50–77).

Two chapters deal with methodological issues: conceptual framework of early food production and molecular signals of domestication (Jones and Brown, chapter 3, pp. 36–49); and Harris (chapter 2, pp. 16–35) urging the demolition of constraints to our thinking on hunter-gatherers versus agriculturists by employing the newer techniques such as molecular biology and micromolecular techniques (phytolith, pollen, starch, parenchyma analysis). They have been reiterated by Jones and Brown also in their contribution.

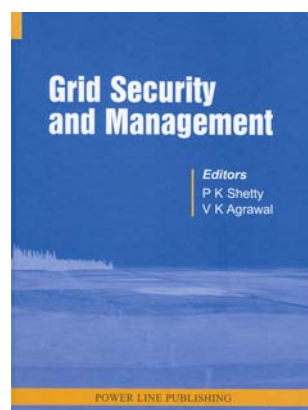
The volume has been produced ‘economically’ with narrow margins and doing away with several of the punctuations that we are accustomed to using in even general writings. The reviewer saw just one error – the correct figure of figure 14.1B is not given; what is given is a repeat of figure 14.1A.

Altogether, most contributions in this volume chart new thoughts and approaches in our traditional thinking on agricultural origins and definitions. The volume also urges us to develop fresh thinking on our deeply embedded thoughts and concepts on centres and non-centres of crop plant origins.

This volume is strongly recommended to all scientists interested in agricultural origins and ongoing archaeological studies worldwide.

N. M. NAYAR

*Department of Botany,
University of Kerala,
Thiruvananthapuram 695 581, India
e-mail: nayarnm@dataone.in*



Grid Security and Management. P. K. Shetty and V. K. Agrawal (eds). Power Line Publishing, B-17, Qutab Institutional Area, New Delhi. 2009. pp. 190. Price: Rs 600.

Reading an edited volume is easy, since there are a number of chapters or sections each on a different topic, unlike, say, a mystery novel, which you cannot readily put down in between. Reviewing an edited volume is a different story. Given the breadth of coverage, with 22 sections written by eminent and experienced professionals, it is highly impossible to summarize what is covered. The authors have written about most of the aspects of a power grid, mostly in the Indian context but with some sections covering general theory or findings. My understanding of the book’s interpretation of the ‘grid’ is one of the transmission network, even though, distribution is also part of the grid. Within transmission, the focus is much more on national transmission, given the multitude of authors with national transmission backgrounds.

One thought running continuously through my mind was who would be the audience for this work? Anyone interested in the power grid, perhaps (planners, designers, operators, policy-makers, etc.). Not uniquely, the book faces the challenge many edited volumes face, which is a different tone, style and depth of coverage different authors provide on different topics. In particular, it was unclear which sections were meant to be descriptive, and which ones prescriptive. Thus, by the time I was done reading the first time, I was waiting for the final answer or summarizing theme to come through plainly. Instead, I reread sections of the book of particular interest and took from them nuggets of information and high-level insights, which readers

might want to do as well. A longer, integrating summary by the editors might help readers, especially those unable to go through the volume in its entirety.

The book provided me with a number of lessons and ideas, but how these could become operationalized is unknown. For example, transmission lines are designed for some base (assumed) temperature and windspeed. But windpower only generates power (rather, vastly more power) when windspeeds are high. Thus, transmission lines from windfarms might safely carry much more power if such dynamic calculations are taken into account. Excellent point – but who will redo current designs and operating norms?

Given grid security and management is not a purely technical issue, rather, it is an integrated design issue, I had hoped to find more coverage of the issues where technology, policy, economics and design intertwine – there was only limited coverage of such issues, e.g. only one section on congestion pricing systems and their trade-offs (in one of the most technical but important and well-written chapters, on transmission loss allocation).

The book is not split up sequentially, and there is some overlap in what the authors cover. Broadly, there are five topics covered, viz. planning, technology, market design/operation, implementation and operational challenges, and social/human concerns. Of these, the book is strongest on issues of technology and the theory of market design, but the sections on social and human concerns are very high level. In addition, there is not an operational definition of ‘security’, which is half the title of the book. Broader issues of security (not just supply security) are not covered much, such as resilience, terrorism or cybersecurity (increasingly important in a grid utilizing more IT and telecommunications, e.g. for phasor measurement units (PMUs)).

Overall, the book takes a rather normative view of many aspects of the power system, sometimes highlighting general (and known) issues like lack of skilled human resources. Markets are treated as a unilateral good, without discussing tradeoffs or limitations of markets, especially under conditions where supply is less in demand. In such conditions, prices would necessarily rise, perhaps too high for regulatory or government comfort. Similarly, a number of

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terms are treated as a given, without enough discussion of issues. For example, 'open access' is a desirable feature, but the devil is in the details of design and implementation. This has been touched upon in the chapter written by a member of the IPP (Independent Power Producers) Association, citing examples where a Government Act or Regulation was not implemented according to their interpretation until judicial intervention.

While the book has a technology focus, decision-makers and the broader audience would benefit from more discussion of costs. For example, when discussing new technologies like specialized conductors or even high-voltage DC transmission, there are cost trade-offs which typically translate into an optimal 'sweet spot'. Similarly, when discussing the importance and growth of power exchanges, no mention is made of prices on such exchanges, important to help gauge their efficacy. (This is beyond any discussion of the fact that power exchanges

handle a very small fraction of the country's power.)

There were a few things I had expected to find meaningful (or even any) coverage on, such as grid level storage technologies, superconductors and flexible AC transmission systems (FACTS). One of the other things, I would have liked to have seen was an index – given the vast scope of topics, finding which authors did (or did not) cover a topic was challenging. A number of topics are covered by different authors, mostly in agreement, but sometimes even in contrast with each other. This, to me, was a refreshing point about the book, the different authors bringing in different real-world experiences and viewpoints (e.g., the role of regulators).

One section on newer technologies points out that highly detailed measurements are only one issue: 'The next stage would be to design a decision-making system'. This highlights one important issue that a subsequent volume can expand upon – how to design and operate

a grid, and how the two are linked. The two stages of decision-making are in the new design for expansion (or replacement), and in the day-to-day operations, which are in the context of a given system. The subtleties and harder challenges of grid security are in how the two are linked.

This book is not a how-to guide, but provides useful reading for those wanting to learn more about multiple aspects of grid security and management. Those wanting to definitively learn about more technical design issues and operational guidance can continue learning about the specifics through more in-depth references and specialized training.

RAHUL TONGIA

*Centre for Study of Science,
Technology, and Policy (CSTEP),
Raj Bhavan Circle,
Bangalore 560 001, India
e-mail: tongia.cmu@gmail.com*