



A New Swing-Contract Design for Wholesale Power Markets

Leigh Tesfatsion (Original Author)

E-Book	978-1-119-67014-8	December 2020		\$108.00
Hardcover	978-1-119-67012-4	December 2020	<i>Print-on-demand</i>	\$135.00
O-Book	978-1-119-67015-5	December 2020		Available on Wiley Online Library

DESCRIPTION

Provides comprehensive information on swing contracts for flexible reserve provision in wholesale power markets

This book promotes a linked swing-contract market design for centrally-managed wholesale power markets to facilitate increased reliance on renewable energy resources and demand-side participation. The proposed swing contracts are firm or option two-part pricing contracts permitting resources to offer the future availability of dispatchable power paths (reserve) with broad types of flexibility in their power attributes.

A New Swing-Contract Design for Wholesale Power Markets begins with a brief introduction to the subject, followed by two chapters that cover: general goals for wholesale power market design; history, operations, and conceptual concerns for current U.S. RTO/ISO-managed wholesale power markets; and the relationship of the present study to previous swing-contract research. The next eight chapters cover: a general swing-contract formulation for centrally-managed wholesale power markets; illustrative swing-contract reserve offers; inclusion of reserve offers with price swing; inclusion of price-sensitive reserve bids; and extension to a linked collection of swing-contract markets. Operations in current U.S. RTO/ISO-managed markets are reviewed in the following four chapters, and conceptual and practical advantages of the linked swing-contract market design are carefully considered. The book concludes with an examination of two key issues: How might current U.S. RTO/ISO-managed markets transition gradually to a swing-contract form? And how might independent distribution system operators, functioning as linkage entities at transmission and distribution system interfaces,

make use of swing contracts to facilitate their participation in wholesale power markets as providers of ancillary services harnessed from distribution-side resources? In summary, this title:

- Addresses problems with current wholesale electric power markets by developing a new swing-contract market design from concept to practical implementation
- Provides introductory chapters that explain the general principles motivating the new market design, hence why a new approach is required
- Develops a new type of swing contract suitable for wholesale power markets with increasing reliance on renewable energy and active demand-side participation

A New Swing-Contract Design for Wholesale Power Markets is an ideal book for electric power system professionals and for students specializing in electric power systems.

ABOUT THE AUTHOR

LEIGH TEFATSION received the Ph.D. degree in economics from the University of Minnesota, Mpls., in 1975, with a minor in mathematics. She is Research Professor of Economics, Professor Emerita of Economics, and Courtesy Research Professor of Electrical & Computer Engineering, all at Iowa State University. Her principal current research areas are electric power market design and the development of Agent-based Computational Economics (ACE) platforms for the performance testing of these designs. She is the recipient of the 2020 David A. Kendrick Distinguished Service Award from the Society for Computational Economics (SCE) and an IEEE Senior Member. She has served as guest editor and associate editor for a number of journals, including the IEEE Transactions on Power Systems, the IEEE Transactions on Evolutionary Computation, the Journal of Energy Markets, the Journal of Economic Dynamics and Control, the Journal of Public Economic Theory, and Computational Economics.

SERIES

IEEE Press Series on Power Engineering

To purchase this product, please visit <https://www.wiley.com/en-us/9781119670124>